Section III: Recommendations

Contents: Major Sections
Introduction
CHC Factors: Descriptors, Possible Performance Implications, and Recommendations
Memory
Fluid Reasoning
Visual-Spatial Thinking/Visual Detail
Visual Processing Speed
Nonverbal Learning Disabilities
Oral Language
Phonological Awareness
Basic Reading Skills
Reading Comprehension
Handwriting/Visual-Motor
Basic Writing Skills
Written Expression
Mathematics
Knowledge/Content Areas/Study Strategies
Homework/Time Management/Organization
Testing/Test-Taking
Attentional Disorders
Behavior Management and Interventions
Social Skills/Self-Esteem
Sensory Impairments: Hearing
Sensory Impairments: Vision
Transition

Contents: Major Sections and Subsections
CHC Factors: Descriptors, Possible Performance Implications, and Recommendations
Long-Term Retrieval (Glr)
Short-Term Memory (Gsm)
Processing Speed (Gs)
Auditory Processing (Ga)
Visual Processing (Gv)
Comprehension-Knowledge (Gc)
Fluid Reasoning (Gf)
Quantitative Ability (Gq)

Memory
Further Evaluation
Accommodations
   Giving and Following Directions
Instruction
   Repetition and Review
   Comprehension
   Multiple Modalities
Strategy Use
   General/Simple Strategies
   Mnemonic Strategies

Fluid Reasoning
Strengths
Accommodations
Instructional Approach
   Problem-Solving
   Reasoning

Visual-Spatial Thinking/Visual Detail
Note to the Reader
Further Evaluation
Strengths
Accommodations and Modifications
   General
   Visual-Spatial
   Visual Detail
Copying
Worksheets and Textbooks
Student Self-Management of Adaptations
   Writing
   Math
Instruction and Activities
   Visual-Spatial
   Visual Detail

Visual Processing Speed
Further Evaluation
Accommodations
   Shortened Assignments/Extended Time
   Instruction and Activities
Nonverbal learning disabilities (NLD)
  Further Evaluation
  General
  Social
  Organization
  Visual-Spatial
  Language/Instruction

Oral Language
  Further Evaluation
  Accommodations
  General Recommendations
  Teaching Approaches
    Teaching Principles
    Multi-modality Instruction
    Lectures
  Language Remediation
    Instructions
    Vocabulary
    Linguistic Concepts
    Word Retrieval
    Sentence Formulation and Generation of Ideas
    Sentence Structure
    Inference/Prediction
    Cohesive Devices
    Narrative and Expository Discourse Structures
    Verbal Reasoning
    Figurative Language
    Pragmatics

Phonological Awareness
  Note to the Reader: Phonological Awareness and Auditory Processing
  Further Evaluation
  Accommodations
  General
  Sample Programs
  Instruction in Phonological and Phonemic Awareness
    Rhyming
    Segmentation
    Sound Blending
    Sound Sequencing
    Sound Insertion and Deletion
    Sound Substitution and Transposition
Basic Reading Skills
Further Evaluation
Support
Accommodations and Modifications
   Instructional Level
   Assignments
   Taped Books
   Technology
Interest, Motivation, Self-Esteem
   School
   Home
General
Letter Identification
Letter-Sound Associations
Phonological Awareness to Print
Phonics
   General
      Synthetic Phonics
      Analytic Phonics
      Embedded Phonics
Multisyllabic Words
Sight Word Identification
   Further Evaluation
   General
      Strategies for Sight Word Instruction
      Survival Sight Vocabulary
Reading Practice in Decodable Text
Reading Fluency
   Further Evaluation
   Accommodations and Modifications
   Methods
      Speed Drills
      Repeated Readings and Choral Reading
      Reading with Taped Books
Altering Rate
Fluency/Comprehension
**Reading Comprehension**

Further Evaluation

Accommodations

- Instructional Level
- Color Coding
- Taped Books

General Recommendations

Prereading Activities

- Activating/Evaluating Background Knowledge

Vocabulary

Context Clues

- General
- Cloze Procedure

Strategies

- Predicting/Making Inferences
- Retelling/Paraphrasing
- Questioning
- Study Guides

Text Structures

- Narrative
- Expository

**Handwriting/Visual-Motor**

Further Evaluation

Accommodations: Visual-Motor

Accommodations: Handwriting

Feedback

Sample Programs/Software

Readiness

Materials

Grip

Practice

Reversals

Format

Spacing

Slant

Alignment

Letter Formation

- Manuscript
- Cursive

Rate

Self Monitoring/Evaluation
**Basic Writing Skills**

Spelling
- Further Evaluation
- Accommodations
- General Recommendations
- Word Lists
- Spelling Tests
- Rules
- Sample Programs

Spelling Strategies and Approaches
- General Recommendations
- Phonology to Phonics
- Orthography
- Morphology

Punctuation and Capitalization
- Further Evaluation
- Instruction

Editing
- Further Evaluation
- Feedback
- Assistance
- Strategies
- Checklists

**Written Expression**

Further Evaluation
- General Recommendations
- Accommodations
  - Computers/Typing

Motivation
- Journal

Grammar/Syntax/Morphology
- Vocabulary

Prewriting
- Topic Selection
- Background Knowledge
- Semantic Maps/Graphic Organizers
- Story Structure

Paragraphs
- Report Writing

Compositions/Essays

Revising
- Feedback
- Revising versus Editing
- Rewriting

Outlining
- Note-taking

Mathematics
- Further Evaluation
- Resources and Programs
- Instructional Approaches
- Technology in Mathematics Instruction
- Terminology
- Accommodations and Modifications
  - General
  - Homework
  - Visual Format
- Basic Math Skills
  - General
    - Self-monitoring
    - Noting Process Signs
- Number Sense, Numeration, Place Value
  - Concept Development
  - Classification: Creating Sets
  - From Sets to Numbers
  - Counting and One-to-One Correspondence
  - Using Numerals
  - Number Patterns and Ordinal Numbers
  - Recognizing and Writing Numbers
  - Place Value
- Basic Facts
  - General
    - Using Strategic Organization to Memorize Facts
    - Other Memorization Methods
    - Motivation
    - Fluency
- Algorithms
  - Teaching Concepts with Manipulatives
  - Teaching Algorithms
  - Reminders for Algorithms Sequences
Recommendations: Contents  p. 8

Application
Word Problems: Primary School and Above
   Problem-Solving Instruction
   Problem-Solving Strategies
Higher-Level Mathematics
   Problem-Solving Instruction
   Problem-Solving Strategies
Computer Software
Measurement and Estimation
   General
   Time
   Money
   Calendar
Life Skills Mathematics

Knowledge/Content Areas/Study Strategies
   General
   Accommodations
   Instructional Approaches
      General Instruction
      Background Knowledge
      Multi-Modality/Experiential Learning
   Learning and Study Strategies

Homework/Time Management/Organization
   General
   Communicating with Parents
   Making Homework Meaningful
   Modifying Homework Assignments
   Organizing Assignments and Materials
   Long-Term Assignments/Tests
      Completing Assignments
      Turning in Assignments
   Indirect Teacher Support of Student Organization

Testing/Test Taking
   Note to the Reader
   Test Instructions
   Test Format Modifications
   Strategies
   Extended Time on Standardized Tests
   Test Environment

**Attentional Disorders**

- Note to the Reader
- Further Evaluation
- Service Delivery and Documents
- Parent as Advocate, Educating School Staff, Case Managers
- Maintaining a Reality Perspective
- Class Placement and Class Schedules
- Environmental Accommodations
- Giving Instructions
- Helping the Student Follow Through on Instructions
- Maintaining Routines, Departures from Routine
- Teaching Approaches and Modifying Task Characteristics
- Beginnings and Transitions
- Increasing Attention and Time On Task
- Task Completion
- Improving Academic Performance
- Directing/Controlling Activity Level
- School-Home Communication
- Developing Self-Advocacy in Older Students
- Building/Maintaining Self-Confidence and Self-Esteem
- Non-Educational Treatment Considerations
  - Medication Usage
  - Monitoring Medication Effects
  - Counseling, Parent Training, Educational/Support Groups

**Behavior Management and Interventions**

- Further Evaluation
- Behavior Management
  - Proactive Strategies for Avoiding Classroom Problems
    - Classroom Rules
    - Monitoring Behavior
    - Reinforcing Behavior (apart from a behavioral intervention)
  - Correction and Redirection
- Behavioral Interventions
  - Setting Up a Behavioral Intervention
  - Parenting Skills Training
  - Negative Interventions and Consequences
  - Positive Reinforcers
  - Increasing Compliance to Requests and Directives
- Recess and Physical Education: Preventing Behavior Problems
  - Calm-Down Time
  - Relaxing Recess
- Emotional Disorders
Social Skills/Self-Esteem

Social Skills
- Further Evaluation
- Instruction/Training
- Promoting and Modeling Social Behavior in the School Setting

Activities

Self-Esteem
- General Recommendations
- Development and Appreciation of Strengths
- Understanding Weaknesses/Self Advocacy

Assignments
- Class Discussions
- Home

Sensory Impairments: Hearing

Note to the Reader

Primarily Oral Communication: Hard of Hearing/Auditory Processing
- Further Evaluation
- Accommodations
  - Technological
  - Environmental
  - Instructional
- Phonological Awareness, Phonics Approach for Basic Reading and Spelling Skills

Primarily Signed Communication: Deaf
- General Recommendations
- Reading Programs
- Basic Reading and Spelling Skills
- Reading Comprehension
- Content Area Instruction
- Behavior/Social Skills

Hard of Hearing, CAPD, Deaf: Oral or Signed Communication
- Further Evaluation
- Resources
- Technology
- Seating Arrangements
- General Instruction
  - Lectures and Content Area Information
  - Reading Instruction
  - English Grammar and Syntax
- Social-Emotional Competence
**Sensory Impairments: Vision**
- Further Evaluation
- Consultation, Collaboration, and Resources
- Accommodations
  - Environmental Accommodations
  - Technological Accommodations and Special Materials
  - Task Accommodations
- Inclusion
- Instruction
  - Orientation
  - Social Skills
  - Cognitive and Academic Strengths
  - Braille
  - Reading
  - Math
  - Content Area Learning

**Transition**
- Further Evaluation
- Elementary to Middle School
- Secondary to Vocational/Adult Living
- Secondary to Postsecondary Education
- Self Advocacy
- Accessing Community Resources
INTRODUCTION

Many excellent techniques and programs are available for teaching individuals with learning and/or behavioral difficulties. For the most part, those offered here are documented as effective in the research literature and/or are widely accepted in clinical use. The recommendations suggested are not meant to be exhaustive but are ones that the authors or their colleagues have used in classrooms and educational therapy or would include when writing reports. Consequently, omission of a specific technique or program should not be viewed as a lack of endorsement.

This section begins with “CHC Factors: Descriptors, Possible Performance Implications, and Recommendations.” This overview of the CHC factors provides a brief description of the factor, key words that might be used in discussing it, the ways in which a weakness in these abilities might be manifested in academics and daily life, and the focus of therapeutic help.

The recommendations in this section are arranged in categories, such as basic reading skills and math problem solving. Although an attempt was made not to duplicate recommendations, some of the recommendations are appropriate for more than one skill area and so the reader is directed to related sections. As examples, many of the recommendations for reading comprehension are also appropriate for written language or content area instruction, and many of the recommendations under phonological awareness are also appropriate for development of word attack and spelling skills. Wherever possible, the recommendations are ordered in a developmental sequence, progressing from the more elementary to the more advanced requirements of a skill or ability. Depending upon the severity of the problem, an older student may profit from recommendations at the readiness or beginning level of a skill. Conversely, a student advanced in an area may benefit from higher-level recommendations.

It is often appropriate to write recommendations to address a student’s strengths. Placing emphasis solely on difficulties can increase a student’s negative perceptions of self and school. The focus of this book, however, is on students who are struggling and need specific educational or behavioral interventions to profit more fully from school experiences. The majority of recommendations, therefore, are written to address areas of need. Specific examples of recommendations to address strengths are presented in the section on Self-Esteem and within the diagnostic reports. The final report should address both ways to capitalize on areas of strength, as well as ways to remediate or ameliorate academic and behavioral difficulties.

Before writing recommendations, first consider the referral question, review any important background information, analyze the results of diagnostic testing, and assess the specific needs of a student within an educational setting. The goal is to select specific modifications and interventions that will enhance an individual’s opportunities for success. For some reports, you may wish to organize the recommendation section by the person responsible for implementation and then adapt the wording accordingly. For example, you may make recommendations directly to a student or client, such as: “You should arrange appointments with each of your teachers at the beginning of each semester.” Or, a recommendation may be made to the student’s teacher, parents, or counselor, such as: “Help Tobias arrange appointments with his teachers at the beginning of each semester.” You may also organize recommendations by the major areas of concerns that are addressed (e.g., math, oral language, behavior, self-advocacy).
In some cases, clear distinctions are evident between a general recommendation for instruction and specific activities or programs that support that recommendation, that would be particularly beneficial to the student, and that give the teacher initial direction in carrying out the recommendation. When these distinctions are evident, a general recommendation is provided (e.g., Teach initial phonics skills using a multisensory approach) followed by a bulleted list of activities and programs. The recommendations in the bulleted lists are written so that they can be used independently, depending on the preference of the evaluator (e.g., Use a multisensory program to teach phonic skills, such as the Wilson Reading System. Originally designed for older students, this system is also useful for elementary students).

After identifying the areas of concern, read through a section of recommendations and select those appropriate for a particular student. Most of the recommendations have been written for providing individualized instruction, but they could easily be adapted, and sometimes were originally designed, to emphasize small group instruction. Some are appropriate for a whole class. All of the recommendations may be modified, rewritten, or combined, as needed. Based upon assessment results and consideration of the specific circumstances, most evaluators will create additional recommendations specific to the needs of the student.
CHC FACTORS: DESCRIPTORS, POSSIBLE PERFORMANCE IMPLICATIONS, AND RECOMMENDATIONS

The following provides descriptors and possible performance implications and recommendations regarding the factors in CHC theory represented in the WJ III COG. The intent is to explore the associations between these factors and performance. Some of the relationships are more clearly established than others.

Long-Term Retrieval (Glr)

Involves the ability to store and retrieve information through association. Glr is not to be confused with the amount of information available, a Gc function. Descriptors: Memorization, fluency, association, retrieval, paired-associate learning, transfer.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Learning and recalling information through association (e.g., facts, related ideas/concepts)</td>
<td>• Provide overlearning, review, and repetition</td>
</tr>
<tr>
<td>• Recalling information on tests through association</td>
<td>• Provide immediate feedback</td>
</tr>
<tr>
<td>• Using associations provided by the teacher to facilitate storage and later retrieval</td>
<td>• Provide a list of steps that will help organize behavior and facilitate recall</td>
</tr>
<tr>
<td>• Pairing and retaining visual with auditory information</td>
<td>• Provide multisensory learning; use visual, kinesthetic, vocal, and auditory channels as appropriate</td>
</tr>
<tr>
<td>• Retrieving specific words, memorizing poems, speeches, facts</td>
<td>• Provide context and meaning-based instruction.</td>
</tr>
<tr>
<td></td>
<td>• Limit the number of new facts, words, concepts presented in one session.</td>
</tr>
</tbody>
</table>
Short-Term Memory (Gsm)

Involves the ability to hold information in mental awareness and use it within a few seconds. May be influenced by attention. Descriptors: Rote, sequential, immediate, attention, auditory, concentration, limited duration, memory span, immediate awareness.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Following directions</td>
<td>• Keep oral directions short and simple</td>
</tr>
<tr>
<td>• Remembering information long enough to process it for</td>
<td>• Ensure directions are understood; have student or</td>
</tr>
<tr>
<td>understanding</td>
<td>paraphrase directions.</td>
</tr>
<tr>
<td>• Recalling sequences</td>
<td>• Provide compensatory aids (e.g., write directions,</td>
</tr>
<tr>
<td>• Memorizing factual information (e.g., math facts)</td>
<td>procedures, and assignments on board or paper,</td>
</tr>
<tr>
<td>• Listening to and comprehending lengthy discourse</td>
<td>Provide overlearning, review and repetition.</td>
</tr>
<tr>
<td>• Taking notes</td>
<td>Teach memory strategies (e.g., chunking, verbal</td>
</tr>
<tr>
<td></td>
<td>rehearsal, visual imagery).</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Processing Speed (Gs)

Involves the ability to perform relatively simple cognitive tasks automatically (i.e., quickly and without conscious deliberation), particularly when under pressure to maintain focused attention. May be influenced by attention. Descriptors: Speed, visual scanning efficiency, automaticity, perceptual speed, attention, concentration.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Processing information rapidly</td>
<td>• Provide more time to complete assignments</td>
</tr>
<tr>
<td>• Completing assignments within time limits</td>
<td>• Reduce quantity of work in favor of quality</td>
</tr>
<tr>
<td>• Taking timed tests</td>
<td>• Limit or structure copying activities</td>
</tr>
<tr>
<td>• Making rapid comparisons between and among bits of</td>
<td>•</td>
</tr>
<tr>
<td>information</td>
<td>•</td>
</tr>
<tr>
<td>• Copying</td>
<td>•</td>
</tr>
</tbody>
</table>
**Auditory Processing (Ga)**

Involves the ability to analyze and synthesize auditory stimuli (but not comprehend language, which is Gc). This ability is important for language development. Descriptors: Phonological awareness, blending, auditory closure, auditory discrimination, phonemic segmentation, musical ability.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Acquiring phonics (decoding)</td>
<td>● Provide phonological awareness activities (e.g., rhyming, alliteration, imitation, songs)</td>
</tr>
<tr>
<td>● Learning structural analysis</td>
<td>● Provide specific training in sound discrimination, blending, and segmentation</td>
</tr>
<tr>
<td>● Spelling (encoding)</td>
<td>● Emphasize sound-symbol associations in teaching decoding and spelling</td>
</tr>
<tr>
<td>● Speech perception</td>
<td>● Provide study guides for listening activities</td>
</tr>
<tr>
<td>● Learning foreign languages</td>
<td>● Provide assistance with note taking</td>
</tr>
<tr>
<td>● Developing musical skill</td>
<td>● Accompany oral information with visual materials.</td>
</tr>
</tbody>
</table>

**Visual Processing (Gv)**

Involves perceiving, analyzing, and thinking with visual patterns, spatial configurations and designs, and spatial orientation. Descriptors: Visual imagery, spatial relations, visual perception, visual closure, visual-pattern recognition.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Assembling puzzles</td>
<td>● Provide activities with manipulatives</td>
</tr>
<tr>
<td>● Using patterns and designs in art, geometry, geography</td>
<td>● Provide copying, tracing, drawing activities</td>
</tr>
<tr>
<td>● Designing</td>
<td>● Provide activities involving construction and design</td>
</tr>
<tr>
<td>● Building</td>
<td>● Verbally describe graphics and visually-based concepts.</td>
</tr>
<tr>
<td>● Sensing spatial orientation</td>
<td>● Provide support for tasks requiring spatial organization.</td>
</tr>
<tr>
<td>● Reading maps, graphs, charts, blueprints</td>
<td></td>
</tr>
<tr>
<td>● Noting visual detail</td>
<td></td>
</tr>
<tr>
<td>● Sensing spatial boundaries (e.g., fitting, assembly, and packing)</td>
<td></td>
</tr>
<tr>
<td>● Organizing, arranging furniture, appliances, equipment, etc. for efficient use and visual appeal</td>
<td></td>
</tr>
</tbody>
</table>

Comprehension-Knowledge (Gc)

Involves expressive vocabulary, ability to grasp the relationships among word meanings, and knowledge acquired from general experience within the mainstream culture. Gc is often called crystallized intelligence and sometimes long-term memory in the literature. Descriptors: Prior knowledge, background knowledge, schema, long-term memory, acquired or stored knowledge, vocabulary, comprehension, episodic memory, declarative knowledge, procedural knowledge.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning vocabulary</td>
<td>Relate new information to acquired knowledge</td>
</tr>
<tr>
<td>Answering factual questions</td>
<td>Assess prior knowledge before introducing new topics, concepts.</td>
</tr>
<tr>
<td>Comprehending oral and written language</td>
<td>Pre-teach relevant vocabulary or background knowledge</td>
</tr>
<tr>
<td>Acquiring general knowledge and knowledge in content areas</td>
<td>Provide specific vocabulary instruction such as the meaning of common prefixes, suffixes, and root words.</td>
</tr>
<tr>
<td>Using prior knowledge to perform activities and understand new concepts</td>
<td>Incorporate interests and prior knowledge areas into instructional activities</td>
</tr>
<tr>
<td></td>
<td>When presenting directions and discussing concepts, use vocabulary that is understood by the individual.</td>
</tr>
</tbody>
</table>

Fluid Reasoning (Gf)

Involves the ability to use inductive and deductive reasoning to ascertain commonalities and differences, form concepts, generate rules, and apply rules to solve novel problems. Often called fluid intelligence. Descriptors: Creativity, abstract problem solving, transfer, analogical reasoning, inductive reasoning, deductive reasoning, rule generation, inference.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawing inferences</td>
<td>Teach problem-solving strategies</td>
</tr>
<tr>
<td>Solving abstract problems</td>
<td>Provide overlearning, repetition, and review of concepts</td>
</tr>
<tr>
<td>Creating solutions to problems</td>
<td>Use real objects and manipulatives to develop concepts</td>
</tr>
<tr>
<td>Transferring and generalizing information</td>
<td>Teach strategies to increase understanding and retention of concepts (e.g., self talk, lists of procedures or steps)</td>
</tr>
<tr>
<td>Solving unique problems</td>
<td>Encourage creativity with solution</td>
</tr>
<tr>
<td>Transforming and extending a product or concept (rather than matching or reproducing a stimulus)</td>
<td>Teach problem-solving techniques in the contexts in which they are most likely to be applied.</td>
</tr>
<tr>
<td>Thinking conceptually</td>
<td></td>
</tr>
<tr>
<td>Problem solving through rule application</td>
<td></td>
</tr>
</tbody>
</table>

Recommendations: CHC Factors  p. 2

**Quantitative Ability (Gq)**

Involves the ability to comprehend quantitative concepts and relationships and to manipulate numerical symbols. Descriptors: Quantitative reasoning, mathematics application, computation, problem solving.

<table>
<thead>
<tr>
<th>Possible Implications</th>
<th>Possible Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reasoning with quantitative information</td>
<td>• Provide math-related instruction in developmental sequence</td>
</tr>
<tr>
<td>• Understanding math terminology</td>
<td>• Assess knowledge of the concepts underlying weak skills.</td>
</tr>
<tr>
<td>• Using numeric concepts</td>
<td>• Establish a strong understanding of the foundational concepts for new skills.</td>
</tr>
<tr>
<td>• Apprehending numeric relationships</td>
<td>• Use manipulatives or real objects to introduce new concepts and extend known concepts.</td>
</tr>
<tr>
<td>• Using math symbols</td>
<td>• Emphasize automaticity with math facts</td>
</tr>
<tr>
<td>• Performing math applications</td>
<td>• Allow use of fact charts, calculators when necessary</td>
</tr>
<tr>
<td></td>
<td>• Emphasize problem solving and higher-level skills</td>
</tr>
<tr>
<td></td>
<td>• Provide experience with practical math applications</td>
</tr>
<tr>
<td></td>
<td>• Introduce new concepts and procedures in the practical situations in which they will be applied.</td>
</tr>
</tbody>
</table>
MEMORY

Tests: Auditory Working Memory, Memory for Words (Gsm); Visual-Auditory Learning, Retrieval Fluency (Glr)

Related Tests: Visual-Auditory Learning-Delayed, Numbers Reversed, Understanding Directions, Story Recall, Story Recall-Delayed

Clusters: Long-Term Retrieval, Delayed Recall, Short-Term Memory, Working Memory

Related Clusters: Listening Comprehension

Related Sections: Oral Language, Homework/Time Management/Organization, Attentional Disorders

Contents: Memory

Further Evaluation

Accommodations

Giving and Following Directions

Instruction

Repetition and Review

Comprehension

Multiple Modalities

Strategy Use

General/Simple Strategies

Mnemonic Strategies

Further Evaluation

1. Because memory is not a very stable trait, readminister the memory tests at a different times of the day for comparison of performance (e.g., morning rather than late afternoon).

2. Administer additional assessments to determine if low memory scores are a function of poor memory or a reflection of [limited or poor attention, lack of initial comprehension.]

Accommodations

1. Teach the student how to be a self-advocate and request the specific compensations she needs to compensate for her memory difficulties.

2. Recognize that the student has difficulty on tasks that require her to manipulate information mentally. Provide strategies and accommodations to reduce the demands placed on working memory.

3. Because the student has difficulty with tasks involving memory, reduce the amount of information that she is required to memorize. For example, provide her with a calculator to compensate for her difficulty recalling math facts.

4. The student is more likely to remember the content of a lecture if she can devote her full attention to listening rather than dividing her attention between listening and note-taking. To this end, provide her with a copy of your lecture notes or a copy of the notes of a student who is a particularly good note-taker.

5. Based upon her difficulties recalling orally presented information, encourage the student to tape-record class lectures. Teach her how to take notes as she listens to the tape. Have her hit the pause button as she writes notes and rewind the tape whenever clarification is needed. Keep in mind, however, that this compensation consumes more time that listening to the initial lecture and so, should be used sparingly.

**Giving and Following Directions**

1. Limit the length and complexity of all instructions to the student and state them in the same order she is to do them.

2. When giving oral directions to the student, give only ___ direction(s) at a time. Allow her to complete it (them) before going on.

3. Ensure that you have the student's attention before speaking to her. If you are giving a series of oral directions, limit them to two or three steps, and ask the student to repeat them. If the directions are lengthy ask the student to write them down (such as the steps for a project).

4. Prior to giving directions, make certain that the student has secured and is attending to the relevant materials. For example, when explaining the directions on a worksheet, ensure that the student is looking at the assignment.

5. When giving directions for a task or assignment, write the steps on the board so that the student can review directions as often as needed.

6. When giving the student directions, incorporate visual illustrations as much as possible. For example, use gestures, draw on the board, or model the steps of a process.

7. When presenting the student with tasks involving several steps, provide a list of the steps on an index card or have the student write them down. Have the student check off each step as she accomplishes it.

8. Set up a buddy system for the student. Seat the student next to a responsible peer who will review directions with the student as needed and answer any questions that she has.

9. Teach the student to count the number of tasks or instructions, tell you the number of tasks, and repeat them as she touches her fingers, one instruction or task to a finger. Continue practice until she is able to repeat the tasks correctly in sequence.

10. Teach the student specific behaviors that will help her follow oral directions, such as listening carefully, writing down important points, asking questions, and waiting to start a task until all directions have been given.

**Instruction**

**Repetition and Review**

1. Provide intensive repetition, practice, and review in learning activities. To promote retention, provide activities to reinforce the skills or content at frequent and regular intervals, gradually increasing the intervals to less frequent and intermittent.

2. In each teaching session, before introducing new information to the student, review previous information from the last lesson and check for mastery.

3. When teaching the student new skills, provide frequent opportunities for practice and review. Provide systematic review within a few hours and for the next few days and then slowly fade review. Check retention after a week has passed without review, then two weeks, and a month.

4. Whenever it is possible, use a game format for learning (e.g., reviewing for a test by playing Jeopardy with the target information). The student will find it easier to attend to the information and hold it in mind long enough to process it more effectively.

**Comprehension**

1. Understanding facilitates memory. Ensure that the student understands the concept underlying any new information or skill, as well as how each aspect of the new information is related to every other part.

2. Due to the possibility of a weakness in memory, the student will find it easier to work with data mentally if she has a strong understanding of the related concepts.

3. Recognize that difficulties in memory and listening comprehension compromise the student’s performance in all subjects taught in a lecture-discussion format. Provide visual outlines, class notes prior to the lecture, a study guide to fill out during the lecture.

4. Because the student processes spoken language in meaningful contexts more effectively than in isolation, provide instruction in meaningful contexts and de-emphasize tasks involving rote memorization.

**Multiple Modalities**

1. When introducing new information and skills, provide the student with pictures to look at or a way to visualize and form associations regarding what she is learning.

2. Use graphic organizers to teach new concepts and information. When the student can picture how the ideas are interrelated, she will be able to store and retrieve them more easily.

3. As much as possible, provide the student with multisensory learning experiences. Present content and skill instruction using combinations of visual, auditory, tactile, and kinesthetic input or experience.
4. Present all types of verbal information accompanied by visual stimuli that clearly illustrate the concept being taught. Examples are: pictures, charts, graphs, semantic maps, and videotapes. Simultaneous visual-verbal presentation will improve comprehension and retention of information.

5. Provide experiential approaches to learning to enhance memory.

**Strategy Use**

**General/Simple Strategies**

1. To activate her awareness of strategy use, discuss with the student what strategies she uses to help her recall information. Then, suggest and teach other strategies to enhance recall.

2. Teach the student specific memory strategies and how to recognize which strategy may be most useful in a variety of situations, such as taking notes versus memorizing factual information for a test. Examples include: using verbal rehearsal, chunking, making ridiculous visual images composed of items that one has to remember, and creating first-letter mnemonic strategies.

3. Have the student put a colored rubber band on her wrist or tie a string around her finger as a reminder of a task that she is supposed to do. Have the student remove the rubber band or string as soon as she has completed the task.

4. Organization facilitates memory. Teach the student strategies for organizing all types of information and tasks, including [the content of reading material, school-related materials and notes, information for a test, tasks she has to accomplish over the month.]

5. Teach the student how to use index cards to review and memorize information. Write the information on the card and review the cards several times a day. Information can be categorized by color. For example, when studying a particular biological class (e.g., reptilia), the orders, families, genera, and common names can each be written in a different color.

6. Teach the student how to break down information to learn into smaller chunks. As she learns one piece of information, have her add in another piece, and then review the material that was previously learned.

7. Teach the student to make a list of tasks she wishes to accomplish by [drawing a simple picture, writing one keyword] for each task. For example, if she wants to remember to return a book to the library, she would [draw a simple picture of a book, write the word “book”].

8. Train the student to use verbal rehearsal for information or instructions that she has to remember for only a short time. For example, when trying to remember a phone number long enough to dial it, have the student repeat the number over and over until she is finished dialing.
Mnemonic Strategies

**Note to the Reader:** Mnemonics are memory techniques that help the learner alter the information to be learned in some way (recode), relate it to something familiar (relate), and recall it later (retrieve). Research demonstrates that students who use mnemonics remembering information more effectively than students who were not trained in these techniques. At times, when using a mnemonic technique, you may choose to create the mnemonic yourself rather than take the time to have the student do so. Although devising the mnemonic would be a helpful skill for the student to develop, it cuts down on the time available for teaching content and skills.

1. Teach the student a simple strategy to aid in recall. One example is the PAR formula, Picture it, Associate it, and Review it. This may be combined with the USA formula guide for clear visualization: **U** = Unusual, unforgettable; **S** = See the picture as vividly as you can using as many senses; **A** = Action, see the item happening with action (Herold, 1982). Provide systematic practice using this strategy for storing and retrieving information.

2. To recall multiple items, such as a shopping list or the parts of the body that are considered organs, teach the student the technique of forming associative images to recall information. Have the student create a visual scene that depicts strange or ridiculous interactions among the specific items to be remembered. Encourage the student to use as many senses as possible to create vivid pictures. Have the student practice retrieving the relevant information.

3. Teach the student how to use a first-letter mnemonic strategy, using acronyms and acrostics, to help her remember and recall facts and information. For first letter mnemonics to be effective, the information to be recalled must be familiar and meaningful to the student.

   a. To use an acronym, the student forms a word from the first letters of the words to be remembered. Some well-known acronyms are HOMES for the Great Lakes (Huron, Ontario, Michigan, Erie, Superior) and FOIL for the order of operations when multiplying two binomials (First terms, Outer terms, Inner terms, Last terms). If she cannot make an acronym out of the first letters, the student could use the first letter of the first word, the second letter of the second word, and so on, but must remember that she did so.

   b. To use an acrostic, the student takes the first letters of the words to be remembered and makes up an easy-to-remember sentence using words that have the same first letters as the words to be remembered. For example, the first letter of “Every Good Boy Does Fine” represents the names of the lines in the treble clef music staff, “Kings Play Chess On Fancy Green Soft Velvet” help recall the order of classification in the animal kingdom--Kingdom, Phylum, Class, Order, Family, Genus, Species and Variety.
c. Acronyms and acrostics can also be used as memory aids for more complex information such as a list of rules, biographical information, or the causes of a war by using key words as links. In this case, the student selects a key word from within each element of information and makes up either an acronym or an acrostic. The acronym/acrostic evokes the key word, which is then used to recall the information. For example, the acrostic, “In Fact, Rhinos Can Eat Many African Apples,” helped a student recall the Eight Examples of Poor Integrity that she had to recite as part of her test for advancement in taekwondo. The words, “In” and “Fact” were linked to the key words “improper” and “fixing,” reminding her of the examples, “The instructor who misrepresents himself and his art by presenting improper techniques to his students because of lack of knowledge or apathy,” and “the student who misrepresents himself by ‘fixing ’ breaking materials before demonstrations.”

4. Teach the student how to use substitute words to evoke images for memorizing individual words. When she thinks she may have difficulty remembering a word, have her think of words that sound like, or remind her of, the word and can be easily pictured in her mind. For example, she may remember the state, Minnesota, as a “mini soda.” Teach her how to form a link, or another association, with the next word or concept that she is trying to remember.

5. Teach the student how to use the method of loci to remember lists of items or key elements in an oral report, particularly when the elements must be recalled in a particular order. The student is to imagine traveling a familiar route (e.g., from home to school, around her bedroom) and choose a place on the route for each thing she must remember. She then imagines placing the first item in the first place, the second item in the second place, and so on. When she has to recall the items, she simple travels the route and retrieves each item in order. A critical element of this technique is for the student to create a strong mental link between the location and the item by creating a vivid mental image of the item interacting with the location. For example, if the student is giving a report on Arizona, has the major product as her fourth topic and a tree as her fourth location, she can picture the tree with leaves of copper. For different lists of items, have the student use different routes and locations.

6. Teach the student how to use a pegword (number-rhyme) system when she has to remember the order in which items or events occur. Each number from 1 to 12 has a specific rhyme, a pegword, associated with it. Have the student memorize the numbers and their rhymes or make up and memorize her own keywords: 1 - bun, 2 - glue, 3 - tree, 4 - door, 5 - dive, 6 - bricks, 7 - heaven, 8 - gate, 9 - wine, 10 - tent, 11 - elephant, 12 - shelf (Herold, 1982). The pegwords should be something concrete and easy to visualize. Then, the student creates a vivid image in which each item or event interacts with the pegword that indicates its number in the sequence. For example, the figure below shows the pegword mnemonic for the order of the events causing an earthquake.
One advantage of the pegword mnemonic is that the student does not have to go through each item in the series to get to the one she wants. The item’s number will allow her direct access to it.

7. Teach the student to use the keyword technique when she has to remember unfamiliar information, such as foreign words, facts and their referents, scientific terms, or content related vocabulary. First the student thinks of a word (keyword) that sounds like the word or a part of the word she must remember (target word). The keyword should represent a familiar, easily pictured, tangible object. Second, the student creates an strong association between the keyword and a picture that will recall the meaning of the target word or term. Finally, to retrieve the target word, the student thinks of the keyword, which triggers recall of the mental image into which it has been integrated, which triggers recall of the target word (Mastropieri & Scruggs, 1999a). For example, to remember the definition of igneous rock, the student might decide on “pig noose” as the keyword for igneous and picture a pig hanging by its leg from a noose over a small erupting volcano. As the lava flows down the mountain, it solidifies into igneous rock. Thus, when asked the definition of “igneous,” the student thinks of “pig noose,” recalls the image of the pig over the solidifying lava, and retrieves the definition of igneous rock as solidified molten rock. To remember the capital of Peru, the student thinks of a keyword for Peru—parrot—and for Lima—lima beans. The student then creates a mental image of a parrot, perhaps wearing a Peruvian shawl, eating lima beans. When a test asks for the capital of Peru, the student thinks of the parrot eating lima beans, and remembers Lima.

8. To help the student remember how to use the keyword technique, teach her IT FITS (King-Sears, Mercer, & Sindelar, 1992).
   - Identify the term.
   - Tell the definition of the term.
   - Find a keyword.
   - Imagine the definition doing something with the keyword.
   - Think about the definition doing something with the keyword.
   - Study what you imagined until you know the definition.
9. Teach the student to use a body-file system to help in remembering information. This technique is related to the method of loci. Retrieval cues for this mental filing system are body parts and locations. Have the student begin with the first six cues, body parts, from the top of the head to the tip of your toes: hair, nose, mouth, hands, pocket, foot. Have the student repeat and touch each place, until she can mentally visualize the six places without any touching. The next six places are spaces around the body that make an uncompleted circle: left, front, right, back, above, and below. Have the student memorize and practice the body spaces. Make sure that the student can visualize the 12 file places in the correct sequence. As she associates information, teach her to create vivid images in which the item or action to recall interacts with the ideas she is trying to associate with each of the body-file places. For example, an item she is trying to remember could be stuck in her hair or blowing her hair around (Herold, 1982).
FLUID REASONING

Tests: Concept Formation, Analysis-Synthesis
Related tests: Verbal Comprehension
Clusters: Fluid Reasoning
Related clusters: Thinking Ability

Contents: Fluid Reasoning
  Strengths
  Accommodations
  Instructional Approach
    Problem-Solving
    Reasoning

Strengths

1. Help the student learn to use his excellent reasoning skills and conceptual ability. Provide him with meaningful activities that will involve finding solutions to problems, understanding and applying rules, and predicting logical conclusions.

2. The student’s strength in fluid reasoning suggests that he has good aptitude for higher-level mathematics. Encourage him to develop these abilities and to pursue advanced math courses.

Accommodations

1. Help the student select courses in high school that emphasize practical and experiential learning and do not require a high level of abstract reasoning.

2. Even when the final solutions or answers are incorrect, provide the student with encouragement and praise for persistence in problem solving and attempts to discover a solution.

Instructional Approach

1. Due to the student’s apparent preference for deductive learning and reasoning over inductive, he will probably benefit more from explicit and systematic teaching than from a discovery learning type of approach.

2. Explain the concept of inductive reasoning to the student. Guide the student to examine several specific situations and formulate a general rule that applies for each case. Help him to develop an understanding of this concept by providing many situations in which to use it. Activities might include guided discovery, searching for patterns, and making comparisons and contrasts.

3. When teaching the student any new process or skill, provide slow, step-by-step instruction. Use manipulatives and concrete objects whenever possible to illustrate the concepts.

4. Because the student appears more adept at inductive than deductive reasoning, when teaching new concepts and skills, do not expect him to memorize and use theorems, rules, and codes to guide his work or to accept procedural information at face value. He needs to understand how the theorems, rules, or codes came about, how it is related to the function it is serving, and the associated concepts. The student needs to know "why" before he can understand and remember "what."

5. The student is having difficulty with conceptual level skills, especially in the areas of math and science, due to limited abilities in recognizing similarities and differences as a basis for forming new concepts. Provide explicit instruction in the development of categorization skills, moving from concrete to abstract materials and from simple comparison to comparison and contrast based on multiple attributes.

6. Help the student develop the concept of categorization so as to increase his ability to relate objects, events, components of problems, and other concepts by similarities and to apprehend the critical differences.

**Problem-Solving**

1. When teaching problem-solving strategies, present problem situations in areas where the student possesses expertise so that he can draw on his background knowledge as he learns the strategy.

2. Provide the student with practice in using problem-solving strategies that can be generalized to a variety of situations. Include the following steps: deciding what the problem is and what you would like the outcome to be; brainstorming possible solutions; considering which solutions are feasible; considering the positive and negative outcomes of each of the solutions; choosing the solution that seems best; trying it; asking if it is working; modifying it or selecting a different solution if the strategy does not work, and generalizing the use of the strategy so that it is self-initiated in multiple situations.

3. Teach the student a specific strategy to use for solving problems, such as one that includes defining the problem, task analysis, brainstorming alternative solutions, considering possible outcomes, choosing a solution, etc. Provide practice in application of the strategy in a variety of situations.

**Reasoning**

1. Guide the student in his development of reasoning skills by using the Hilda Taba Critical Thinking Strategies. These group-oriented, highly interactive strategies raise students' level of thinking and problem solving from dealing with concrete information to making valid and supported generalizations. An updated, organized description of these strategies may be found in *A Comprehensive Approach to Teaching Thinking* (Schiever, 1991).

2. Teach the student how to analyze tasks into their component steps and then to sequence the steps. Directly teach generalization to a variety of tasks such as writing a research paper or planning a trip.

3. Integrate higher-level thinking skills into daily lessons. Two good resource for activities that foster self-directed thinking are *Catch Them Thinking: A Handbook of Classroom Strategies* (Bellanca & Fogarty, 1986), *Creating the Thoughtful Classroom: Strategies to Promote Student Thinking* (Udall & Daniels, 1991) and *A Comprehensive Approach to Teaching Thinking* (Schiever, 1991). These books present strategies that may be used to teach thinking skills in all classes.
VISUAL-SPATIAL THINKING/VISUAL DETAIL

Visual-Spatial Thinking
Tests: Spatial Relations, Picture Recognition
Related Tests: Planning
Clusters: Visual-Spatial Thinking
Related Clusters: Fluid Reasoning

Visual Detail
Tests: Visual Matching, Decision Speed
Related tests: Rapid Picture Naming, Pair Cancellation, Reading Fluency
Clusters: Processing Speed

Related Recommendations: Basic Reading Skills, Basic Writing Skills, Handwriting/Visual-Motor, Mathematics

Contents: Visual-Spatial Thinking/Visual Detail
Note to the Reader
Further Evaluation
Strengths
Accommodations and Modifications
General
Visual-Spatial
Visual Detail
Copying
Worksheets and Textbooks
Student Self-Management of Adaptations
Writing
Math
Instruction and Activities
Visual-Spatial
Visual Detail

Note to the Reader: Because the effects of problems in visual-spatial thinking, in comprehending two-dimensional visual information as representing three-dimensional information, and perceiving visual detail are sometimes difficult to differentiate, these recommendations are placed into one section. The evaluator is advised to read through both subsections when looking for recommendations for students who have difficulty with visual skills.

Further Evaluation

1. Conduct further assessments that require the use of manipulatives and real objects.

2. Conduct further assessments that evaluate visual-spatial thinking abilities in a timed format.

3. Conduct further assessments that require the ability to reproduce patterns or designs, both two- and three-dimensional, and then to reproduce them from memory.

4. Conduct further assessments that require the ability to recall designs and patterns.

5. Because the student frequently has such difficulty with [keeping her place when reading, her eyes tiring and/or tearing while doing close work, seeing letters and numbers as double or fuzzy as her eyes tire, visual discomfort in normal light], recommend that she have a comprehensive vision examination from a qualified vision specialist.

Strengths

1. Because the student is superior in activities involving visual-spatial thinking, allow him to substitute projects (such as building a model) for more language-based assignments, such as presenting an oral book report.

2. To take advantage of the student's strong awareness of visual details, use visual displays in the classroom when illustrating key points.

3. Provide the student with activities and/or classes that will allow use of his excellent visual-spatial and mechanical skills.

4. Consider the student's superior visual-spatial processing ability when providing career and vocational counseling.

Accommodations and Modifications

General

1. In planning instruction for the student, consider how her difficulty with spatial organization and her inattention to visual details will affect performance. Think of ways to modify assignments and tasks so that the student can be successful.

2. For art assignments, relax standards of production and accept approximations of expected criteria.

3. Ensure that the student clears her desk completely before she begins any task. She should remove all extraneous materials from her desk. Attempt to reduce visual clutter from the area of the classroom in which she works.
Visual-Spatial

1. As far as possible, explain new skills and concepts to the student orally.

2. Do not ask the student to use any visual strategies that she finds confusing. Examples are webs, diagrams, and schemas for math operations.

3. Recognize that manipulatives, drawings, diagrams, and charts may overwhelm and confuse the student. Reduce the number of visual displays and instead provide clear verbal descriptions.

4. The student will have trouble interpreting and gaining meaningful information from visual displays, such as models, graphs, maps, diagrams, charts. Instead, emphasize sequential verbal approaches and provide explicit outlines and study guides to help to structure the student’s learning. [See Strategies: Study Guides.]

Visual Detail

When the students are doing seatwork, periodically pass the student's desk to make sure she has not inadvertently skipped items. If she has, point out the missed items.

Copying

1. The student is likely to experience extreme difficulty in copying material from chalkboards or textbooks and completing tasks that involve aligning information, such as writing basic math problems. Provide the student with a copy of notes from the board, as well as textbooks that she can write in.

2. Limit near- or far-point copying activities. When copying is necessary, do not require speed or accuracy.

3. Do not require the student to copy problems from her math or other textbooks. Instead, provide her with clear worksheets that contain only a few problems and plenty of white space.

4. Teach the student to use verbal mediation when she copies material from the chalkboard. Have her say each letter, word, or phrase as she copies it from the board to paper.

Worksheets and Textbooks

1. Find some quiet time and a private place to sit with the student and experiment with adaptations that would make it easier for her to do the classroom work. Try a variety of adaptations to see which seem to be most helpful and which ones she likes. Be creative with adaptations and view them as an ongoing project as they are likely to change as the type of work and materials change.

2. Provide the student with extra visual structure on worksheets and assignments. For example, arrange problems in numbered boxes or columns.
3. Do not penalize the student for placing information incorrectly on a page. Instead, provide graph paper and lined paper that will help the student organize her work. [See Strategies: Math Computation Forms.]

4. Adapt worksheets for the student’s use. Examples include clean copies, ample blank space between sections and items within sections, cut pages into sections and enlarge each section, have the student cover all sections except the one on which she is working, color coding.

5. Make all worksheets clear and clean looking. Keep visual information to a minimum and portions of it well separated.

6. To clarify the organization of a worksheet, border each section in colored highlighter. Items that are part of the same task comprise a section.

7. Use colored highlighting to indicate the order in which the student is to work on the sections. Choose a different color for each step and use them consistently. For example, green indicates the first part the student is to do, yellow the second, and red, the last. For example, instructions might be bordered in green, the reading passage bordered in yellow, and questions about the passage bordered in red. A section requiring a task unrelated to the passage would be cut off, enlarged, and presented separately.

8. Because the student has severe difficulty keeping her place and her eyes tire easily, she might prefer to use a window card, a large index card with a window cut out large enough to see one or two lines of print. White cards can cause glare; dull green or buff are better.

9. To reduce visual “busyness” of a page of print or numbers, make enlarged copies of the pages to be worked on or read. If creating worksheets on the computer, use large print with ample space between lines of print. Use a sans serif font with ___ point typeface.

10. The following are suggestions for reducing or eliminating the perception of visual clutter in any printed material:

   - Cut the worksheet into sections and work on one at a time;
   - Cover the sections on which the student is not working with a thin mousepad with a spongy back, cut to the correct size. Mousepads won’t slide around like paper templates do.
   - Make enlarged copies of the material. Allow the student to decide what size print is best.
   - Cut materials into sections and provide the student with only one section at a time.

11. When the student is working on a worksheet with different sections and activities, enhance the spatial organization of the page by using colors and frames. Use the following suggestions separately to avoid adding to the visual confusion:

• Draw a frame or border around each major section with a marker or highlighter;

• Highlight or draw frames around the different steps or components of a task, assigning a role to each color, such as (a) consistent colors to show the order in which to do the task (e.g., green is always first, yellow is second, and red, third), or (b) consistent colors to indicate the type of task component (e.g., blue for instructions, orange for examples of the task, green for the task items).

• Place boxes on the paper in the places where the student will write her name and the date.

• For tasks that require left to right work across the page, a green line on the left margin and a red line on the right margin will help the student stop at the end of a line and find the place to start on the next line. The student may need to verbalize: “Start on green, stop on red, go back to green.”

• Number the items, in a different color, on the worksheet in the order in which the student is to do them.

12. If possible, modify the light over the student’s desk to minimize glare or provide her with a slant board, which will accomplish the same purpose.

**Student Self-Management of Adaptations**

1. For any adaptation that the student has learned to do herself, make sure that the materials she might need are easily accessible and organized. Examples are highlighters or markers for color-coding, ready-made templates and the materials to make templates, line guides and cardstock in dull colors, scissors, and a slant board.

2. Teach the student how to analyze a worksheet herself by finding the separate sections, the instructions for each task, restating the task, and identifying the section of the worksheet it requires. Teach this skill using enlarged worksheets in different styles. Teach the student how to highlight or color-code sections herself.

3. Teach the student how to interpret the organization of a page of text that has an unusual format, such as a number of windows interspersed with columns of text and pictures. Also, help her by numbering the sections in the order in which she should read them.

4. To help the student keep her place in reading, teach her to use a large index card down the page, either under or over the line she is reading. White cards can cause glare; dull green or buff are better. As an alternative, show the student how to track along a line with her finger.

Recommendations: Visual-Spatial Thinking/Visual Detail  p. 6

Writing

1. To help the student with spatial orientation when writing, cue her to write from left to right and to observe the margins with a green line down the left margin and a red line down the right (green-go, red-stop). To help her write on the line, provide raised-line paper so she can feel where to place the letters on the line. To increase motor control in letter formation, have the student write with a fine-point felt-tip marker in the color of her choice. Raised-line paper is available from Pro-Ed, phone: (800) 897-3202, website: http://www.proedinc.com.

2. To help the student learn to space letters evenly and to leave a space between words, have her write on graph paper, one letter to a square with an empty square between words and two squares between sentences. Try out different size grids to find one that feels comfortable to her. Many teaching supply stores sell books of grids and charts for copying.

Math

1. The student’s difficulty in ordering her numbers in rows and columns causes her math papers to be messy and disordered, increasing her errors due to visual confusion. To help the student keep her numbers orderly, have her use graph paper with squares of a comfortable size for her to write in. Teach her to write only one number to a square. [See Strategies: Math Computation Forms.]

2. To avoid the visual busyness that adds to the student’s frustration and increases her errors, have her fold her paper into 4 or 6 sections, unfold it, and use the creases as borders for each section. She is to place only one problem in each section, insuring plenty of space around each. To prevent her mistaking the item number for part of the problem, have her number each section in the upper left corner and draw a circle around the number or write it with a colored marker.

3. When the student is copying math problems onto her paper, have her write the problem itself with a colored, fine-point marker but work the problem in pencil. The color contrast will help her distinguish between the digits in the problem and her own computation.

4. Teach the student to use verbal mediation to reduce her errors in copying math problems onto her paper from the board or from the textbook. Tell her to say the numbers of the problem she is to copy from, then say them again as she writes them on her paper. Teach her to chunk numbers to increase the number she can hold in memory. For example, for 2972, instead of saying, “two thousand, nine hundred and seventy-two or two-nine-seven-two,” she would say twenty-nine, seventy-two.”

5. When copying problems from a book, the student can avoid losing her place if she puts a piece of sticky paper over the last problem she copied. She looks at a problem in the book, writes it on her paper, moves the “sticky” over one problem (covering the item she just copied) and looks at the next problem. If using verbal mediation to help her remember the numbers, the procedure would be: look and say, say and write, move the “sticky,” (next problem) look and say, and so on.

6. For timed math fact drill, use flashcards instead of worksheets and test the student individually. Consider a fact automatic if she responds correctly within 3 seconds. Alternately, run through the math facts orally (e.g., teacher: “six plus seven,” student: “thirteen”).

**Instruction and Activities**

**Visual-Spatial**

1. Teach the student how to use the concepts of same and different to categorize real objects and manipulatives. Gradually move to 2-dimensional stimuli such as pictures, shapes, letters and numbers, and designs. Provide the student with activities that require classification. For example, have him sort a variety of objects by different attributes, such as size, shape, or color.

2. After initial instruction, in a pull-out setting, in interpreting a variety of visual formats (e.g., worksheets, books) have the student practice verbally describing the relationships of text to pictures, maps, graphs, charts, diagrams, and directions.

3. Provide the student with direct instruction in reading and interpreting maps, graphs, charts, and diagrams.

4. Encourage the student to participate in activities that have elements of visual problem-solving and manual manipulation, such as chess, designing and building, and art projects. It will be necessary to provide both guidance and support.

5. Encourage the student to talk himself through tasks that are visually based, such as reorganizing the furniture in his room or drawing a map of the school playground.

**Visual Detail**

Teach the student strategies that will help her attend to visual detail. For example, have her interpret and describe the elements of a picture. First have her name all of the things that she sees and tell you what, if anything, is happening. Then teach her to mentally divide the page any way that is easiest (quarters, columns). Have her trace slowly in a systematic way through the section with her finger. Direct her to stop each time she sees something she has not yet named and name it. When finished with a section, ask her to try and find the same things without using her finger. Practice until she is able to look at a visual field and scan it visually in an organized way. Work with this type of task using different types of visual fields until the student can scan a small environment, such as a room, and find specific objects. Use practical tasks.

VISUAL PROCESSING SPEED

Tests: Visual Matching, Decision Speed, Pair Cancellation, Rapid Picture Naming
Clusters: Cognitive Fluency, Processing Speed
Related Clusters: Academic Fluency
Related Sections: Basic Reading Skills: Reading Fluency; Mathematics: Basic Facts: Fluency

Contents: Visual Processing Speed
  Further Evaluation
  Accommodations
    Shortened Assignments/Extended Time
    Instruction and Activities

Further Evaluation

1. Administer additional processing speed tests. Attempt to determine if slow performance results primarily from poor scanning speed or poor attention.

2. Administer processing speed tasks that do not involve a motor component.

3. Due to his extremely low visual processing speed, refer the student for a vision exam to rule out or confirm inefficient functioning related to the eyes.

Accommodations

[See Recommendations: Visual-Spatial Thinking/Visual Detail, Basic Reading Skills, Basic Writing Skills, Basic Math Skills, Testing/Test-Taking.]

Shortened Assignments/Extended Time

1. Do not require the student to work under time pressure. Place the emphasis in evaluation on accuracy rather than speed.

2. Replace timed tests with alternative assessment procedures.

3. Because the student has difficulty performing tasks rapidly under pressure, provide her with ample time to complete her work or shorten assignments so that they can be accomplished within the period.

4. The student may need extra time to complete reading, math, or writing tasks. Make sure she is allowed this time in a way that does not bring negative attention to her.

5. Shorten drill and practice assignments that include visual information or require visual-motor skills, such as the repeated writing of spelling words.
Instruction and Activities

1. Slow visual processing of symbols could reduce the student’s reading speed to a degree that is significantly slower than her oral language and reasoning abilities, causing poor comprehension, frustration and boredom. Provide instruction to increase her processing speed specifically within the task of reading. Skills to train are reading fluency, ability to automatically recognize common letter sequences used in print, and sight vocabulary.

2. Provide the student with activities designed to increase her rate of production, such as recording the starting and stopping times on an assignment or using a stopwatch or timer to increase response rate.

3. Provide various timed activities, such as having the student read a list of high frequency words as fast or calculating simple math facts as fast as she can. Chart daily performance.

4. Have the student estimate the amount of time that it will take to complete a task. Have her write down the starting and finishing times.
NONVERBAL LEARNING DISABILITIES

Recommendations: Nonverbal Learning Disabilities

Related tests: Concept Formation, Spatial Relations, Picture Recognition, Decision Speed, Planning, Pair Cancellation, Quantitative Concepts, Calculation

Related Clusters: Visual-Spatial Thinking, Oral Language, Processing Speed

Contents: Nonverbal learning disabilities (NLD)

Further Evaluation

General

Social

Organization

Visual Spatial

Language/Instruction

1. Provide the student with a comprehensive evaluation to confirm or rule out the existence of a nonverbal learning disability. The evaluation should include: (a) developmental history, (b) neuropsychological testing, (c) a speech and language evaluation, (d) an occupational therapy evaluation, and (e) an academic evaluation.

2. Refer the student for a speech language evaluation to assess the student’s ability to use language for social purposes (pragmatics).

3. Refer the student to an occupational therapist to evaluate both fine and gross motor skills.

Further Evaluation

1. For educational planning, review and determine appropriate recommendations and interventions from the book The Source for Nonverbal learning disabilities (Thompson, 1997). This resource provides many strategies for assisting the student in the classroom.

2. Recognize the profound effect that NLD can have upon academic achievement. The student is likely to experience difficulty in aspects of reading comprehension, motor coordination, mathematics, and visual-spatial organization.

3. Recognize that students with NLD often demonstrate severe difficulties in subjects that involve complex problem solving and concept formation. Structure and adjust the difficulty level of tasks so that the student can be successful.

4. Although the student’s excellent rote memory will help her succeed with tasks in the lower grades, she will experience increasing difficulties as the academic demands shift to more complex applications.
5. Consider that nonverbal learning disabilities will impact both academic and social functioning. Consult with a specialist to develop individualized interventions that will meet the student’s needs.

6. Remember that nonverbal learning disabilities is a complex syndrome and that a student is unlikely to exhibit all of the common, associated characteristics.

Social

[See Recommendations: Social Skills/Self-Esteem.]

1. The student needs to be taught social skills directly, as she will not learn them easily through observation. Select a social skills training program that provides direct, practical training. The components of a structured learning curriculum are modeling, role playing, feedback, and transfer of training.

2. Recognize that the student will have trouble understanding subtle cues inherent in nonverbal communication. Teach the student how to recognize situations where nonverbal cues are used, such as interacting with people. Help her learn to interpret facial expressions, body language, and gestures through role playing, observation, and modeling.

3. Traditional behavior modification techniques will be ineffective with the student because many of the inappropriate behaviors are a result of a neurological impairment. Instead, employ verbal strategies that will help the student learn more appropriate behaviors (Thompson, 1997).

4. The student will have difficulty interpreting facial expressions, understanding body language, moderating her tone of voice, and observing personal space. Engage in role playing and modeling that focuses upon teaching interpretation of nonverbal cues and appropriate social conventions (e.g., not standing too close to someone when speaking).

5. The student has difficulty interpreting novel stimuli and adapting to new situations. Prepare the student ahead of time for any changes in the schedule or routine that will occur during the day.

6. The student is likely to have difficulty interpreting gestures, facial expression, and tone of voice. Using pictures and videos, discuss the meaning of certain expressions and gestures. Help the student learn to recognize the implications and how nonverbal language is used to communicate and convey emotions.

7. Model social learning strategies through discussion and role playing.

8. Assume the role of a positive coach with the student. Help her figure out what is going on in various social setting and how to deal with new situations.
9. Use the following techniques to enhance the student’s social skills: (a) verbally discuss and teach social skills because the student will not pick up nonverbal cues; (b) prepare the student for new situations before they arise; (c) offer alternative behaviors when the student responds inappropriately; (d) explain and help the student learn to respond in an appropriate way to common questions; (e) provide clear and explicit responses to appropriate and inappropriate responses; (f) avoid ultimatums; (g) assist the student in complex social situations; (h) recognize and reinforce effort; (i) discuss unacceptable behaviors in nonjudgmental ways, and (k) consider social skills training groups and professional counseling (Thompson, 1997).

**Organization**

[See Recommendations: Attentional Disorders, Homework/Time Management/Organization.]

1. Provide the student with a daily assignment book. Until organizational skills improve, have the teacher record the assignments, rather than the student.

2. Break down assignments into manageable components. As the student becomes more proficient with tasks, gradually decrease the amount of structure provided.

3. As much as possible, attempt to maintain a consistent daily schedule that is written on the board.

4. Help the student learn how to organize her notebook, desk, and locker. Discuss the reasons for arranging materials in certain ways. [See Strategies: Organization of Materials and Assignments.]

**Visual-Spatial**

[See Recommendations: Visual-Spatial Thinking/Visual Detail.]

Recognize that the student with NLD will have tremendous difficulty with temporal concepts (organizing time) and spatial perceptions (coordinating physical space). Organize the classroom environment to facilitate performance (Thompson, 1997).

**Language/Instruction**

[See Recommendations: Oral Language.]

1. To the extent possible, provide step-by-step explanations for tasks. Have the student complete one step in the task and then proceed and review the next step.

2. When speaking to the student, breakdown lengthy instructions into several steps. Verbally number each step of the direction (e.g., first, second, third).

3. Explain homework and assignments in a linear, sequential format. The student will be able to follow instructions if they are presented step-by-step in a numbered list.
4. Avoid complicated and lengthy instructions and directions.

5. Encourage the student to ask questions when new material has been presented.

6. The student has well developed expressive and receptive language skills in regard to rote information. She may be able to memorize information easily, but will have limited understanding of what she has memorized. Help her develop an understanding of words and concepts by explaining them in simple terms.

7. When explaining graphic material, use simple, clear language and be aware of the complexity of spatial terms you are using.

8. Do not ask the student questions that involve abstraction and inference, such as why something happened. Instead base questions on concrete, real-life experiences, such as “who” and “what happened.”

9. Provide direct, explicit instructions for all teaching. Do not expect the student to understand figurative language or complex instructions.

10. The student with NLD is likely to interpret language literally. Help the student learn to develop meaningful connections between words and concepts and to become more flexible in interpreting linguistic relationships. For example, teach the student how to interpret words or phrases with multiple meanings, figurative language, and ambiguities by using the context in which they are presented. [See Strategies: Context Clues.]

11. Although the student will be able to recall specific details, she will have trouble on tasks that involve open-ended questions or making inferences.

12. When modeling tasks, provide detailed verbal descriptions and precise explanations. Do not expect the student to infer procedures from modeling or nonverbal demonstrations.

13. After teaching a task, ask the student to explain the concepts in her own words to make sure that the ideas have been understood.

14. The student will benefit from teaching approaches that promote the development of self talk. Reveal and discuss inner thoughts that aid in comprehension. Help the student learn to ask and answer questions as an aid to evaluating and monitoring comprehension.

15. Use the following five-step method to help the child learn to improve decision making skills: (a) define the issue (e.g., no lunch money for school); (b) verbalize available options (e.g., call home, borrow money, skip lunch, share another’s lunch); (c) identify the best option; (d) take that action; and (e) review action and decide if the plan was effective (Thompson, 1997).

16. In teaching a task, use the following four-step strategy with the student: (a) model the entire task as you provide a verbal description of what you are doing; (b) break down the task sequentially and, using concrete terms, describe the component parts; (c) guide the student through the task and help her to talk herself through it; and (d) have the student complete the task on her own as she talks herself through it (Thompson, 1997).

ORAL LANGUAGE

Tests: Story Recall, Understanding Directions, Picture Vocabulary, Oral Comprehension
Clusters: Oral Language, Oral Expression, Listening Comprehension
Related Tests: Verbal Comprehension, General Information, Story Recall-Delayed, Auditory Attention, Sound Blending, Incomplete Words, Sound Awareness, Academic Knowledge
Related Clusters: Comprehension-Knowledge, Phonemic Awareness, Phonemic Awareness 3, Short-Term Memory, Long-Term Retrieval
Related Sections: Sensory Impairment: Hearing; Knowledge/Content Areas/Study Strategies; Phonological Awareness

Contents: Oral Language
   Further Evaluation
   Accommodations
   General Recommendations
   Teaching Approaches
      Teaching Principles
      Multi-modality Instruction
      Lectures
   Language Remediation
      Instructions
      Vocabulary
      Linguistic Concepts
      Word Retrieval
      Sentence Formulation and Generation of Ideas
      Sentence Structure
      Inference/Prediction
      Cohesive Devices
      Narrative and Expository Discourse Structures
      Verbal Reasoning
      Figurative Language
      Pragmatics

Further Evaluation

1. The student needs a comprehensive language evaluation by a speech-language pathologist that will include the assessment of receptive and expressive language skills, and a language sample.

2. To evaluate the severity and nature of the student's language difficulties more specifically, provide diagnostic therapy with a speech-language pathologist experienced in working with [preschool children, school-age children, adolescents, adults.] The therapy should focus on [specify area of concern.]
3. Refer the student for a language evaluation specifically to assess possible difficulties in the area(s) of [specify area of concern.] Areas for the evaluator to consider include: vocabulary (including antonyms, synonyms, multiple meanings), question words (e.g., who, what, why), word retrieval, following instructions, language concepts (e.g., temporal, spatial, ordinal, same/different, familial, exclusion), generation of ideas, sentence formulation, sentence structure (e.g., embedded clauses, passive voice, negatives, length and level of complexity), cohesive devices (i.e., transition words), discourse/text structures (e.g., stories, narratives, different expository structures), conceptual level of language interpretation (literal, inferential, critical, figurative language, ambiguous statements), and rate of language processing.

4. Determine whether or not the language level of the student's textbooks is above the student's receptive language level. Select a variety of passages from the textbook in questions; establish a purpose for listening; introduce the vocabulary; read the passage to the student; ask him to retell the passage, then ask him comprehension questions.

5. Evaluate further the student's ability to follow complex oral and written instructions in the classroom setting.

6. Through diagnostic teaching or informal testing, evaluate further the student's ability to comprehend the structure of expository discourse and text compared to his ability to comprehend narrative discourse. See if the student comprehends certain types of expository structures better than others.

7. Further evaluate the student's ability to generate ideas in a variety of circumstances, such as making conversations, retelling a movie or book, describing a familiar topic, creating a story from a picture stimulus, or creating a story without a visual stimulus.

8. Using diagnostic teaching, further evaluate the extent to which problems in word retrieval and/or sentence formulation interfere with the student's ability to express his ideas clearly.

**Accommodations**

1. Seat the student near the teacher and away from environmental noises.

2. When teaching or speaking to the student, face him, speak slowly, pause between phrases for processing time, and limit sentence length and complexity. If the student can count on you to do this consistently, he is more likely to listen to what you say with intent to understand. Give the student an opportunity to request repetitions or clarifications.

3. Be aware of the linguistic complexity of the language you use in instructions, questions, and test items. Encourage the student to ask you to restate and clarify instructions and questions that he found difficult to understand.

4. Be aware of when the student has become inattentive or looks confused. Repeat what you have said or attempt to clarify and simplify instructions.
5. Directly teach the student to request repetition or rephrasing of instructions, questions, or statements when necessary. Additionally, encourage the student to ask you to paraphrase test questions when needed. He may know the content but not understand the question.

6. If, when called on, the student does not appear to know the answer to a question, repeat it verbatim. If the student still does not appear to know the answer, rephrase the question using simpler language.

7. To increase classroom participation, let the student know prior to a discussion that you will be calling on him and asking him this particular question. He can then rehearse the answer.

8. Call on the student soon after posing a question but not first, unless you are sure he knows the answer. Hearing another student’s response may give him needed clues to the nature of the question or type of answer expected; however, if a few students answer before him, one of them is likely to give the only answer he knows.

9. Call on the student soon after posing a question. In a long wait period, the student is likely to forget the question and/or the answer he had wanted to give.

10. Never assume that the student has prior knowledge or previous experience of the words or information you are using to teach new concepts.

11. Modify assignments to accommodate the student's language impairment. For example, to accommodate his weakness in [specify area, such as sentence formulation], [specify accommodation, such as reduce the length of an assigned report.]

12. When grading the student's papers, make allowances for the errors related to linguistic difficulties. [Give examples based on assessment results.]

13. Waive the foreign language requirement for the student.

**General Recommendations**

1. Use a collaborative approach for teaching language and academic skills. In this model, the speech-language pathologist shares with the teacher the current focus of therapy and ways to integrate work toward the language objectives into classroom activities. The teacher shares the current units or skills being presented in class. Together, they can decide on modifications in activities, instructional techniques, or presentation style that can be instituted in class and content-related vocabulary and concepts for the SLP to integrate into therapy activities. Such collaboration is most likely to facilitate the student’s comprehension of classroom material and success in classroom tasks.

2. Establish a system of communication between the school and home so that the vocabulary and language forms the student is learning or beginning to use will be mutually encouraged and reinforced.
3. Request that the speech-language pathologist discuss with the student's teacher(s) the nature of his language impairment and how it affects him in academic, social, and general classroom functioning. Include discussion of his learning strengths and ways to capitalize on them for instruction.

4. Explain to the student in simple terms the nature of his language difficulties as well as his strengths, whether linguistic or in other areas. Explain also what will be done to help him with regard to therapy and accommodations.

5. Identify and encourage development of areas of strength or talents in nonlinguistic areas such as mechanical skills, music, art, or sports.

6. Place the student in a classroom in which the students are given maximal opportunity to participate in small- and large-group discussions in a noncompetitive environment.

7. Provide the student with daily specific opportunities to discuss subjects he knows well, such as events that he has experienced, a hobby or sport he engages in frequently, and people with whom he has close relationships.

8. Arrange for the student spend time with an adult who will expose him to wide a variety of experiences, explain what is happening, name objects and actions, and answer questions.

**Teaching Approaches**

**Teaching Principles**

1. Introduce activities and tasks by explicitly stating the focus and purpose, what the student is supposed to learn and why.

2. Provide ample examples of a new concept or skill and relate the new information to what is already known.

3. Help the student organize and relate new and known information by using cognitive strategies such as the adapted K-W-L-S Strategy and activities for activation of prior knowledge


5. When teaching any new process or skill, provide systematic, sequential instruction, ensuring mastery of each skill before moving onto a more complex level or a new skill.

6. When introducing new concepts or information, use simple sentence structures and familiar vocabulary as much as possible so that the student can focus attention on the new content.

7. Draw the student's attention to new concepts, words, or constructs by placing stress on them when speaking.

8. When initially presenting new concepts, present the information more slowly than you would when speaking about familiar concepts.

9. Provide redundancy and repetition in teaching the student any new concept. Repeat important statements verbatim and explain the concept in a variety of ways.

10. As much as is feasible, teach new concepts and vocabulary within thematic units so that new learning is interrelated conceptually. The thematic unit provides a consistent framework and familiar context to introduce new concepts and vocabulary.

**Multi-modality Instruction**

1. Present all types of verbal information accompanied by visual stimuli that clearly illustrate the concept being taught. Examples are pictures, charts, graphs, semantic maps, and videotapes. Simultaneous visual-verbal presentation is necessary for the student's comprehension and retention of the information.

2. If the student is unable to take in auditory and visual information simultaneously, direct the student to look at the complete visual display, then direct him to the portion of it about which you will be speaking. When he has had adequate time to look at the illustration, give a brief oral explanation. Then, direct him to look at the visual again.

3. As much as possible, involve the student in concept or skill learning tactile-kinesthetically or experientially.

4. Teach the student to create a visual image of what he hears and reads so that he can provide for himself visual input to supplement verbal information.

5. Be aware that the student's ability to benefit from any activity that is purely auditory, such as round-robin reading, listening to an oral presentation, or listening to a story tape, is extremely limited.

**Lectures**

1. When lecturing, present ideas in an organized and logical sequence. Keep the points as simple as possible and group related information.

2. When presenting lectures, use an overhead projector to highlight the important points. If the technology is available, use computer presentation programs, such as PowerPoint, to provide colorful and descriptive visual information simultaneous with the oral information.

3. Prior to beginning a lecture, write on the board the important points to be covered and review the major points at the end of the lecture. This will help the student recognize and retain the critical information.

4. Provide the student with an outline of questions to follow during a lecture. Go over the questions before beginning the lecture and guide a discussion of the answers after the lecture.
5. For increased comprehension of lectures, provide the student with a study guide that identifies the critical information. Encourage the student to complete the study guide. Alternatively, stop at natural breaking points during the lecture and allow the students to respond to the questions on the study guide that are elated to the material just covered. Student can then use the completed guide to study for exams.

**Language Remediation**

**Instructions**

1. Use barrier games to develop the awareness that careful listening is necessary for following instructions. Using the barrier, the student may be asked to give or receive instructions for building objects, drawing designs, or writing information. Tape record the instructions given by the teacher and the student so that, if needed, the exact wording may be played back.

2. Teach the student to monitor his understanding of instructions so that he recognizes when he needs to ask for clarification.
   
   - In order to teach the student when to recognize the need for clarification of instructions, present instructions in which information is either missing, unclear, or incompatible with another statement. Teach the student how to ask specific questions for clarification.

3. Teach the student to comprehend the sequence of instructions, the terms used to denote sequence, and a strategy to remember more than two steps. Provide practice in following instructions containing temporal terms, such as _before_, _after_, and _at the same time._

4. Teach the student to comprehend and follow directions using spatial terms such as _below_, _above_, _on the right_, and terms that can be both temporal and spatial, such as _first_, _next to last_, and _before_. Provide practice in following spatial directions, such as moving around a familiar place or maps with familiar landmarks.

**Vocabulary**

1. Work directly on vocabulary development in reading, writing, and oral discussions. Ensure that oral vocabulary continues to develop and that the student pronounces and uses new words correctly.
   
   - Help the student correct mispronunciations by repeating his mispronunciation, giving the correct pronunciation, then writing his pronunciation and the correct spelling. Point out the differences. Have him look at the proper spelling and pronounce the word correctly.

2. Expose the student to multiple repetitions of new words in many different contexts and settings.
3. Directly teach the concepts of antonyms and synonyms and provide many activities for practice in finding antonyms and synonyms for given words. Ascertain the student’s comprehension of same and different before doing so.

4. To effectively handle the tasks of school and adult life, the student must greatly increase both the breadth of his vocabulary and the depth in terms of related meanings (e.g., antonyms, synonyms, multiple meanings). Teach new words and their meanings explicitly and in context. Explain and use them in relation to familiar situations, and within categories so that the words taught together are meaningfully related to each other.

- Arrange some activities around certain themes with which the student is familiar, such as medical offices, plants, transportation, or various ethnic groups within the class. Teach and reinforce vocabulary for each of the themes.
- Introduce new vocabulary by expanding and clarifying the student's statements. For example, if the student says, "The house is old and ugly," the teacher might say, "Yes, that house looks dilapidated."
- Use interesting pictures to foster and reinforce vocabulary development. The book Animalia (Base, 1986) presents numerous objects and activities in detailed pictures. Each page represents a letter; all of the pictures on the page begin with that letter.
- Play games that focus on word meanings. These include naming members of a given category, thinking of words that go together, making collages of pictures that go together, and discussing how the words or pictures are related. Later, incorporate the concept of opposites.

5. When teaching vocabulary, help the student learn to consider what he already knows about the meaning of the word or engage his interest in finding out the meaning by using vocabulary teaching strategies such as Semantic Feature Analysis and the Directed Vocabulary Thinking Activity. [See Strategies: Semantic Feature Analysis: Vocabulary, Directed Vocabulary Thinking Activity.]

6. When teaching vocabulary, use a variety of activities that involve active learning. Avoid passive learning activities, such as asking the student to look words up in the dictionary and then memorize their definitions as the student is unlikely to retain words learned out of context.

7. Directly teach the student that words can have more than one meaning. Teach multiple meanings (e.g., prompt can mean on time or a cue) and provide practice in using them.

8. Use all possible situations to teach the student words for feelings. Ask what he is feeling during or after specific activities and conflicts. Supply more precise words for the student. For example, if he says, "I'm sad," say, "I understand, and are you also feeling a little of hitting your friend? Ashamed means sorry and knowing that it wasn't the right thing to do." Use a poster of pictures of facial expressions captioned with the depicted emotion to help the student identify emotions.

**Linguistic Concepts**

1. Teach/reinforce positional (e.g., first/last), directional (e.g., right/left), and quantitative (e.g., more, fewer) concepts by using them in a variety of experiential contexts. For example, when the students line up, count them from the first child in line, then describe their positions with positional terms or ordinal numbers (e.g., "Jimmy, you're first. Alicia, you're second. Tina is last today, but she might be first tomorrow.")

2. Teach the student how to categorize everyday objects, manipulatives, and pictures, working towards categorizing more abstract elements such as words, letters, numbers, and designs. Use these activities as a vehicle for familiarizing the student with the concepts of same and different at increasingly complex levels. Have the student explain his rationale for grouping things and label the groups accordingly.
   - Play games with the student that will require him to categorize words. For example, you may say, "Tell me everything you see that looks like a circle" or, "Tell me everything you see that is a machine." Follow up by listing all of the objects that the student named previously and ask how they are all alike. ("They're machines.")

3. Teach the student the meanings of question words (e.g., what, when, where, why, and how).
   - During play activities, ask questions using these words and guide the student to the appropriate answer. Later, use the question words in less experiential settings, such as before, during, or after a story is read (e.g., "Look at the picture. What is happening? Why do you think the boy is doing that?")

4. Teach the student the meaning of ordinal words and words denoting temporal/sequential order.
   - Devise activities to develop the idea of sequence in daily events, the different parts of one event, and in the events within a story. Use words that denote temporal, sequential, and ordinal order (e.g., before, finally, third) to describe the events and set up situations in which the student demonstrates comprehension of these words (e.g., “What did we do before we ate lunch?”).
   - Plan experiences with the student in which he helps to decide the necessary sequence of activities (e.g., in building a sand castle, he might decide to get the bucket, shovel, and water, make a pile of sand, shape it, and jump on it). Within these situations, teach comprehension and expression of temporal and ordinal words (e.g., first, fifth, meanwhile, later, last).

5. The student does not have a sense of time. Teach him the meanings of terms like “today, yesterday, tomorrow, last week, next week, in November.” One technique is to use a calendar, put events on it, mark off each day and note events for that day and the next day. The next day, look at the calendar and discuss the events in terms of yesterday, today, tomorrow, then branch out to longer periods of time. Use representative pictures whenever possible (e.g., turkey and Pilgrim for November, party hats and horns for January).
**Word Retrieval**

1. As the student's word-retrieval problem interferes with the fluency of his oral reading, do not require the student to read aloud in the classroom. Call on the student if he volunteers.

2. Due to the student’s word retrieval difficulty, structure oral comprehension questions so that the question contains the key words he is likely to need without giving the content of the answer. This relieves him of the burden of accessing the words from long-term memory. For example, the question, “What is the latitude of Peru?” provides the word, *latitude*, so the student can focus on answering, “Which one?” rather than, “What’s that thing called?”

3. Provide activities to reinforce integration of recently learned and familiar words within a strong conceptual framework. Well-established associations with known words and concepts will help alleviate word-retrieval problems. [See Strategies: Semantic Feature Analysis: Vocabulary, Semantic Maps: Evaluating/Activating Prior Knowledge.]

4. Teach the student to recognize when he is having difficulty retrieving a word so that he may use a retrieval strategy:
   - Teach the student to visualize the object or the spelling of the word to prompt recall of the verbal label.
   - Teach the student to think of a category for the target word and mentally list associated objects to try and prompt recall. For example, if the student is trying to retrieve the word thief, he could list crook, robber, and bad guy.
   - Teach the student to visualize a different context for the word and mentally describe it with a sentence. Example: For blocks, the student would think, "Children build with."
   - To facilitate word retrieval, encourage the student to try to recall and say the first sound of the word.
   - To facilitate word retrieval, teach the student to "talk around the word," describing its appearance, function, and/or category.
   - If the student cannot recall a word, encourage him to use a synonym.

**Sentence Formulation and Generation of Ideas**

1. When calling on the student in class, provide him with as much time as necessary to organize his thoughts and formulate a response. He may know the answer but need extra time to find the words. Privately, alert the student to this plan so that he does not feel pressured to come up with answers quickly.

2. Teach the student how to sequence his ideas mentally so that he can state them in an organized fashion. For example, before speaking, he should ask, "What is the beginning of what I want to say? The middle? The end?"

3. Use elaboration to model how the student might add details and information to his statements.

4. Facilitate the student's ability to generate ideas by using a variety of techniques including: (a) story starters, (b) expansion of one sentence by using reporter questions (i.e., who, what, when, where, why, how), (c) story structures with specific questions to facilitate each element, and (d) brainstorming, retaining only those sentences that can be related to each other, adding details or story elements as needed.

5. Use story or movie retellings to facilitate generation of ideas for speaking or writing.

6. To facilitate generation of ideas, provide the student with an outline of a story or report on a familiar topic. Have the student fill in missing information, gradually decreasing the amount of information given in the outline.

Sentence Structure

1. Teach the student strategies for interpreting the following sentence structures: [Specify types of sentence structures.]

2. Provide visual cues for teaching morphological markers. For example, to highlight the concept of plural s, you could use a picture of two cats with an s after the second cat. To illustrate the concept of er, use a picture of a can of paint with er written after it followed by an equal sign and a picture of a person painting a house.

3. When correcting the student's syntactic errors and modeling correct word order, speak slowly and change as little as necessary to make the sentence correct. Say the sentence as he said it, say it correctly, write the sentence as he said it, and write your correct sentence. Have him read or say the sentence correctly.

4. Use [pictures, written sentences or phrases] to accompany activities in oral sentence comprehension.

5. Repeatedly expose the student to complex sentence structures in stories, preferably supported by pictures, before introducing these sentence structures out of context for instructional activities.

6. Teach the student to understand the ways in which cohesive devices add critical meaning to sentences by referring to another word or concept. [See Strategies: Cohesive Devices: Types.]

7. Specifically teach the student the meaning of transition words and how they signal the relationship between main and subordinate clauses. Teach the student to write complex sentences and then to use them in his expressive language.

8. Provide a variety of activities in which the student combines given phrases and selected transition words into complex sentences.

9. Provide extensive oral [and written] practice with sentence-combining exercises. Present the student with several clauses or short sentences and have him generate as many sentence patterns as he can by using a variety of connecting words. As an alternative activity, provide the student with a specific word or words to use in joining several clauses or sentences.

10. Teach the student to comprehend passive voice by constructing active sentences out of word cards. Show the student how to resequence them, adding cards for was and by, to create passive sentences or omit was and by to create active sentences.

11. Teach the student to interpret sentences in which the order of mention does not match the order of events.

**Inference/Prediction**

1. Use techniques to activate prior knowledge before introducing new concepts, reading material, or oral information. Directly teach the student the necessity of using his own prior knowledge and experience to help understand the information. [See Strategies: Prereading Plan, Semantic Maps: Evaluating/Activating Prior Knowledge.]

2. Teach the student how to use prior knowledge to infer information and relationships that are not stated in instructions, stories, and factual information.

   - Give the student practice in determining what materials, tools, or pieces of information are missing in given situations. First, use actual situations. Later, have the student consider situations that are familiar but are not actually happening. Finally, use situations that are less familiar, requiring more generalization from what he already knows.

   - Use pictures and devise activities to give the student practice in inferential thinking - inferring the middle event when told the first and last event (e.g., Show a picture of a boy in his swimsuit about to dive into a swimming pool and a picture of the boy drying off with a towel. Ask, "What happened in between?").

3. While reading stories, watching videotapes, or conducting simple science experiments, encourage the student to predict the outcome. Afterwards, ask him to evaluate the prediction.

4. Use predicting strategies in listening and reading activities to increase the student's comprehension and retention of implied information. [See Strategies: Directed Reading-Thinking Activity.]

Cohesive Devices

1. Through diagnostic teaching or informal testing, determine which types of cohesive devices the student can interpret, such as reference, lexical, conjunction, substitution, and ellipsis, as well as any difficulties within these categories. [See Strategies: Cohesive Devices: Types.]

2. To increase the student’s awareness of the importance of cohesive devices, demonstrate how terms denoting linguistic relationships in text and in oral language help to clarify relationships among events, objects, and people. Use examples from social studies, science, and literature.

3. Teach the student to interpret and use cohesive devices in oral and written language to improve the coherence of his communication. [See Strategies: Cohesive Devices: Types.]

Narrative and Expository Discourse Structures

1. Teach the student a strategy for understanding, retelling, and generating narratives. For example, the student might use the STORE the Story strategy as a reminder of the elements: setting, trouble, order of events, resolution, ending. [See Strategies: STORE the Story.]

2. Teach the student to recognize the structure of the type of discourse and text you are using in the classroom. For example, if working with stories in a narrative structure, teach the student to recognize the elements of a story grammar. For expository discourse or text, teach structures such as comparison/contrast, cause/effect, and enumeration.

3. Teach the student different ways expository information might be organized. Use graphic organizers to illustrate each. The following illustrations are examples of graphic organizers for contrast, description, and cause-effect.

4. Subsequently, teach the student to recognize these patterns in reading material and orally presented information and to use these patterns to organize information for writing.

5. Use simple semantic mapping to help the student organize information for a short oral report. First the student can base the report on notes written from the semantic map; later he should learn to organize thoughts into a mental semantic map to guide expression of ideas.
**Verbal Reasoning**

1. Ask the student to provide a rationale for statements or opinions he offers in the classroom (e.g., "And what do you think is the reason that happened?"). Provide prompting and guiding questions.

2. Tell or have the student read absurd statements or brief stories. Ask him, “What’s wrong with this sentence/story?” Direct him to identify and correct the absurdity. If necessary, guide him (e.g., “Do cows eat chocolate?”) Occasionally, include a sentence that makes sense.

3. To improve verbal reasoning, use the Request Procedure when reading stories or textbooks. You may also use this strategy with short portions of taped stories or textbooks. [See Strategies: ReQuest Procedure.]

4. Use the Directed Reading-Thinking Activity as an oral activity to help the student increase his understanding of content area textbooks. Read aloud to the student and stop at certain points to have him predict what might happen next. Read on to confirm the predictions. [See Strategies: Directed Reading-Thinking Activity.]

5. Use the Directed Reading-Thinking Activity as an oral activity to increase the student's ability to listen actively to a story or explanation of an event. Tell the student a portion of the story and ask him to use information from the story and his own experience to guess what will happen. Make sure that he can support his prediction. [See Strategies: Directed Reading-Thinking Activity.]

**Figurative Language**

1. Teach the student to understand and use figurative language such as metaphors (e.g., The teacher watched him with an eagle eye), similes (e.g., The teacher watched him like a hawk), idioms (e.g., He threw away a wonderful opportunity), and proverbs (e.g., Necessity is the mother of invention).

2. Teach the student to understand humor such as jokes and riddles. Use direct explanation, many examples, and pictures, where appropriate.

**Pragmatics**

1. To teach pragmatic language skills, use a combination of modeling, direct teaching, watching other people, videotaping, and monitored practice in authentic contexts.

2. Teach the student how to consider the existence or lack of a shared context and/or information when speaking to someone else. For example, teach him to explain who the people are that he refers to in describing an experience.

3. Teach the student how to change his manner of speech depending on the person to whom he is speaking (e.g., a teacher vs. a friend).
4. Teach the student to interpret the social language of his peers and how to use social language in a variety of situations.

5. Teach the student how to take turns in a game, discussion, or conversation.

6. Help the student learn how to maintain the topic in a conversation, recognize when he does not understand and ask for clarification, and recognize when his conversation partner doesn’t understand and provide clarification.

PHONOLOGICAL AWARENESS

Tests: Incomplete Words, Sound Blending, Auditory Attention, Sound Awareness
Related Tests: Word Attack, Spelling of Sounds, Spelling
Clusters: Auditory Processing, Phonemic Awareness, Phonemic Awareness 3
Related Sections: Basic Reading Skills, Basic Writing Skills, Sensory Impairments: Hearing

Contents: Phonological Awareness

Note to the Reader: Phonological Awareness and Auditory Processing
Further Evaluation
Accommodations
General
Sample Programs
Instruction in Phonological and Phonemic Awareness
  Rhyming
  Segmentation
  Blending
Sound Sequencing
Sound Insertion and Deletion
Sound Substitution and Transposition

Note to the Reader: Phonological Awareness and Auditory Processing:
Phonological awareness is the recognition that the ongoing stream of spoken language can be broken down into smaller units, such as sentences, words, syllables, and phonemes. It includes the ability to segment sentences into words and words into syllables and sounds, to blend syllables and sounds into words, and to delete, add, and substitute sounds in words to make other words. Phonological awareness is a necessary foundational skill for reading decoding and spelling but unnecessary for comprehension and expression of spoken communicative (primary) language. Although a deficit in phonological awareness may be secondary to a central auditory processing disorder (CAPD, auditory processing), it is not the same.

CAPD is a perceptual disorder that causes a person to miss or misperceive the sounds of words as they hear them and/or have difficulty directing attention to auditory input. These difficulties are exacerbated in the presence of poor acoustic conditions such as background noise, a reverberant room, and speaking from room to room or across dividers. A CAPD also interferes with perception of speech that is altered in some way, such as rapid speech, accented speech, dialectical variations, or articulation errors. It may also cause misperception of speech in optimal acoustical conditions. Although CAPD cannot be diagnosed in the presence of a hearing loss, many of the recommendations for accommodations are the same or similar to those for students who are hard-of-hearing and students with specific language disorders. The recommendations in this section address the development of phonological awareness that may or may not be secondary to a CAPD. The broader range of recommendations related to CAPD are addressed in the sections: Oral Language and Sensory Impairments: Hearing.
Phonemic awareness plays an important role in learning skills related to word identification and spelling. Good phonemic awareness suggests that the student will learn to read and spell easily. Poor phonemic awareness suggests that the student will struggle to learn to read and spell and is likely to require explicit instruction in decoding (word reading) and encoding (spelling).

**Further Evaluation**

1. Refer the student to the reading specialist or speech/language pathologist for a more comprehensive evaluation of phonological awareness.

2. Refer the student to an audiologist for a more comprehensive assessment of hearing acuity and speech discrimination.

3. Refer the student to an educational audiologist for evaluation of central auditory processing abilities.

4. Assess phonological awareness in depth. Use an informal assessment tool to determine the student’s proficiency in the following tasks:
   - rhyme recognition (e.g., Tell me the two words that rhyme: cat, dog, hat);
   - rhyme production (e.g., Tell me all the words you can think of that rhyme with “cat.”);
   - phoneme matching (e.g., Which word starts with a different sound? ball, bat, tree);
   - word counting (e.g., Tap out the number of words you hear in each sentence);
   - syllable counting (e.g., Tap out the number of syllables you hear in each word);
   - compound word deletion (e.g., Say the word: "cowboy" without the "cow");
   - syllable blending (e.g., Tell me the word I am trying to say: “tur...tle”);
   - phoneme blending (e.g., Tell me the word I am trying to say: “m...a....t”);
   - sound counting (e.g., How many sounds do you hear in the word “toy”);
   - sound segmentation (e.g., Tell me the sounds you hear in the word “sock”)
   - phoneme deletion (e.g., Say the word: "hat" without the /h/ sound);
   - phoneme manipulation (e.g., Change the /t/ in tip to /r/).

5. Because phonemic awareness skills appear weak, administer a standardized measure that assesses phonemic awareness and rapid automatic naming in more depth.

6. Because the student has severe weaknesses in English phonology, conduct additional assessments to determine whether or not the student will require a waiver for the foreign language requirement.

**Accommodations**

1. Modify the classroom instruction in phonemic awareness so that it more clearly matches the student’s developmental level.

2. Because the student lacks phonemic awareness skills, she will not be able to keep pace with the phonemic awareness activities that are provided in the classroom. Provide individualized instruction so that activities and materials can be adapted to her developmental level.

General

1. Because the student has limited phonemic awareness, a critical set of skills for developing strong reading and spelling, provide instruction that is explicit and systematic in introduction, practice, and reinforcement of phonemic awareness skills. In a systematic program, skills are presented in graduated steps, from simple to complex, with students achieving mastery in the current skill before the next is introduced. Continuous practice and reinforcement in previously learned skills will allow the student to develop automaticity.

2. Help the student develop phonological awareness abilities as a foundation for basic reading and spelling skills. The general order of development of these skills is:
   - Preschool: segmenting sentences into words;
   - Preschool to kindergarten: rhyming;
   - Kindergarten: segmenting words into syllables and deleting syllables from words to make new words;
   - Grade 1: blending phonemes into words, segmenting words into phonemes, deleting phonemes from and adding phonemes to words to make new words;
   - Grades 1-2: manipulation—substituting one phoneme for another in a word, and transposing phonemes in words to make new words.
   (Many children are not able to perform the types of phoneme manipulation tasks measured in the WJ III Sound Awareness test until the end of second grade.)

3. When providing instruction in phonemic awareness, consider the findings from the National Reading Panel (2000): (a) emphasize and teach to mastery only one or two phonological skills at a time, (b) provide letters when teaching phonemic manipulation tasks, and (c) provide instruction in small groups.

4. Many phonological awareness tasks require a series of words, syllables, and sounds to be held and manipulated in memory. Due to the student’s significantly weak memory span and short-term memory, she may have more difficulty than anticipated when working on some of these tasks and will require modifications. Because she has some knowledge of letter-sound correspondence, ease the burden on memory by incorporating the use of letters to represent sounds.

5. Many phonological awareness tasks require a series of words, syllables, and sounds to be held and manipulated in memory. Due to the student’s weak memory skills, teach her strategies such as verbal mediation and verbal rehearsal, and how to use them during phonological awareness activities.

6. As the student has some knowledge of letter-sound correspondence, use the letter-sound associations that she knows in phonemic awareness training. As she becomes more proficient in a phonemic skill, such as sound blending, teach a new grapheme-sound association and incorporate it into practice of the phonemic skill. (A grapheme is a letter or combination of letters that represents only one sound.) For example, when she has become reasonably fluent in blending 3-phoneme words, introduce ch and incorporate it into the types of sound blending activities she has been doing.

7. Keep in mind that children differ in the amount of time that they need to acquire phonological awareness. Adjust the amount of time and instruction based upon the student’s needs.

8. Use materials that are age-appropriate. A variety of commercial materials are available for older students but materials can also be devised from materials readily available in the classroom such as plastic disks or paperclips to represent words, syllables, and sounds, interlocking cubes to represent syllables and sounds, and pictures in magazines or sets of picture cards.

9. To help the student increase phonological awareness, play games that focus on the sounds of words. Examples include rhyming games and songs, thinking of words that start with a particular sound, and counting the "beats" (syllables) of words.

10. Use a variety of classroom activities for promoting phonological awareness. These activities should be interactive and game-like, involving singing, rhyming, clapping, and movement. The goals of these activities are to draw the student’s attention to the sounds of spoken language and increase ability to analyze speech sounds.

11. Choose one of several carefully developed commercial programs and compilations of classroom activities for promoting phonological awareness to ensure that all skills in the developmental progression are addressed.

12. When teaching new vocabulary, reinforce specific words by using them in phonemic awareness activities. Use words from a story that has just been read or words related to an instructional unit.

13. Explain to the student how speech sounds relate to printed words, how the skills you are working on relate to reading and spelling, and how developing competency in the skills will help her improve her reading and spelling. Develop activities or demonstrations that allow students to experience these connections.

14. To promote phonological awareness, use literature that plays with language sounds. Read texts that emphasize rhyming patterns, alliteration, and the manipulation of phonemes. These types of books will increase the student’s awareness of the phonological structure of language.

15. Do not limit instruction in phonemic awareness to oral activities only. Incorporate activities that include letters [See Recommendations: Basic Reading Skills.]

16. Make sure the student knows the difference between letter sounds and letter names. Some students are helped by the analogy that just like animals have a name (e.g., lion) and a sound (e.g., roar), so do letters (e.g., A and /a/).

17. When incorporating letters into phonemic awareness activities, use only the letters and letter combinations for which the student has already learned the sounds.
18. For reinforcement of direct instruction in phonological awareness, incorporate computer programs into practice sessions. Because the student’s age level far exceeds his phonological skill and reading level, be careful to choosing programs that are age-appropriate.

Sample Programs

1. Follow a program such as outlined in *Road to the Code* (Blachman, 2000) or *Phonemic Awareness in Young Children: A Classroom Curriculum* (Adams, Foorman, Lundberg, & Beeler, 1998). Both programs provide a sequence for instruction in phonological awareness. Both are available from: Paul H. Brookes Publishing Company, P.O. Box 10624, Baltimore, MD 21285-0624, (800) 638-3775, [http://www.brookespublishing.com](http://www.brookespublishing.com).

2. Because the student has such severe difficulty perceiving speech sounds, use a program that stresses the oral-motor characteristics of speech. One carefully designed, intensive program for developing phonemic awareness is the Lindamood ® Phoneme Sequencing Program for Reading, Spelling, and Speech (LiPS ®) (Lindamood & Lindamood, 1998). This program addresses the development of phonemic awareness as a base for accurate reading and spelling and provides explicit instruction about the articulatory dimensions of speech. The program progresses from sounds in isolation, to sequences of sounds in non-words and then real words, to reading in context. LiPS requires specific instructor training. The Lindamood ® Phoneme Sequencing Program for Reading, Spelling, and Speech, products and training available from Gander Educational Publishing™, 412 Higuera St., Ste. 200, San Luis Obispo, CA 93401, phone: (800) 554-1819, website: [http://www.lindamoodbell.com/gander](http://www.lindamoodbell.com/gander).

3. To build phonological awareness, use a software program aimed at helping students develop phonemic awareness skills, such as *Earobics*. The program charts performance and prints progress reports for up to 25 users. *Earobics ® Step 1* (ages 4-7) and *Step 2* (ages 7-10) are available from Cognitive Concepts, Inc., P.O. Box 1363, Evanston, IL 60204-1363, phone: (888) 328-8199, website: [http://www.cogcon.com](http://www.cogcon.com).

4. Reinforce explicit instruction in phonological awareness skills with a variety of active and interactive games. A good source of activities is *The Sounds Abound Program: Teaching Phonological Awareness in the Classroom* which includes a book and videotape describing and demonstrating the activities, and picture cards. Available from LinguiSystems, 3100 4th Avenue; East Moline, IL. 61244, phone: (800) 776-4332 (voice), (800) 933-8331 (TTD), website: [http://www.linguisystems.com](http://www.linguisystems.com).

5. In remediating phonemic awareness with older students, use activities and materials appropriate to their ages, such as *The Phonological Awareness Kit: Intermediate*. Available from LinguiSystems, 3100 4th Avenue; East Moline, IL. 61244, phone: (800) 776-4332 (voice), (800) 933-8331 (TTD), website: [http://www.linguisystems.com](http://www.linguisystems.com).

6. LinguiSystems has a wide variety of instructional programs and materials for teaching phonological and phonemic awareness appropriate for a range of age levels. Additionally, some well designed, research-based, comprehensive language arts programs, such as Scholastic Literacy Place and SRA Open Court, begin with programs for teaching phonological awareness.
Recommendations: Phonological Awareness  p. 6

7. LinguiSystems, 3100 4th Avenue; East Moline, IL. 61244, phone: (800) 776-4332 (voice), (800) 933-8331 (TTD), website: http://www.linguisystems.com; Open Court Collections for Young Scholars, SRA/McGraw-Hill, 1221 Farmers Lane, Suite C, Santa Rosa, CA 95405, (888) SRA-4KIDS, website: http://www.sra-4kids.com; Literacy Place, Scholastic, 555 Broadway, New York, New York 10012, phone: (800) SCHOLASTIC, website: http://www.scholastic.com

Instruction in Phonological and Phonemic Awareness

1. When introducing new phonological or phonemic awareness concepts, use real objects or manipulatives, and then pictures, before starting oral activities without the support of visual aids.

2. As the student is considerably older than most students learning phonemic awareness skills, explain and demonstrate to her the connection to decoding and spelling skills and importance of developing mastery in this area.

3. Collaborate with the student’s speech therapist to integrate phonemic awareness activities into speech instruction and to reinforce speech objectives within phonemic awareness activities in the classroom. Use letters to allow the student to “see” the sounds that are supposed to be pronounced in target words. Color all of the letters that have sounds, or just the letters that represent the sounds targeted for development.

4. Use a variety of computer programs to reinforce and develop mastery in phonemic awareness skills for which the student has demonstrated understanding and initial ability. Monitor her progress in the program to guard against wasted time and the reinforcement of erroneous concepts. Some computer software allows the teacher to adjust the tasks and to audiotape instructions in the program according to the needs of specific students. The student’s responses are saved for later review by the teacher who can then decide how to program the next session.

5. To improve phonological awareness, provide tasks that involve the active manipulation of phonemes represented by tangible objects such as disks or cubes. Keep in mind that tasks involving larger units (e.g., syllables) will be easier than tasks involving the manipulation of phonemes.

Rhyming

1. Before introducing direct instruction in rhyming, familiarize the student with rhyming by reading poems with simple rhyme patterns to her (e.g., AABB, ABAB) and singing songs that emphasize rhyme (e.g., “Willoughby Wallaby Woo” by Raffi). Choose some to read/sing repeatedly and encourage the student to say/sing the words with you. Eventually, have the student to say/sing the last word of the rhyming phrase without you.

2. Read predictable books aloud to the student that emphasize rhyming words, such as the Dr. Seuss books. Have the student say back or read back the rhymes.

3. Provide instruction in rhyming. Start with teaching the student to recognize rhyming versus non-rhyming word pairs (e.g., “Do cat and hat rhyme? Look at the three pictures, say their names, and circle the two that rhyme”); progress to the student providing a word to complete a given rhyme (e.g., “Jack and Jill went up the ___”); and finally, teach the student to provide several words that rhyme with a given word (e.g., “Tell me three words that rhyme with far”).

4. When teaching rhyme recognition, show the student pictures, tell her the names, and ask her to point to the words that rhyme. Have her repeat the rhyming pair aloud. Once she can do the task with picture support, give words orally and ask her to identify the rhyming pair. Provide both instances (e.g., star-car) and non-instances (e.g., cat-shoe) of the concept. Once the student can do rhyme identification tasks, introduce rhyme completion, then rhyme production tasks.

5. Play games with the student that reinforce rhyme production. Give her a clue and then have her generate a rhyming word. For example, you might say: "I'm thinking of what you check out at a library that rhymes with the word took" or "I'm thinking of a bird that rhymes with the word truck."

6. Teach the student to grasp the concept of rhyming. Use visual representations to help the student envision the sequence of sounds in rhyming words. To develop the understanding that rhyming words start differently but end the same, use colored interlocking cubes to represent 3-phoneme words, such as ram and ham. Show ram as a blue block interlocked with two red blocks, then show ham directly under it as a green block with two red blocks. Emphasize that the first sound changes but am stays the same, as represented by the colors. Continue building a column of “words” that rhyme with ram so that the colors of the first cube in each word differ but all of the others are the same. When the student demonstrates understanding, show how changing the last sound in a rhyming word pair would spoil the rhyme as the final colors/sounds would no longer be the same.

Segmentation

1. Before introducing the concept of segmentation of words into syllables, ensure that the student understands that words have parts. One way to introduce this is to use compound words along with pictures formatted as addition sentences. The figure below illustrates the “equation,” butter + fly = butterfly.

![Equation](image)

The explanation is that when we put the pieces together, butter and fly, we get butterfly. Each word retains its sound but we put the two words together, they makes a new word with a new meaning.

2. Teach the student how to segment sounds (isolate the sounds in a word by pronouncing each one in order) to promote reading and spelling acquisition.
3. When teaching segmentation, start with dividing sentences into words, then words into syllables, then 1-syllable words into individual sounds.

4. To help the student develop the concept of segmenting words into sounds, use interlocked cubes to represent whole words, then “break” them into pieces.

5. When first teaching segmentation, use visual cues and manipulatives, such as saying a word slowly, while pushing forward counters on a table.

6. When teaching segmentation of words into individual sounds, teach the student first to identify and say the initial sound in words (sound isolation). When initial sound isolation is mastered, proceed to final sounds, and finally, to medial sounds in 3-phoneme words.

7. Use games to make sound isolation practice engaging. One game with many adaptations is Sound Bingo. Each student receives a chart with pictures on it. The teacher says a sound and the students place tokens on the pictures whose names begin with that sound. Alternately, the teacher may say a word and direct the students to cover the picture that starts with the same sound. The same game may be used for final and medial sounds, and later, for letter-sound correspondence (e.g., The teacher says a sound and the students cover the corresponding letter).

8. When teaching segmentation of words into individual sounds, start with 2-phoneme words comprised of a consonant and a long vowel sound such as ape, eat, knee, and toe. Long vowel sounds are easier to perceive than short vowel sounds. Use consonants with “stretchy sounds” (sounds that can be elongated, such as /m/ and /s/) as these are easier to articulate in isolation. Progress to consonant-vowel-consonant words such as soap and rain. Be careful not to use final consonant sounds, such as /l/ that change the sound of the preceding long vowel.

9. Use the following sequence to assess or teach segmentation. Begin with tasks that require the student to segment sentences into individual words. The student can clap the number of words or push forward markers to represent each word. Next, progress to compound words (e.g., raincoat). Then progress to syllables. When the student has learned to break words into syllables, teach her how to segment short words into onsets and rimes (the first part and then ending part of a syllable), and then into individual phonemes.

10. When teaching segmentation, if the student has particular difficulty with the segmenting words into syllables try the following techniques: Have her place her hand under her chin and then say the word aloud. The number of syllables is equal to the number of chin drops. Alternatively, she can put her hand in front of her mouth and feel the number of puffs of breath. Be aware that many words have syllables that are not discernable by chin movement or breath so pre-select words for which they will work. As the student learns to “hear the beat” of words, she will no longer need this technique.

11. Use onsets and rimes to teach segmentation. The onset is the initial consonant or consonants of a word that changes the meaning of a word (mat). The rime is the ending part of the syllable that remains constant (e.g., mat).
12. When working with counting the number of words in sentences, or of syllables/sounds in words, use visual representations, such as colored tiles or poker chips. As an alternative activity, have the student move a token along a sequence of squares that represents the correct number of words, syllables, or sounds. Have the student pronounce the corresponding word, syllable or sound, while she pushes forward each token or moves it along the squares.

13. Use the adapted Elkonin Procedure to teach sound segmenting, progressing into using letters to represent sounds, and finally, the concept of silent letters. [See Strategies: Elkonin Procedure: Adapted.]

14. Integrate instruction in segmenting and blending. Going back and forth between tasks involving synthesis and analysis will result in the greatest benefits for reading and spelling acquisition.

**Blending**

1. The central ability related to word pronunciation is blending. Teach the student how to blend sounds to pronounce unfamiliar words.

2. When introducing the concept of blending, start with blending two words into a compound words, then syllables into words, and finally individual sounds into one-syllable words.

3. When teaching sound blending initially, start with letters that make continuous sounds, such as /s/ and /f/, rather than those that make stop sounds, such as /p/ and /k/. The continuous sounds are easier to glide together.

4. Because an awareness of onsets and rimes seems to develop earlier than an awareness of phonemes, teach the student how to blend the initial sound(s) of a word with the remainder of the word (e.g., m-at).

5. As the student is having particular difficulty learning to blend sounds, use the following sequence of sound combinations, developing facility at each step before moving on to the next: (1) vowel + consonant; (2) consonant-vowel + final consonant; (3) onset + rime; (4) consonant + vowel; (5) consonant + vowel + consonant. From step (3) on, use initial consonant sounds that can be elongated without distortion, such as /m/. When the student has developed some proficiency at step (5), introduce initial sounds that cannot be elongated. The easiest sounds to pronounce (elongated) are: /m/, /n/, /l/, /v/, /sh/, /zh/, /sl/, /z/, /th/, and /th/. The following are slightly more difficult to pronounce: /t/, /p/, /k/, /ng/, /l/, /ch/, /w/, /wh/, and /h/. The most difficult sounds to pronounce in isolation for blending are: /d/, /b/, /g/, /t/, and /j/.

6. Provide the student with direct instruction in sound blending using the following steps: (a) have the student say the word, (b) present the word with prolonged sounds but no break between the sounds and ask the student to say the word, (c) present the sounds with a short break between them and ask the student to say the word, (d) present the word with a quarter-second, then half-second, then 1-second break between the sounds, with the student saying the word after each presentation (Kirk, Kirk, & Minskoff, 1985).

7. When the student understands the concept of sound blending and has developed initial ability, develop mastery using the following three-step sequence. (1) Encourage the student to blend sounds together as quickly as possible, rather than stopping between the sounds; (2) Have the student sound out each sound in the word and then pronounce the whole word rapidly; and (3) Encourage the student to sound out words in her head. Demonstrate how words can be sounded out silently.

8. Teach the student how to blend three sounds into a syllable or word. Add sounds until she is able to blend a consonant blend-vowel-consonant-blend pattern.

9. Teach the student how to blend sounds into a word and then segment the word back into sounds. Say the word phoneme-by-phoneme and ask the student to say the whole word. Then, have the student then break the word back into phonemes.

10. Provide visual cues to help the student learn how to blend. For example, write a word on a piece of paper with the letters spaced evenly apart. Draw a line under the word. Glide your finger under the word slowly as the student blends together the sounds of each grapheme.

11. Use manipulatives to accentuate the idea that when blending sounds, we are moving them closer together. Use interlocking cubes, each one representing a sound. Interlock the cubes and tell the student the word they represent (e.g., sun). Then break the cubes apart, explaining that you are breaking the word into its sounds. Space the cubes a few inches apart, and point to each cube, saying its sound, with a pause in between. Move the cubes closer together and say the sounds with shorter pauses. Continue until you have pushed together and locked the cubes, say the whole word, and lift the interlocked cubes as a unit to show that you now have a whole word.

12. Provide the student with direct instruction in sound blending. If she cannot develop skill in sound blending, even after using techniques developed for students with excessive difficulty, select a non-phonics approach for beginning reading instruction, such as linguistic patterning (i.e., word families).

**Sound Sequencing**

1. Prior to teaching sound sequencing, ensure that the student grasps the concept of using objects in a visual-spatial order to represent sounds, which occur in temporal order. Once this has been established, use manipulatives to represent the sounds in words.

2. Integrate instruction in sound sequencing with instruction in sound isolation so that as the student learns to listen for an individual sound in a certain position, she is also able to point out its position in row of cubes representing the sounds of the word.

3. To practice sound manipulation, place down a row of blocks on a table. Say the word slowly and then pronounce one sound. Have the student point to the location of the sound within the row of blocks. Alternatively, after saying the word, you point to a block and the student says the sound.

4. Once the student has demonstrated facility in identifying the position of sounds in words using visual aids, pronounce pairs of words that differ in only one phoneme (e.g., gold, goal) and have the student identify what sound is different in the two words and its position.

5. Provide the student with additional practice in listening to and identifying medial vowel sounds. Start with long vowel sounds (e.g., comb, bean) as they are the easiest vowel sounds to hear within words. Have the student say the vowel sound in isolation and then pronounce the whole word.

**Sound Insertion and Deletion**

1. Use colored blocks to demonstrate to the student, how changing the color of a block, deleting a block, adding in a block will alter the sounds of a word. Use a color for each sound. For example, the sound /g/ could be represented with a red block, /ā/ with a green block, and /m/ with a white block. The word game would be represented as RGW, the word maim as RGR. Set up a word, such as game and have the student pronounce it. Take the first (R) block away and ask what the word says now (aim). Place another red block in front of the green block and ask what it says (maim). Continue taking away and adding blocks/sounds until the student is comfortable with the task. Then work on final sounds, then a combination of initial and final sounds. Since a word cannot exist without a vowel, the vowel cannot be deleted.

2. When providing instruction in sound deletion, begin with compound words and provide picture support. When the student is able to delete a part of compound words, provide instruction in onsets and rimes. Counters or blocks may be used to demonstrate how to delete the initial part of the word (the onset) and then the final part (the rime).

3. When teaching the student how to manipulate and delete phonemes, follow Rosner’s (1979) sequence: (a) delete one part of a compound word, (b) delete one syllable from a word, (c) delete the initial consonant from a word, (d) delete the final consonant from a word, (e) delete the initial phoneme in a blend, (f) delete the final phoneme in a blend at the end of a word, and (g) delete the second consonant in an initial blend.

4. Because phonemic deletion of middle sounds is more difficult and places demands on working memory, target only initial and final sounds in words.

**Sound Substitution and Transposition**

(By the time students are practicing activities at this level, they will be using letters a good deal of the time.)

1. When providing instruction in tasks that involve the manipulating of phonemes in word, begin with manipulating the initial phoneme. When the student is able to isolate and manipulate the beginning sounds of words, provide instruction in identifying and manipulating sounds in the final position.

---

2. To increase the student’s flexibility in reading words, help him to develop fluency in substituting one sound for another in words. (Insertion and deletion may be incorporated into this activity to provide reinforcement and develop automaticity in those skills.) Use only grapheme-phoneme correspondences that the student knows. If including 2-letter graphemes, have both letters printed on one letter tile. Lay out letter tiles for a 4-sound word and have the student read it (e.g., hand). Replace a letter with a different one and have the student read the new word (e.g., band). Continue to add, delete, or exchange letters, asking to the student to read the new word each time. So as to develop encoding as well as decoding, alternate between the teacher moving the letters and the student reading it, and the teacher saying the new word and the student moving the letters accordingly.

3. Give the student practice in reordering the sequence of sounds in a word. Select three sounds [letters] that can be combined in multiple ways to produce a pronounceable word—real or nonsense. Use [letters with] sounds that can be easily perceived no matter what their position in the word (e.g., students with undeveloped phonemic awareness skills would have difficulty “hearing” the /p/ in the word apr). Avoid using sounds [letters] that alter the sounds around them, such as /r/ and /l/ in the final position. Lay out three cubes and give each one a sound. Have the student repeat the sound for each cube. Put the cubes in order, tell the student the word they make (e.g., This says pam), and ask her to repeat the word. Then change the order of the cubes and ask the student, “What does it say now?” If her answer is correct (e.g., map), rearrange the cubes and ask again (e.g., amp). Alternatively, you can say the “word” and have her move the cubes. Either method reinforces listening for and identifying the sequence of sounds. As the student learns grapheme-phoneme associations, use letter tiles to represent the sounds in this activity.
BASIC READING SKILLS

Tests: Letter-Word Identification, Word Attack, Reading Fluency
Related Tests: Incomplete Words, Sound Blending, Auditory Attention, Sound Awareness
Clusters: Basic Reading Skills (Letter-Word Identification and Word Attack), Phoneme-Grapheme Knowledge (Word Attack and Spelling of Sounds), Academic Skills, Academic Fluency
Related Sections: Phonological Awareness; Basic Writing Skills: Spelling

Contents: Basic Reading Skills
   - Further Evaluation
   - Support
   - Accommodations and Modifications
     - Instructional Level
     - Assignments
     - Taped Books
     - Technology
   - Interest, Motivation, Self-Esteem
     - School
     - Home
   - General
     - Letter Identification
     - Letter-Sound Associations
     - Phonological Awareness to Print
   - Phonics
     - General
     - Synthetic Phonics
     - Analytic Phonics
     - Embedded Phonics
     - Multisyllabic Words
   - Sight Word Identification
     - Further Evaluation
     - General
     - Strategies for Sight Word Instruction
     - Survival Sight Vocabulary
   - Reading Practice in Decodable Text
   - Reading Fluency
     - Further Evaluation
     - Accommodations and Modifications
     - Methods
       - Speed Drills
       - Repeated Readings and Choral Reading

**Further Evaluation**

1. Informally test the student on the following skills: differentiating between letters and numbers, reciting the alphabet, naming letters presented in random order (upper- and lowercase), and writing letters dictated in random order (upper- and lowercase).

2. Administer an informal reading inventory to evaluate reading skills in more depth. Tape record the student’s oral reading of the passages for later review to obtain a baseline measure of reading speed and fluency.

3. Listen to the student read several short passages from a classroom textbook aloud. (Choose passages from three different sections of the book as readability levels can vary widely within a book.) Record mispronunciations and substitutions verbatim. Analyze the types of errors he makes regarding letter-sound correspondence, phonics rules, and immediate identification of whole words (sight words) and common word parts (e.g., *re*, *com*, *tion*). Plan appropriate instruction to assist the student with the development of decoding and word identification skills.

4. Before beginning the intervention program, tape record the student reading several graded passages from an informal reading inventory. Keep the taped readings for error analysis and as a way to document reading improvement.

5. Further evaluate the student's reading performance using the classroom reading series. Identify an appropriate level for instruction.

6. Determine if the classroom materials are too difficult by using the “rule of thumb.” Count out 100 words and ask the student to read the passage aloud. Put a finger down for every error made. If your thumb is put down before the passage is completed, the text is too difficult.

7. Ask the student what she finds difficult about learning to sound out printed words, instantly recognize printed words, and/or read fluently. Use her response to help inform instruction.

8. Use a phonic skills checklist to evaluate further the student's letter-sound knowledge. Attempt to identify which phonic elements the student knows and which ones she needs to be taught. [See Strategies: Phonics Check-Off Chart.]

9. Attempt to determine whether the student’s difficulties are more related to problems in phonology or orthography. Compare his performance on reading and spelling phonically-regular nonsense words (more related to phonology) to his performance on reading and spelling irregular (exception) words (more related to orthography). (Irregular words are words that contain an element that does not conform to English spelling rules. These words are often taught as sight words, such as *the* and *what*).
**Support**

1. Based on the student's present level of reading achievement, he would benefit from individual or small group [intensive, daily] instruction from a [qualified tutor, reading specialist, learning disability specialist.]

2. Provide the student with as much individualized instruction as possible. Use volunteers, peers, or cross-age tutors to provide additional support.

3. To promote generalization of newly learned skills and strategies to other situations in which they should be used, remind the student to use the skill or strategy during the occurrence of these situations, or ask her which strategy or skill she should be using at that time. Give other teachers a list of the skills and strategies the student has learned and request their help in reminding her to use them at the appropriate times. Monitor the frequency and accuracy of use of the skill or strategy.

**Accommodations and Modifications**

**Instructional Level**

1. Ensure that the student is given reading materials at the independent level for seatwork and homework and at the instructional level when support is provided. Classroom instructional materials should be at approximately the [   ]-grade level.

2. Place the student in reading materials at the [   ]-grade level. Use reading texts other than the classroom series.

3. Match the readability of all classroom materials to the student's independent or instructional reading levels, depending on whether the related assignment is intended to be done independently or with support and guidance.

4. Ensure that all assigned readings are at the student’s independent level so that she can read the material without assistance. If material is too difficult, provide the student with a reading partner or the material on tape.

**Assignments**

1. Reduce the length of the reading assignments so that the student can complete them in the allotted time.

2. Because the student reads slowly, base assignments on the amount of time spent reading rather than the number of pages.

3. When assigning reading to the student, base the number of assigned pages on his reading rate and skill.
4. Assign the student short passages at his reading level so that he can complete the reading without difficulty.

5. Break reading assignments into smaller, more manageable units of text (e.g., one chapter, sections within a chapter, or paragraphs within a section).

**Taped Books**

1. Because the student has been identified as having a reading disability or dyslexia, help the student register with Recordings for the Blind & Dyslexic (RFB&D) and secure textbooks on audiotape from them. This national, nonprofit organization provides textbooks for individuals unable to read standard print because of a visual, physical, or learning disability. The master-tape library has educational books that range from kindergarten through postgraduate level. If a book is unavailable, and is deemed to fit within the scope of the collection, the book will be recorded upon request. In late 2001, RFB&D will make available a library of digital textbooks on CD-ROM, allowing students to navigate the book/disk by page, chapter or heading. [See Strategies: Taped Books.]

2. Provide the student with information regarding free sources for taped books (e.g., Recordings for the Blind & Dyslexic, public library, university library, local school or agency for the visually impaired) and how to obtain them. [See Strategies: Taped Books.]

3. Since the student’s listening comprehension is at approximately the (higher) grade level, but his reading decoding is at approximately the (lower) grade level, provide the student with taped copies of all of his textbooks as well as any assigned novels and outside reading. This will enable him to learn the information along with the class and participate in class discussions.

4. Before the end of this school year, ascertain what textbooks and novels the student will be required to read next year, complete an application to register him with Recordings for the Blind & Dyslexic, and place an order for any books that he will need. [See Strategies: Taped Books.]

5. Provide the student with a list of the outside readings that will be required next year so that he can get them on tape from the library and listen to them over the summer. Once he is familiar with the story or information, it will be easier for him to read along with the tape when the reading is assigned in class.

6. If a reading selection is too difficult for the student to read independently, have a peer read it with him or have the student listen to a tape of the book as he follows along with the print. Provide earphones to avoid drawing attention to the student and to avoid disturbing other students.
Technology

1. Provide the student access to and training in using a computer with a screenreading program and voice synthesizer designed for students with learning disabilities (rather than visual impairments). Desirable qualities in screenreaders for students with learning disabilities include a simple, intuitive command interface; phonetic accuracy in speech production; visible display of each word as it is read; consistent command interface; ability to read in linguistic units (word, sentence, paragraph); ability to read an entire text file; simple ways to set technical aspects (speech speed, text); ability to support keyboard and word echo functions; speech activated on demand only; and a cursor track toggle (Norris, 1992).

2. Provide the student access to and training in using a computer with a screen magnifier that will allow him to manipulate the size, font, and color of text, and the spacing between lines of text. Check to see that the software will not conflict with the screenreading program if one is installed in the computer.

3. To aid with word pronunciation, provide the student with a talking pen. Two examples follow:
   - The Quicktionary II scans any word from printed text, displays the word and definition in large characters, and reads the word aloud through a built-in speaker or earphones.
   - The Reading Pen II was designed specifically for people with reading or learning disabilities. It contains the American Heritage dictionary, displays a definition of the scanned word or line of text, and reads the word and definition aloud. Words may be spelled out or broken into syllables. Available from Wizcom Technologies, Inc., 257 Great Road, Acton, MA 01720, phone: (888) 777-0552, website: http://www.wizcomtech.com.

4. For independent reading, provide the student with an electronic speaking dictionary, such as the dictionaries developed by Franklin Learning Resources, 122 Burrs Road, Mt. Holly, NJ 08060, phone: (800) 525-9673, website: http://www.franklin.com.

5. Employ engaging software programs that are designed to promote early literacy. These programs can reinforce skills and enhance student motivation.

6. Use computer programs only for reinforcement of and development of mastery or fluency in the skills in which the student has a sufficient level of ability that he will make few errors. If the student is making frequent errors, he is not benefiting from use of the software and requires direct instruction.

7. Use a variety of software programs designed to build accuracy in decoding and sight words.

8. Teach the student how to use the program Read, Write, & Type. This software program, designed for ages 6 to 8, teaches typing, as well as beginning literacy skills. The sequential curriculum provides instruction and games with all 40 speech sounds while students learn to use the keyboard. The program involves several steps: (a) learning each sound; (b) identifying beginning, middle, and ending sounds in words; (c) building words by typing sounds; (d) reading and writing simple stories; (e) creating stories; and (f) writing messages. Companion CDs and additional materials are also available. Talking Fingers, One St. Vincent Drive, San Rafael, CA 94903, phone: (888) 839-8939, website: http://www.talkingfingers.com

Interest, Motivation, Self-Esteem

School

1. For independent reading activities, provide the student with a selection of high-interest, low-vocabulary readers so that he will spend time in independent reading, increase speed of sight word recognition, and discover that reading is enjoyable.

2. Read and discuss high-interest material with the student to increase willingness to spend time reading.

3. Select or have the student choose materials to read that are related to his interests.

4. Set aside 15-30 minutes each day for recreational reading. Help the student to choose books and periodicals that are of interest to him and that are at his independent reading level.

5. Until the student's basic reading skills improve, do not ask him to read aloud in class unless he volunteers.

6. The student requires intensive instruction to learn to read. Because it would be difficult and embarrassing to the student to provide this type of assistance within the general education classroom, schedule daily sessions in the resource room.

7. If planning a time that students will read aloud in class, give the student at least one day’s warning. Give him a copy of (or show him in his book) the passage that he will be asked to read so that he can practice the material several times before he reads it aloud in class. Plan a time to help him practice or make arrangements with another adult or the student’s parents to do so.

8. Encourage and reinforce independent reading. For example, let the student select an activity that he enjoys after reading for a specified amount of time.

9. Discuss with the student how daily silent reading will help him improve reading skill. Review the benefits of being a good reader for scholastic and/or occupational success.

10. Establish a system using reinforcers to increase the amount of time the student spends in daily reading. For example, provide the student with a sticker for every [   ] pages read or a poster for each book that is completed.

11. Establish a contract with the student that identifies the minimum number of pages to be read each day. Let the student trade the number of pages for points that may be exchanged for a specified reward when the contract has been completed. Ensure the student's reading selections are at the independent reading level.

12. Integrate literacy instruction with meaningful classroom activities.

13. Use a variety of reading materials in the classroom to help the student recognize the need for reading in daily life. Examples include: cookbooks, board games, magazines, newspapers, menus, directions on food and medicine packages, game instructions, catalogues, the Yellow pages, a TV schedule, and a driver's manual.

14. Provide the student with reading materials directly related to his career or vocational goals.

15. For the weekend, arrange with the student’s parents for him to watch “Reading Rainbow” (Public Broadcasting System) or choose a similar television program that enhances interest in reading. Then bring the book read on the show to class for the student to read, for paired reading, or for you to read with the student.

16. Allow the student to read “books” on computer software programs. Many programs have a voice that reads the text, highlighting the word as it is read, allowing the student to listen or to read along. Many books also contain animations, increasing a student’s interest in reading the story. Reading material on software is available at a wide range of reading and interest levels.

**Home**

1. Read with your [son, daughter] for about 15 minutes every night. Enlist the help of the children's librarian at the public library to select interesting books that are at the instructional reading level (slightly above the child's present level of reading development). At [his, her] instructional reading level, your [son, daughter] should be able to read 95 to 97 words in a 100-word passage without difficulty.

2. As a pleasurable activity, select a high-interest book or magazine at your child's independent reading level to read in the evenings. Stop at certain points and encourage your child to discuss the pictures and ideas presented in the story. Ask your child questions that will enhance interest and stimulate understanding of the story.

3. Schedule weekly trips to the library so that your child can select books for recreational reading and for informational interest. Request help from the children's librarian in selecting books and magazines related to his interests.

4. Watch "Reading Rainbow" (Public Broadcasting System) with your child and then borrow from the library and reread the books that he finds interesting.

5. Watch “Reading between the Lions” (Public Broadcasting System) with your child. This program will help build reading and spelling skill.

6. To increase interest in reading, encourage your son (daughter) to read simple stories to younger siblings. Patterned language books, in which phrases and lines from the story are frequently repeated, would be appropriate. These types of books may be found in the children’s literature section of the public library.

7. When reading with your son (daughter) at home, provide as much assistance as needed. Take turns reading sentences, paragraphs, or pages. Initially, you may need to read a larger portion of the text. For example, you will read three sentences and then your child will read one.

8. When reading with your [son, daughter] at home, let him read any words that he recognizes easily and tell [him, her] words that [he, she] has difficulty identifying. Too much time spent trying to figure out unknown words may detract from comprehension, as well as from the enjoyment of reading with a parent.

9. Play games at home that require simple reading and spelling, as sounding out words for spelling will reinforce sounding out words for reading. Adapt the rules according to the needs of your child or the (learning) object of the game. For example, in playing Scrabble, tell the child that he can make up any “word” as long as it follows a [consonant-vowel-consonant, consonant-vowel-consonant-final e] pattern and he can read it correctly.

10. Spend time with your child using educational computer software designed to promote reading development. When you are sure that your child can handle one or more of the activities independently, with almost no errors, encourage [him, her] to play without your help, but check in to make sure that he is using the program appropriately or he will not benefit from it. [See Strategies: Software Selection Tips.]

11. Help your [son, daughter] select and order one or two magazines of interest with a readability level at or below his instructional reading level.

12. Encourage discussions in the home about any books or magazines that your [son, daughter] is reading independently.

13. Provide opportunities and guidance for functional reading, such as reading recipes, directions, catalogues, or television guides.

14. Use an assisted reading method to help your child increase reading readiness or fluency. Read your child a phrase or sentence and then have him read it back. Move your finger along the line of print to help him focus on the word. Reread the passage several times. When your child recognizes the words, have him read independently. Provide assistance with words on which he is having difficulty.

15. When reading with your child at home, if he is having difficulty keeping his place, point to the words with your finger or hold an index card under the line being read.

16. Provide a time each evening for reading. Encourage your [son, daughter] to read at least 20 minutes each night.
17. Use the Reading Reflex program with your child at home (McGuinness & McGuinness, 1998). This program was designed for young children or elementary-age children who are struggling to learn to read. The program provides a child with systematic instruction in the alphabetic code. The book includes simple diagnostic tests, lesson plans, word exercises, and games. Additional support materials are available that can be used in conjunction with the book. Available from Reading Reflex, The Free Press, 1230 Avenue of the Americas, New York, NY 10020, phone: (800) 732-3868, website: http://www.SimonSays.com.

General

1. Provide the student with an instructional approach that is intense, explicit, and provides direct instruction in how to apply alphabetic knowledge to word recognition.

2. The student needs an instructional program in basic reading and spelling skills that is systematic in introduction, practice, and reinforcement of phonemic awareness skills, phoneme-grapheme relationships, sight words, syllabication rules, structural analysis and spelling rules. In a systematic program, skills are presented in graduated steps, from simple to complex, with students achieving mastery before the next skill is introduced. Practice assignments on the current skill incorporate previously learned skills, providing opportunities for the student to develop automaticity.

3. The student will do best with a multi-sensory instructional program for basic reading and spelling skills, such as Lindamood ® Phoneme Sequencing Program for Reading, Spelling, and Speech (LiPS ®) or the Wilson Language System, which is somewhat less intensive. Other programs, which are not multisensory, such as Saxon Phonics or Scholastic Phonics and Scholastic Spelling, might be successfully used with the addition of multisensory activities and extra reinforcement activities.

4. As the current reading program is highly structured and well-developed (e.g., Success for All, Saxon Phonics, Open Court), do not change programs but use it as the skeleton of a more intensive program. Start from [insert appropriate skill level or lesson in program, depending on the skills the student has mastered] with the student. Teach [letter recognition, names, sounds, and formation.] At every step, supplement the recommended techniques with other multimodality techniques to reinforce his understanding and ability to use each skill.

5. As you teach basic skills, ensure that the student learns the names and meanings of the related reading terminology, such as: letter name, letter sound, syllable, word, sentence, and paragraph.

6. Discuss with the student how improvement in basic reading skills will make reading easier and more enjoyable. Show him the types of daily living activities and recreational activities that require reading (e.g., reading street signs while driving, prescription warnings, internet website, game instructions, menus, movie guide). Obtain a commitment from him that he wishes to improve his basic reading skills and agree on a specific short-term goal.

7. Since the student has a tendency to over-rely on picture clues, use high-interest books with few pictures so that he will pay more attention to graphophonic clues.
8. Provide ample practice with basic reading skills in context. Directly teach the student to recognize when and how to apply skills.

9. Provide the student with systematic instruction in basic skills, as well as extensive opportunities to read decodable and authentic texts.

10. Provide the student with the opportunity to teach any reading skill that is close to mastery to a peer or younger student who needs that skill.

11. Create situations where the student can tutor children with lower performance levels in basic reading skills. Teaching these skills to another child will help reinforce and strengthen phoneme-grapheme connections.

12. Integrate instruction in reading decoding and with instruction in spelling. For example, when teaching the student how to read phonically regular, 3-letter, closed-syllable words (e.g., tag, lip), teach him how to segment the sounds in the same types of words, writing the letter corresponding to each sound in order. Teach any related phonics generalizations (e.g., closed syllables contain only one vowel and end in a consonant; the vowel in a closed syllable typically has its short sound). Provide ample practice in recognizing the syllable pattern and applying the generalization to reading and spelling real words and nonsense words. [See Strategies: Six Syllable Structures.]

13. If the student is unable to learn sound blending and sound segmenting skills after explicit instruction within a systematic phonological awareness and synthetic phonics program, introduce [a word family approach to decoding, such as Merrill Linguistic Readers; a sight word approach to decoding, such as Reading Milestones; an analytic approach incorporating words parts, such as Glass Analysis for Decoding Only.]

14. At this point, do not spend time on strategies for reading comprehension. As the student comprehends and can express himself adequately in oral language, limited decoding skill is the major impediment to his reading comprehension. The level of language that he can read without undue effort should not present any comprehension difficulty. Spend all reading instructional time focused on reading decoding and spelling skills. Reading comprehension strategies can be taught as oral comprehension strategies that can later be applied to more fluent and higher-level reading.

**Letter Identification**

1. Teach the student the names of the letters. Due to his particular needs, try the following activities:

   - Before teaching the names of the letters, give the student the opportunity to become familiar with the shapes of the letters by incorporating 3-dimensional letter models into games and activities. Some ideas for doing this include:

o Make up games for small groups of students to play using letter-models, matching letter models to each other, and matching them to bold, colored drawings of letters.

o Create activities in which the students make 3-dimensional letters such as making letters out of clay, then decorating, and baking them, or making letters out of dough, baking, and eating them.

o Provide alphabet puzzles that have large, thick rubber or wooden letters that come out with their shapes intact. Have students both match letters with each other and fit letters back into their spaces.

- Teach only one to three letter-name associations a day, depending on the student’s ability to retain them. At least once a day, review all previously learned letter-name associations through recognition (teacher says the name and student points to the letter) and identification (teacher points to the letter, student names it). Incorporate review into games when possible, such as playing Go Fish or Old Maid with letter cards. If the student has forgotten any, reteach them using an instructional technique that creates a stronger letter-name association than in the previous instruction.

- When teaching letter identification, start with uppercase letters. These are easiest for young children to discriminate and to learn to write. Introduce lowercase letters only after uppercase has been mastered.

- When teaching the student the alphabet, begin with the letters in his first name, and then his last name. Use these letters to demonstrate how to create and write simple words.

- Since the student is an older nonreader with more mature visual perceptual and fine-motor skills than most beginning readers, introduce lowercase letters first so that he may begin working with text as soon as possible.

- Because of the student’s extremely poor short-term memory, it will probably be easier for him to learn the letter names in conjunction with their shapes rather than by rote in the alphabet song.

- Teach the student to sing the alphabet song. Prior familiarity with the letter names will make it easier for him to learn the association between the names and the letter shapes. When teaching the song, however, make sure that the student knows where the breaks are between letter names. For example, he needs to be thinking, “L, M, N, O, P” rather than “elementopenee.”

- Use gross motor movements to help the student visualize and remember letter forms. For example, have the student stand up straight and stick both arms out to form the letter T.
• If the student has difficulty learning some of the letter names, make drawings out of those letters to strengthen the association between shape and name. For example, make a bee out of an uppercase B; for C, draw hands holding binoculars up to eyes on the upper open end of the C; and draw the D deep under the ocean.

• Use a simple electronic speller so that the student can key in a letter and hear the letter name or choose a key, guess the name, and check himself. Alternatively, the student can use a Language Master.

2. Provide multisensory instruction to aid in letter learning. When teaching the student to associate letters with their names, teach only one letter-name at a time. To promote retention and attention, incorporate tactile-kinesthetic activities into instruction. Activities may include having the student trace glitter letters while saying the letter name, put letter forms into their proper place in a puzzle jig while reminding himself of its name, or, working with another student, making the shape of the letter with their bodies while saying (shouting, singing) its name.

3. As the student is unclear as to the difference between upper- and lowercase letters, provide matching and sorting activities. At first, provide upper- and lowercase alphabet strips for him to use as a reference, then have him work from memory. A suggested sequence is:

   • Using letter cards, have the student practice matching upper- and lowercase letters.

   • Mix up uppercase and lowercase letter cards. (You may include numbers if you want the student to differentiate letters from numbers). Have the student sort them into [2, 3] piles. If he can, have the student put each letter pile into alphabetical order, then match up the upper- and lowercase letter pairs.

   • When the student is ready for workbook-type activities, provide sheets of letter outlines with combinations of upper- and lowercase letters. Have the student color in only the uppercase. Do not have him color uppercase with one color and lowercase with another as instruction is still focused on working with uppercase letters only.

   • Move to more advanced activities such as having the student circle all of the uppercase letters on a page of text.

4. Guide the student to activate, organize, and develop knowledge of the relationship between letters and words. Games are particularly helpful in this regard. For example, play games requiring students to come up with words starting with specified letters, such as Grandmother’s Trip (go through the alphabet but do not require the student to recall all previous items named) or games wherein the student has to name objects within a given category and starting with a particular letter (e.g., "My family owns a pet store and they sell something that begins with the letter C." With the student's help, brainstorm as many words as you can generate. Continue the game with another letter).
5. As the student continues to confuse graphically similar letters, such as b and d, provide clues and “tricks” to differentiate between them. “Tricks” for distinguishing b from d include:

- A story: Bob wants to play baseball. If he has a ball, he can play lots of games, but to play baseball, first (emphasize the word) you have to have a bat (begin to draw a b, making the bat or stick), then the ball (complete the b with the loop). Have the student memorize, “B. First, you have to have a bat.”

- Teach the student to print b and d according to D’Nealian style or Handwriting Without Tears. The b and d start in different places (b – top, d - middle) and use different strokes.

- Make a b with the left hand and a d with the right (forefinger straight up, circle with thumb and other fingers). Making sure the student understands reading from left to right, tell him that the b comes first in the alphabet so check the left hand for b; the d comes after it, so look at the right hand.

- Make a picture of a bed (with headboard and footboard) out of the word bed. Teach the student to think of the picture and the sounds of the word when confused. The first sound is /b/ so the first letter is b; the last sound is /d/ so the last letter is d.

**Letter-Sound Associations**

1. Help the student understand the reason for learning letter-sound associations and how letters and sounds are applied in beginning reading to determine unfamiliar words.

2. Teach the student that letters have both names and sounds. Using an analogy to animals is helpful. For example, show the student a picture of a lion and say: "His name is lion but his sound is /roar/.” To build understanding of this concept, use only one sound per letter, and short sounds for vowels. Provide ample practice differentiating between them by creating activities in which the student (or group of students) says a letter name or sound in response to the teacher (or other student) holding up a letter card and asking for name or sound, and activities in which the teacher holds up a letter card and says either its name or sound and the student has to say, in response, name or sound.

3. When introducing letter-sound instruction, help the student to create associations by using pictures or picture cards (key words) that represent the letter shape and sound. For example, present the letter o as a drawing of an octopus, the letter m as two mountains, the letter e as an egg, and the letter s as a snake. When practicing with alphabet cards, have the student say the letter name, the key word, and the associated sound. Model the sounds of the consonants with as little subsequent vowel sound as possible and ensure that students practice it that way (e.g., /b/ not bŭ).

4. When the student is familiar with many of the consonants and vowels, point out to him how the letters are put together to make up words and how the words go together to make sentences. Build in the concept that letters and words are the building blocks of reading and writing.

5. Use language clues for teaching the sounds of frequently confused letters, such as m and n. For example, a short verbal cue could be: M has many mountains and N does not.

6. If the student has difficulty retaining new phonic elements, add a tactile component, such as tracing and saying the sounds of the new letter-sound combinations as they are learned. Reinforce this association by having him say the sound(s) while he writes the letter(s) from memory. The student will require extra reinforcement to commit the letter-sound associations to memory.

7. As the student is having difficulty retaining letter-sound correspondences, play games specifically focused on their reinforcement. One such game, “Tongue Twister,” is also useful for phonological awareness. Each student is given a card and tokens. On one side of the card is an array of nine pictures and on the other, an array of nine letters. The object is to cover all of the pictures or letters. The taped voice says an alliterative phrase (e.g., “itchy insects in igloos”) and the student places a token on the picture that matches or the letter that corresponds to the initial sound of each word (e.g., i).

8. Once the student has learned the sound of a letter or phonogram, give frequent practice reading it and spelling it in nonsense words as well as real words.

**Phonological Awareness to Print**

1. Guide the student in moving from phonological awareness into the use of print through a program of activities such as *Road to the Code: A Phonological Awareness Program for Young Children*. Available from Paul H. Brookes Publishing Company. P.O. Box 10624, Baltimore, MD 21285-0624, phone: (800) 638-3775, website: [http://www.brookespublishing.com](http://www.brookespublishing.com).

2. Help the student to visualize the relationship between speech sounds and printed letters, while emphasizing sound segmenting and sequencing, through use of the adapted Elkonin Procedure (Elkonin,1973). [See Strategies: Elkonin Procedure: Adapted.]

3. As a basis for the acquisition and development of fluency with letter-sound knowledge, integrate phonics with phonemic awareness instruction by including activities using letters. Provide activities that require blending sounds into words, breaking words into individual sounds, and sequencing and resequencing sounds. An example of one [or more] such activity is: [Include any of the following activities that are appropriate to the student’s needs.]

   - Use Making Words (Cunningham & Cunningham, 1992) to help the student develop phonemic awareness and discover how our alphabetic system works by increasing his understanding of sound-letter relationships. This series of 15-minute activities is to be used along with regular writing activities. Each student is given letters that he uses to make 12 to 15 words. The activities begin with short easy words and end with a big word that uses all of the letters. Available from Good Apple, Inc., A Division of Frank Schaffer Publications, 23740 Hawthorne Blvd., Torrance, CA 90505, (800) 421-5565, website: [http://www.frankschaffer.com](http://www.frankschaffer.com).

- Use Easy Lessons for Teaching Word Families to help the student increase letter-sound knowledge. This is K-1 instructional program, adapted from Making Words, is designed to teach the student how to sequence letters and sounds. Scholastic, 2931 East McCarty Street, Jefferson City, MO 65102, phone: (800) 724-6527, website: http://www.scholastic.com.

- To encourage the use of letter-sound correspondence, using magnetic letters or letter tiles, show the student a word, say the word, scramble the letters, and ask the student to rebuild and pronounce the word.

- Use letter tiles to teach the concept of sound sequencing and blending. Arrange a given set of tiles and have the student attempt to pronounce real or nonsense words. Resequence, omit, add, or substitute one letter at a time and have the student pronounce the new word. For a change of activity, and to reinforce sound segmenting, pronounce a word and have the student arrange the letters to match the sequence of sounds. Modify the pronunciation slightly and have the student rearrange the letter tiles. Be careful to present only syllable patterns that the student has learned and not to include letters that change the sound of the letters around them (e.g., lad to lard).

- Play games to increase phonological awareness and knowledge of sound-symbol correspondences. For example, number a paper from 1 to 10 (or any other number). Write a short, phonically regular word. Pass the paper to the student and ask him to form a new word by just changing one letter. Letters may be inserted, omitted, or rearranged. If the student cannot think of a word, provide as much assistance as needed. After he writes a word, he returns the paper to you. Continue until ten words are written. When finished, have the student read the list of words.

4. As letter patterns are learned, incorporate them into fluency and text reading activities.

5. Prior to reading passages, ask the student to find and attempt to pronounce words in the reading materials that include one or two of the phonics elements he is learning.

**Phonics**

**General**

1. To help the student improve his ability to use phoneme-grapheme relationships, discourage reliance on pictures as aids for word recognition.

2. Since the student tends to over-rely on the use of context clues for word recognition, directly teach him how to use phoneme-grapheme relationships.

3. Presently, the student over-relies on semantic and syntactic cues which results in inaccurate word identification. Provide the student with extensive practice in using graphophonic cues.
4. Because the student lacks knowledge of the alphabetic system, teach phonics explicitly, rather than incidentally (instruction within text).

5. Praise the student for any attempts he makes at pronouncing unknown words when reading aloud. Encourage him to try and identify words rather than guessing or skipping over words.

6. When the student is reading independently, do not encourage him to skip words. Instead, teach the student to examine the word carefully and then reread the sentence in which the word appears. Discuss with the student how attempting to pronounce unknown words, when he is reading independently, will improve his word attack skills.

7. When teaching the student phonics skills, be sure to provide additional time for activities involving oral language development and reading comprehension.

8. In all reading and spelling instruction, make sure to point out the letter patterns. Incorporate activities to draw the student’s attention to these such as color coding, circling, or searching for specific letter patterns in text.

9. Use computer programs (e.g., Reader Rabbit, Kid Phonics), card games (e.g., The Phonics Game), and board games for drill and practice of reading and spelling skills and sight words.

10. Make games out of word attack practice by using game boards such as Chutes and Ladders for small groups of students to play. In the following example, the students are working on recalling and blending sounds in closed syllable words. Make a stack of cards with cvc words, both real and nonsense. Write a number on the face of each of the cards. Using their markers on the Chutes and Ladders board, the students progress along the path by picking a card, sounding it out the word, and moving according to the number on the card. As soon as the student gains some fluency in blending sounds to make a word, the word cards can be written at the next level of skill development (e.g., ccvc and cvcc words, following instruction in consonant blends). Older students prefer more mature-looking games such as Parcheesi.

**Synthetic Phonics**

1. Use a synthetic phonics approach to teach the student reading skills. With synthetic phonics instruction, the student is taught explicitly the relationship between letters and sounds. After sounds are taught in isolation, he is then taught how to blend the letter sounds together to pronounce words. Once the student can blend single phonemes, additional graphemes are introduced and emphasis is placed on learning to chunk or break words into their basic parts. For many disabled readers, research has shown synthetic phonics to be the most effective of the phonics methods.

2. Use a program such as the Stevenson Language Program, a language skills program that teaches students language rules by connecting them to images that can be readily visualized. This sequential system provides lessons in reading, vocabulary building, spelling, penmanship, grammar, comprehension work, and typing. At the beginning level, decoding and spelling are emphasized. Materials are available from Stevenson Learning Skills, Inc., 85 Upland Road, Attleboro, MA 02703 or through the Guide Line, (800) 343-1211.
3. Teach the student phonic skills by using a highly structured synthetic approach. Examples include the Phonic Remedial Reading Drills (Kirk, Kirk, & Minskoff, 1985), the Spalding method (Spalding & Spalding, 1986), Angling for Words (Bowen, 1972), Reading Mastery (Engelmann et al., 1983-1984), and Corrective Reading (Engelmann et al., 1988).

4. Due to the student’s difficulty with [memory, processing speed, language], teach basic reading skills through a highly structured, multisensory, synthetic phonics program that will help the student to form a strong association between letters and their corresponding sounds, and to blend, segment, sequence and manipulate sounds as represented by letters.

5. Teach the student phonic skills using a highly structured synthetic program that incorporates a strong tactile-kinesthetic component, such as the Slingerland method (Slingerland, 1971), the Orton-Gillingham approach (Gillingham & Stillman, 1973), or the Lindamood ®Phoneme Sequencing Program for Reading, Spelling, and Speech. Available from: Pro-Ed, 8700 Shoal Creek Blvd., Austin, TX 78757-6897, phone: (800) 897-3202, website: http://www.proedinc.com.

6. Use a multisensory program to teach phonic skills, such as the Wilson Reading System, that was designed originally for older students. Available from Wilson Language Training, 175 West Main Street, Millbury, MA, 01527-1441, (800) 899-8454, http://www.WilsonLanguage.com.

7. Use a program with the student such as Visual Phonics, a system of 46 hand signs and written symbols that suggest how a sound is made. This program can be used in conjunction with any reading, literacy, speech, or ESL program. More information is available from: International Communication Learning Institute (ICLI), 7108 Bristol Blvd., Edina, MN 55435, (612) 929-9381.

8. Provide explicit instruction in phonic elements. The focus of phonics instruction should be to help the student see how letters relate to sounds, and then how letters and sounds are used to read and spell words.


Analytic Phonics

1. Use an analytic phonics program to teach the student basic reading skills. This type of approach begins with familiar letter patterns (e.g., at) rather than single letters and sounds. Make sure the student automatically recognizes each letter pattern taught and can use it to pronounce unfamiliar words in other types of reading material. Begin with the most commonly used rimes. (e.g., at, an, it). Sample activities include:
Recommendations: Basic Reading Skills

- Using manipulatives, teach the student a common cluster, such as at. Form new words by changing the initial consonant. Have the student attempt to pronounce the new words.

- Write a familiar word on a piece of paper. Have the student say the word. Without changing the word, alter various letters, both consonants and vowels, and ask the student how the new word would be pronounced. For example, you may write the word sank, and ask the student what the word would be if you changed the s to a t, or the a to an i, or the n to a c, and so on. If necessary, have the student write the new word to aid in pronunciation.

2. Teach the student new words in word families. Select common word patterns, such as at or am and then identify and practice common words in the family. Help the student learn to identify the patterns rapidly and automatically.

3. Use the words in the student's sight vocabulary as a basis for building phonic skills. For example, start with a word that he automatically recognizes, such as run, and then show him how that pattern can help him identify a new word, such as fun. Help promote generalization of common patterns by frequently pointing out similarities in words.

Embedded Phonics

1. Provide the student with practice in word attack skills using high interest reading materials. When the student comes to a word that he does not know, provide phonic clues (such as the initial sound) to help him identify the word.

2. Teach phonics instruction within meaningful text reading. Highlight specific phonic elements when they appear in text.

3. Integrate phonics instruction into daily reading and writing activities. Provide opportunities for the student to use his knowledge of letter-sound relationships.

Multisyllabic Words

1. Teach the student the six most common syllable structures. [See Strategies: Six Syllable Structures.] Show him how recognizing the syllable structure will aid with word pronunciation and help him know how to pronounce the vowel sound.

2. A good supplementary activity for practicing recognition of the syllable structures and their most common pronunciations is Syllable Plus: A Game to Teach Syllable Types (Stoner, 1985). Available from Educational Tutorial Consortium, 4400 South 44th, Lincoln, NE 68516, (402) 489-8133.

3. Teach the student how to use structural analysis to decode multisyllabic words. Ensure that he “over learns” these skills so that he begins to see unfamiliar words as a sequence of recognizable word parts. Teach him to identify both meaning parts (prefixes, suffixes, and root words) and pronunciation parts (common clusters and syllables).

4. Some activities and programs that might be helpful in this regard are:

   - Reinforce the student’s pronunciation and knowledge of the meaning of affixes and root words by providing the student with the most common prefixes, suffixes, and root words printed on index cards, one to a card. Have the student build and then pronounce both real and nonsense words by rearranging the cards (e.g., subductable – able to be taken under; transportation – the act of carrying across).

   - Reinforce the student’s recognition and pronunciation of affixes and root words by using activities in game format, such as Intermediate Syllable Plus (Anderson, Cross, & Stoner, 1992) and Advanced Syllable Plus (Anderson, Cross, & Stoner, 1994). In these activities, students categorize a wide variety of the most common prefixes, suffixes, and roots by syllable type and pronunciation. Available from Educational Tutorial Consortium, 4400 South 44th, Lincoln, NE 68516, (402) 489-8133.

5. Focus the student’s decoding and spelling instruction on content area words while teaching syllabication and structural analysis. One program specifically addressing the needs of older learners is WORDS: Integrated Decoding and Spelling Instruction Based on Word Origin and Word Structure (Henry, 1990). This program, intended for grades 3-8 and older students with learning disabilities, includes activities such as organizing letter-sound correspondences, studying syllable patterns, learning about word origins, and practicing decoding and spelling multisyllabic words taken from math, social studies, and science textbooks. The manual contains a tests, content area word lists, non-phonetic word lists, and spelling rules. Available from PRO-ED, 8700 Shoal Creek Blvd., Austin, TX 78757-6897, (800) 897-3202, http://www.proedinc.com.

6. Teach structural analysis by cutting apart words into common clusters. Keep the letters of the words you are working with large. Combine the word parts in a variety of ways to make pseudowords or real words to pronounce. Let the student then scramble the letters to make new words for you to pronounce.

7. Make a chart with several suffixes listed down the side, such as *ing*, *er*, and *ed*. Write root words across the top. Have the student determine which endings can be added to form new real words. When he has completed the chart, have him pronounce all the words.

8. Use high-interest materials, such as magazines or newspaper articles to reinforce pronunciation of multisyllabic words. Before reading, have the student scan the passage, underline, and attempt to pronounce words containing three or more syllables.

9. Have the student engage in activities that will develop his automatic recognition of any affixes, specific letter patterns, and morphemes on which the student is working, such as *ing* or *cious*.

10. To develop automatic recognition of the word part on which the student is working, prior to reading a passage aloud, have him color code or highlight it each time it appears in the text.

11. To familiarize the student visually with affixes, introduce him to a short list of prefixes and suffixes with their most common meanings. Provide practice pronouncing these affixes with a variety of root words.

12. To teach immediate visual recognition of common affixes, have the student scan for them in his school texts or the newspaper.

13. Prior to having the student read a passage, underline any multisyllabic words that he may have difficulty pronouncing. Review pronunciation of the words. Have the student then practice reading the words fluently in context.

14. When pronouncing multisyllabic words, have the student slide his index finger slowly under the word parts as he pronounces them.

15. Teach syllabication and structural analysis through a highly structured and sequential program that highlights the visual aspect of the word parts and reinforces a strong association with their corresponding sounds. One such method is Glass-Analysis Method for Decoding Only (Glass, 1973, 1976). [See Strategies: Glass Analysis for Decoding Only.]

16. Teach the student a learning strategy, such as DISSECT (Lenz, Schumaker, Deshler, & Beals, 1984), to use when she encounters unknown words.

**Sight Word Identification**

**Further Evaluation**

1. Use diagnostic teaching to determine the most effective method for helping the student to learn sight words.

2. Use informal evaluation and diagnostic teaching to determine the reason for the student’s difficulty in recognizing and retaining sight words.

**General**

1. Teach the student to recognize and pronounce common exception words (e.g., once). Discuss with the student that some words are not consistent in sound-symbol correspondence and that these irregular or exception words must be memorized or learned as sight words.

2. Teach sight words from one of the lists of the words most frequently used in reading materials, such as the 220 words of the Dolch Basic Sight Word List (Dolch, 1939) or 1,000 Instant Words (Fry, 1994). Available from Teacher Created Materials, 6421 Industry Way, Westminster, CA, 92683, (800) 662-4321. [See Strategies: Instant Words 300.]

3. Teach the student to recognize the 300 Instant Words (Fry, 1980). These words make up approximately 65 percent of written material. [See Strategies: Instant Words 300.]
4. Have the student develop a word box, such as a recipe box with letter tabs or a shoe box with envelopes as dividers. Print sight words on index cards, one to a card, and in uniform color and print style (or typeface) so that he will use the letter patterns to identify the word rather than incidental characteristics such as color, cursive versus print, or a smudge on the card. Have the student place known words into the box and arrange them alphabetically or create categories by level of mastery, such as Known Words (words mastered), New Words (words to study next), Review Words (studied but not quite mastered), and Problem Words. Provide the student with many and varied opportunities for review of the sight words in his word box. [See Strategies: Word Bank Activities.]

5. Do not give the student separate sight word and spelling lists to learn. The student is unable to handle that amount of material and is confused by the separate requirements. Practicing the spelling of the sight words will reinforce the student’s recognition of the words and the letter patterns within the words as well as the recall of their sounds.

6. Have the student learn no more than [appropriate number] sight words at a time. To document his mastery of words studied and to know when to assign new words, use a flow chart. The flow chart has a column in which to list the words to be studied and boxes across from each word in which to record if the student read the word correctly or incorrectly, if he restudied the word, and the date. After the student has demonstrated mastery of a word, it can be crossed off the list (or marked as needing periodic reinforcement) and a new one added. [See Strategies: Flow Chart: Sight Words/Spelling.]

7. Assign the same list of words for reading and spelling. Have the student write, read, or read and write his sight/spelling words every day. Several times a week, he needs to see them in his reading assignments and use them in writing activities such as sentence dictation. When the student has read and spelled the word correctly for five consecutive days, fade practice to twice, then once a week, and eventually to once a month. Once the student has studied the word, subsequent writing of the word must be from memory. If he cannot write the word from memory correctly, the student needs additional practice.

8. Prior to reading, introduce and practice any unknown words with the student.

9. To promote automatic recognition of sight words, practice with rapid exposure. This may be done with brief exposures of words on index cards, a simple tachistoscope, or a computer. Expose the word for progressively decreasing periods of time.

10. To help the student generalize sight word recognition to text, have him scan printed material and name and cross out target sight words he recognizes. Word Tracking: High Frequency Words (Kratoville, 1989), a book of tracking worksheets using the Francis-Kucera list of the 1,092 most frequently used words in English, is appropriate for this type of activity (Kucera & Francis, 1967).

**Strategies for Sight Word Instruction**

1. Use the spelling study strategy, Look-Spell-See-Write, to teach the student sight words. [See Strategies: Look-Spell-See-Write.]


3. Because the student has difficulty with memory, teach sight words using the Fernald method (Fernald, 1943) or the modified Fernald method. Important elements of these methods are repeatedly tracing the word while saying it, then writing it from memory. [See Strategies: Fernald Method for Reading, Fernald Method for Reading and Spelling: Modified.]

4. If the student continues to have difficulty recognizing and spelling sight words within an instructional program using decodable text and controlled vocabulary, use a modification of the Fernald method for initial instruction. Provide the word printed neatly in large bold letters (1½ to 2 inches high) on a strip of rough paper, such as a grocery bag. Have the student repeatedly trace the letters of the word as he says each sound (not the letter name). When the student is positive that he can write the word from memory with no mistakes, he writes it 5 times, checking his spelling against the model each time, and covering up his previous attempts. If he makes a mistake at any point, he goes back to tracing. [See Strategies: Fernald Method for Reading and Spelling: Modified.]

5. When teaching sight words, directly teach the student to recognize common letter patterns within the word (e.g., ight in sight, oo in look). Reinforce automatic recognition of the letter pattern by giving practice finding it in other words and in discriminating it from similar patterns. For example, given a page of words containing oo, have him track across each line, circling oo. Later, have him circle oo on a similar worksheet comprised of words that incorporate oo as well as vowel combinations similar to oo such as ou.

6. Use a modified letter cloze procedure to help the student with word identification. Write the whole word on the front of an index card and then rewrite the word on the back of card, deleting all the vowels. After showing the student both sides twice, have him identify the word and the missing vowels.

7. To increase the student's word recognition, use patterned language books that repeat words and phrases. If the student does not retain the words introduced in these books, provide additional practice with flash cards. If he continues to have difficulty with retention, incorporate a tracing component.

8. Use a modified language experience approach (Bos & Vaughn, 1991) to help the student establish a positive attitude toward reading, reinforce his understanding that printed words represent spoken language, and increase sight vocabulary. [See Strategies: Language Experience for Sight Words: Modified.]

9. Have the student develop electronic flash cards for sight word practice.

Survival Sight Vocabulary

1. Teach the student survival sight words, such as exit, entrance, danger, men, women, and yield.
2. Provide the student with practice reading informational signs in the environment.

3. Select words to teach the student that will be used in his particular vocation or avocation.

4. Teach the student to use technological devices, such as the Reading Pen II or an electronic talking dictionary, to help him read printed information in his daily life. When the student scans a word (or line of print) with the Reading Pen II, a voice synthesizer reads the word (line) aloud, and displays it in large print. It can also provide a spoken definition. Available from Wizcom Technologies, Inc., 257 Great Road, Acton, MA 01720, phone: (888) 777-0552, website: http://www.wizcomtech.com. Talking dictionaries are available from Franklin Learning Resources, 122 Burrs Road, Mt. Holly, NJ 08060, phone: (800) 525-9673, website: http://www.franklin.com.

Reading Practice in Decodable Text

1. Provide daily reading practice in decodable text (text based on a controlled vocabulary with many presentations of the sight words and reading/spelling patterns taught and in the same sequence). The student must read decodable text to integrate new and previously learned subskills into meaningful and connected text as well as to develop automaticity in word attack and sight word identification in multiple contexts. Regular basal texts or trade books are not effective for this purpose as they do not provide a controlled vocabulary with sufficient presentations of specific reading and spelling patterns in a specific sequence.

2. Combine phonics instruction with a reading program that uses decodable text. Decodable text is reading material that is composed primarily of words with regular sound-symbol correspondence. Reading decodable text provides the opportunity for application of newly learned skills and generalizing skills learned in isolation to practical use.

3. Set aside at least 15 minutes every day for the student to read decodable text. Decodable text is reading material comprised of the phonics and sight words he has already learned. Reading decodable text provides the opportunity for application of newly learned skills, reinforcement of sight words, and transitioning skills learned in isolation to practical use. At his current skill level, reading aloud is best.

4. Supplement the student’s phonics instruction with additional decodable books that he can read during free reading time and at home. Examples of the series available from educational publishers are the Steck-Vaughn Phonics Readers (Steck-Vaughn), SRA Reading Series (SRA/McGraw-Hill), Decodable Books (The Wright Group), J & J Language Readers (Sopris West), Phonics-Based Chapter Books (High Noon), and Scholastic Phonics Readers (Scholastic).

5. Use direct instruction for teaching phonics and then have the student apply the skills in decodable text formats. The use of controlled vocabulary will help the student practice the skills that he is learning.

6. Set aside at least 15 minutes every day for the student to read decodable text. At his current skill level, reading aloud is best.
7. Use paired reading to provide practice in reading decodable text. Pair up the student with another student at a similar reading level may take turns reading aloud to each other. Each student is responsible for making sure that what his partner reads makes sense and for stopping him if it does not.

**Reading Fluency**

**Further Evaluation**

1. Obtain a baseline measure of the student’s reading fluency. Tape record the student reading several graded passages at his instructional reading level. Record the number of words in the passage, the amount of time that it took the student to read it, and the number of errors. Divide the number of words read correctly by the total amount of reading time to find the number of correct words read per minute. Keep the taped readings and the record to document progress in reading fluency.

2. Calculate the student’s reading rate by dividing the number of words read correctly by the total amount of reading time. Count out 100 words in a passage and then time the student as he reads the passage.

3. Use a series of graded textbooks or an informal reading inventory to establish the reading level at which the student is able to read fluently. Note both rate and expression.

4. Use a speed drill and a one-minute timing to assess reading accuracy and rate. Use the following general guidelines: 30 correct words per minute (wpm) for first- and second-grade children; 40 correct wpm for third-grade children; 60 correct wpm for mid-third-grade; and 80 wpm in for students in fourth grade and above (Fischer, 1999). To conduct a speed drill, have the student read a list or words for one minute and record the number of errors. You may use a high frequency word list or sample speed drills from Concept Phonics, Oxton House, P. O. Box 209, Farmington, ME 04938, (800) 539-READ.

**Accommodations and Modifications**

1. Because the student has a slow reading rate, provide extended time on tests involving reading and shorten classroom reading assignments.

2. Because of the student’s slow reading rate, as an alternative to assigning the student a specific number of pages to read in class or for homework, specify a certain amount of time for the student to read. Have the student keep a record of the number of pages completed within the time period.

3. Presently, the student’s lack of automaticity interferes with higher-order reading skills. Because his decoding is slow and effortful, most of his attention is directed to word read accuracy rather than trying to understand what he is reading. Be sure to provide the student with necessary support in the classroom. This may include taped books, peer readers, extended time, and modified instructional materials.

Methods

General

1. Because the student reads accurately but slowly, use a variety of methods to increase reading fluency. Effective fluency methods include repeated readings, choral reading, speed drills, practicing with taped books, and reading decodable text. Provide short, frequent period of practice and concrete, visible measures of progress (e.g., charts, bar graphs). [See Strategies: Repeated Readings, Neurological Impress Method, Great Leaps Reading, Speed Drills for Reading Fluency and Basic Skills.]

2. Provide the student with many daily opportunities for reading connected text (e.g., partner reading and choral reading). These activities will improve word identification abilities and fluency.

3. Help the student develop proper phrasing in his oral reading by modeling appropriate expression and prosody, and supervising the student’s practice. Prosody is comprised pitch or intonation, stress or emphasis, tempo or rate, and the rhythmic patterns of language.

Speed Drills

1. As the student has particular difficulty with reading fluency, provide a program specifically designed for this purpose. Great Leaps Reading (Campbell, 1996) is used to increase reading speed and fluency while reinforcing phonics skills. One-minute timings are done that employ three stimuli: phonics, sight phrases, and short stories. Chart performance on graphs so that the student can see his progress. A K-2 version of this program provides a phonological awareness instruction component (Mercer & Campbell, 1998). [See Strategies: Great Leaps Reading.]

2. Use a Rapid Word Recognition Chart to improve speed and accuracy for pronouncing irregular words (Carreker, 1999). The chart is similar to a rapid serial naming task. It is a matrix that contains five rows of six exception words (such as “who” and “said”) with each row containing the same six words in a different order. After a warm up or brief review of the words, students are timed for 1 minute as they read aloud the words in the squares. Students can then count and record the number of words read correctly. Once the student can read all words easily and quickly, new words can be written in the chart.

3. To help automatize decoding skills and sight word recognition, as well as to increase reading fluency, create reading speed drills using sight words, syllable structures, word patterns, and phonic elements on which the student needs practice. The same six items (e.g., six sight words, six words representing the silent e syllable pattern) are printed in random order over ten rows. The goal for each page is for the student to read 60 items within 60 seconds. Given the student’s current [phonics, sight word, etc.] needs, items to work on are [VC and CVC word patterns, CV-silent e, a combination of both, and sight words.] [See Strategies: Speed Drills for Reading Fluency and Basic Skills.]
Repeated Readings and Choral Reading

1. Use guided repeated oral reading to improve word recognition and fluency. Have the student read the same passage several times orally. Provide him with systematic and explicit feedback and guidance.

2. Used paired reading with the student in the classroom (or home) to help him increase fluency. In the classroom, select a peer with whom the student enjoys working. Use the following steps: (a) the student and tutor read aloud together; (b) when the student wants to read independently, he taps the tutor to stop reading; (c) the student reads aloud independently until he does not know a word or makes an error; (d) the tutor provides the word, the student pronounces the word, and pair resumes choral reading. Use the procedure five times a week for a minimum of 5 minutes for a period of 6 to 8 weeks (Topping, 1987a, 1987b).

3. Use the Presenting Technique (Heckelman, 1986) as a pre-reading method to familiarize the student with the language and content of the reading passage, enabling a more fluent reading of the text or better participation when choral reading with the teacher. [See Strategies: Presenting Technique.]

4. Use the Repeated Readings Procedure (Samuels, 1979) to help the student improve reading speed. [See Strategies: Repeated Readings.] Tape the student's first and final reading of the passage to document progress and so that he can hear himself reading in a fluent manner. Chart his performance.

5. Use the Neurological Impress Method (Heckelman, 1966, 1986) with the student for 10-15 minutes daily. You may use a volunteer, a peer, a cross-age tutor, or the parents to read with the student. Provide training to the person working with the student. [See Strategies: Neurological Impress Method.]

6. To improve reading fluency, have the student practice reading a short predictable story or book (repeated words and phrases) until he is able to read it with ease. Have him read the book to someone else. Tape his first and final readings to document progress and so that he can hear himself read in a fluent manner.

Reading with Taped Books

1. Use taped books to help build reading skill. One program designed to build fluency in students from mid 1st-6th grade is called Read Naturally. Instruction is individualized and involves three main steps: (a) reading along with an audio tape of a story that provides a model of fluent reading, (b) intensive, repeated practice to build speed and accuracy, and (c) monitoring and evaluating performance through graphing. To use the program, students are placed into an appropriate level based on their oral reading fluency. The sequenced reading levels range from beginning reading to 6th grade level with 24 stories available for each level. In addition, the lower-level materials have been rewritten into Spanish. Available from Read Naturally, 2329 Kressin Avenue, Saint Paul, MN 55120, (800) 788-4085, READNAT@aol.com.
2. Use the Carbo Method (Carbo, 1989) for recording books for the student. [See Strategies: Carbo Method.]

3. Have the student listen to a taped passage or a short book several times as he reads along with the tape. When he has mastered the passage or book, have him read it to someone else.

**Altering Rate**

1. Teach the student how to alter reading rate depending upon the purpose for reading. For example, he may want to scan for specific information, skim to see if an article is appropriate for a report, read a technical manual or history text slowly, or read at a fast pace for pleasure.

2. Teach the student how to slow down his reading when he encounters difficult material and to reread passages when the meaning is unclear.

3. Teach the student how to skim a passage to obtain the general idea. This skill is necessary in selecting appropriate reading materials for reports and for pleasure reading.

4. Teach the student how to scan a passage for specific information, such as answering questions in a text, taking an open-book test, or looking for information on a specific topic for a report.

5. Demonstrate how to adjust reading rate for varied purposes. Use the analogy of adjusting reading speed to the shifting of gears in a car. Lower gears, Gear 1 and Gear 2, are the slowest, yet most powerful gears. First gear is used to memorize materials. Second gear is used to learn material. Third gear is the normal typical reading rate. The fourth gear, skimming, and the fifth gear, scanning, are the fastest but least powerful gears. These gears are useful when you are trying to locate a specific piece of information or trying to get the general sense of a passage without reading every word (Carver, 1990).

**Fluency/Comprehension**

1. Combine a fluency method with a method for increasing comprehension. For example, read aloud several paragraphs with the student and then stop to discuss the story. Before resuming choral reading, have the student predict what he thinks will happen next.

2. Give the student a study guide or a cloze passage to complete as he listens to the text. Have him hit the pause button or turn off the tape recorder whenever he needs to write in information. Encourage him to rewind the tape and listen to the passage several times.
3. Use choral repeated reading with the student to increase both fluency and comprehension. Select a high-interest book that is one or two levels above the student's instructional level. Establish a purpose for reading by skimming the book. Encourage the student to make predictions about the content. Read the book using this three-step process: (a) read a short passage from the book as the student watches, running your finger smoothly under the text; (b) read the same section together with the student as many times as needed so that he feels comfortable reading independently; and (c) have the student read the passage independently. After each section, discuss how the content related to your predictions and set new purposes for reading (Bos & Vaughn, 1998).

4. Have the student use the *Timed Readings in Literature* series by Jamestown Publishers (Spargo, 1989) to increase reading speed and comprehension. Each book contains short passages followed by questions. The student practices reading at a slightly faster-than-normal speed and then answers questions about the passages. Charts are provided to record performance.
READING COMPREHENSION

Tests: Passage Comprehension, Reading Vocabulary
Related Tests: Oral Comprehension, Verbal Comprehension, Reading Fluency
Cluster: Reading Comprehension
Related Sections: Oral Language, Knowledge/Content Areas/Study Strategies, Written Expression

Contents: Reading Comprehension
   Further Evaluation
   Accommodations
     Instructional Level
     Color Coding
     Taped Books
   General Recommendations
   Prereading Activities
     Activating/Evaluating Background Knowledge
   Vocabulary
   Context Clues
     General
     Cloze Procedure
   Strategies
     Predicting/Making Inferences
     Retelling/Paraphrasing
     Questioning
     Study Guides
   Text Structures
     Narrative
     Expository

Further Evaluation

1. Because the student’s reading decoding and reading fluency skills are so much better than her comprehension of the same material, refer the student for a language evaluation to confirm or rule out a primary oral language disorder as the primary contributing factor poor reading comprehension.

2. Further evaluate the student's reading comprehension using classroom texts. Have her read several passages silently and then retell the major points. See if the number of major concepts and those that she chooses are sufficient for adequate comprehension based on current standards.

3. Use an informal reading inventory to further assess basic reading skills, reading fluency, reading comprehension, and listening comprehension. For both reading comprehension and listening comprehension, request that the student retell the passage before asking questions. Note key points and organization of ideas and details. Compare the student’s retellings and response to comprehension questions in relation to having read the material and having the material read to her to determine if her oral language level is higher than or the same as her reading level.

4. Administer an informal assessment to ascertain whether the student’s difficulty with retelling expository reading material is related to an initial lack of understanding or to weak recall. Prepare a passage at the student’s word recognition instructional level, noting the most important ideas, events, and details. Have the student read and retell the passage. Record the key elements she included. Then test her comprehension of the material using a multiple-choice, true-false, or other test format that does not require free recall. Repeat with two other passages. Compare the results.

5. Determine if the student is able to monitor her own comprehension and recognize when a breakdown in understanding occurs. Provide her with a short text that contains some type of inconsistency. Ask her to retell that passage and see if she notes or detects the contradiction.

**Accommodations**

**Instructional Level**

1. Because the student’s listening and speaking vocabulary is considerably higher than her present instructional level in word identification, teach reading comprehension skills orally, based upon her oral language level. As her word identification increases, guide her to apply the comprehension skills she learned orally.

2. Provide a set period every day for the student to engage in sustained silent reading. Provide a variety of materials at the independent level and allow the student to select the reading materials.

3. When providing instruction in reading comprehension, ensure that the student's instructional materials are at the independent reading level in word recognition. Materials at the independent level will allow the student to devote her full attention to the comprehension activities.

4. Place a student in a reading group based on her present performance level in language and reading comprehension, rather than her performance in word identification skills.

5. Provide the student with daily readings of text that are at the independent or instructional reading levels. When text at the frustration level is unavoidable (e.g., entire class reading an on-grade level book), provide supported reading (e.g., partner reading, taped books).
**Color Coding**

1. Before the student reads a textbook, color-code with a yellow highlighter the sections that are most important to read.

2. Using different color markers, highlight specific types of information in the text that the student should know. For example, highlight important vocabulary words in pink, important concepts in yellow, and important names and dates in green. The use of color will draw the student’s attention to the most important information.

3. When the student is reading, teach her how to use highlighters to color code specific types of information for easy review. For example, she can color vocabulary words as pink, definitions in yellow, and important concepts in green.

**Taped Books**

1. Because the student can comprehend the vocabulary and information in textbooks that are at or above grade level, but is unable to read them due to difficulty with basic skills, provide her with tape recordings of her textbooks.

2. Make tape recordings of the student’s textbooks in a way that will help her learn to think strategically about the material that she is reading. Use the following procedure: (a) preread the chapter and mark the portions of the text that should be read verbatim, those that can be paraphrased, and those that can be skipped; (b) prepare questions or a study guide to accompany the text; (c) determine actions for the student to complete while working through the text (e.g., “Stop and answer question 1 on the study guide.” “Stop the tape and write a paraphrase of the title in your own words.”), (d) provide the student with a marked text that shows what paragraphs are read verbatim, what material is paraphrased, what material is omitted, and where specific learning activities will occur, and (e) summarize the key information on the tape (Schumaker, Denton, & Deshler, 1984).

**General Recommendations**

1. Praise the student for using any new skills and strategies in reading.

2. Present meaningful reading assignments to motivate the student’s intent to understand the reading material. For example, within text have the student locate and take notes on information that she will provide to her cooperative learning group or use to lead a discussion.

3. To increase reading comprehension, provide many oral language activities, particularly those designed to build vocabulary and increase listening comprehension.
Reading Materials

1. Suggest that the [student purchase, parents purchase for the student] a second set of textbooks so that the student can mark them up while reading and studying. Good readers often write comments, questions, or summary statements in the margins, highlight topic sentences and new vocabulary, and mentally organize parts of the text writing key words (e.g., relating the information to a main idea) in the margin.

2. For comprehension activities, do not exclusively use “decodable” reading materials that are highly dependent on word families and specific phonic elements (e.g., “The dog hopped on the log in the bog”). This type of text is intended to provide practice and develop automaticity of decoding skills rather than comprehension skills. Because the student’s oral language ability is considerably higher than her decoding skills, teach comprehension skills orally. Apply learned comprehension skills to reading material as soon as the student’s reading improves sufficiently that the material warrants discussion of concepts and organization of information.

3. When choosing reading comprehension materials for the student, evaluate the books on decoding level and sentence cohesiveness. Be aware that high-interest, low-vocabulary books may obstruct comprehension rather than facilitate it. The major criteria for many readability formulas are sentence length and number of syllables. Although the individual words may be easier for a student to identify, the truncated sentences are more difficult to comprehend. This is because the cohesive devices (e.g., transition words) in complex sentences provide important syntactic and semantic clues to meaning. The student depends on her good oral language skills to make use of context clues, which are reduced when sentences are arbitrarily forced into simpler structures to meet the criteria for readability formulas.

4. Schedule time daily for reading authentic texts. Read texts to the student that will help increase her knowledge base and vocabulary, and encourage her to read a variety of different types of text.

5. Help the student improve her reading comprehension skills using texts that will be required or similar to the types required her college courses.

Vocabulary

[See Recommendations: Oral Language [Vocabulary, Linguistic Concepts, Cohesive Devices, Figurative Language; Memory: Mnemonic Strategies.]

1. Because the student’s vocabulary is presently limited, she is likely to experience difficulty making sense of text. Keep in mind that vocabulary development and word knowledge play a key role in the understanding of what has been read. Emphasize learning new vocabulary in the classroom. Before assigning reading on new topics, use prereading activities that are appropriate to the student’s age and abilities to familiarize the student with the meanings of the critical vocabulary.
2. Attempt to teach vocabulary that is appropriate to the reader’s abilities. When discussing difficult words, relate them to easier words to enhance vocabulary development and understanding.

3. Do not teach vocabulary from lists unrelated to classroom context. Select new vocabulary directly from the student’s reading, your lecture, or classroom projects. Ensure her ability to understand and use these words in context before presenting new words.

4. Teach new vocabulary in the student's reading selections by using synonyms or short phrases. Simplify dictionary definitions.

5. Help the student relate new vocabulary words and their meanings to her own experiences. Elicit from the student any associated words that she knows. This will aid in retention and alert you to misinterpretations of word meaning.

6. Use Semantic Feature Analysis (Johnson & Pearson, 1984) to help the student relate new concepts or vocabulary to her prior knowledge. [See Strategies: Semantic Feature Analysis: Vocabulary.]

7. Use the Directed Vocabulary Thinking Activity (Cunningham, 1979) to engage the student’s interest and to help her learn how to infer the meaning of unknown words from context. [See Strategies: Directed Vocabulary Thinking Activity.]

8. To enhance vocabulary retention, after introducing new vocabulary, provide the student with repeated and multiple exposures to the words. This direct instruction will enhance vocabulary acquisition.

9. Use a variety of methods to build vocabulary. Provide different types of instruction, such as teaching words prior to reading, discussing words in the context of reading texts, playing games with new vocabulary, and using new vocabulary in writing assignments.

10. Provide systematic instruction in the meaning and pronunciation of root words, prefixes, and suffixes as this will help the student understand new words independently as well as helping her recall the meanings of newly acquired vocabulary that contain previously learned word parts.

   • For an activity that stimulates both study and retention of these word parts, give the student a root word, attach affixes to create real or nonsense words, and have the student determine a possible meaning. For example, the nonsense word *circumcessable* could mean "able to go around." Similarly, the student can make up nonsense words in this manner for you or other students to decipher.

   • Provide the student with lists of common prefixes and suffixes. Have her locate examples of words using these affixes in her textbooks.

---

11. To encourage learning of new vocabulary, use a computer program that provides hypertext definitions and synonyms (highlighted text which, when clicked, “jumps to” further information).

12. Teach the student to recognize sentences that signal a transition from one subtopic to the next and the meanings of key words that signal the transitions (e.g., then, but, however, yet, meanwhile, consequently.)

13. Help the student increase her awareness of terms denoting linguistic relationships (such as temporal, spatial, cause/effect, analogous, exceptions, comparison/contrast) in text to help clarify relationships among events, objects, people. Use specific illustrations of these words and phrases from social studies, history, science, and literature textbooks.

14. Teach the student how to recognize and understand “signal words” (e.g., although, but, however, therefore, nevertheless) or words that imply that the author is going to qualify, extend, or provide exception to the information presented. Encourage the student to stop when she encounters such a word and to think what has gone on before and then to form a hypothesis about what the author will say next.

**Context Clues**

**General**

[See Recommendations: Oral Language]

1. Teach the student additional ways to use her good reasoning and language skills to identify unfamiliar words. One suggestion is to have her look at the first few letters or any part of the word that she recognizes, read to the end of the sentence for clues about what word would make sense, and then go back and try to identify the word. Keep in mind that the use of context clues for decoding (rather than meaning) is a “back up” skill and indicates that the student requires additional instruction in decoding.

2. Teach the student how to use context to monitor her decoding. As she reads, she should activity work on understanding the concepts. If she comes to a word that does not make sense or sounds strange, that’s a signal to stop, and take a closer look.

3. Teach the student how to recognize and use a variety of context clues within the text. Examples include: direct explanation (within an appositive, signaled by "that is," or explained later in the paragraph); explanation through example; synonym or restatement; summary; comparison or contrast; words in a series; and inference (Thomas & Robinson, 1972). [See Strategies: Context Clues.]
4. Use the Directed Vocabulary Thinking Activity (Cunningham, 1979) to engage the student’s interest and to help her learn how to use context clues to infer the meaning of unknown words. When creating sentences to use in the activity, incorporate the context clue that you intend to teach, for example, “explanation through example.” Then, after the students has guessed at the meanings, ask her how she tried to figure it out. Point out the context clue and guide her to understanding how it points to the actual meaning of the word. Then provide guided and independent practice in using that type of context clue. [See Strategies: Context Clues, Directed Vocabulary Thinking Activity.]

**Cloze Procedure**

1. As a prerequisite for using the Cloze procedure to aid in reading comprehension, teach the student how to respond to this procedure. Begin by using an adaptation of Cloze called the Maze procedure. Provide a passage of text and delete some of the words that you would expect the student to be able to guess from the context. Providing a list of the deleted words at the bottom of the page from which the student chooses the word that fits in the blank space. As the student’s skill increases, add several distracters to the list. As a final step, do not provide words from which to choose.

2. When teaching sentence structure or parts of speech, provide practice using a modified Cloze Procedure. For example, if you are teaching the student to use transition words to build complex sentences, you could provide two clauses and direct the student to add the transition word that would make sense in the context (e.g., Mary wanted to go to sleep; ____ John continued to play his music). If focusing on state of being verbs, you could provide a written passage in which all of the state of being verbs and auxiliary verbs have been omitted and direct the student to fill them in.

3. Use a modified cloze procedure to help the student increase her ability to use semantic clues. Provide a passage with blank lines in the place of some of the content words. Direct the student to read the passage and write in a word that makes sense in the context. Initially, delete words at the end of the sentence and then, as her skill increases, delete words randomly.

**Prereading Activities**

**Activating and Evaluating Background Knowledge**

[See Recommendations: Knowledge/Content Areas/Study Strategies]

[See Strategies: Content Area Instruction: Components of Effective Lessons.]

1. Before assigning reading selections, make sure that the student has the necessary vocabulary and background knowledge to understand the content. If she does, guide her to relate any new information to her own experiences; if she does not, provide activities and instruction that give her the foundation necessary to understand the material.
2. Follow these guidelines to help the student develop prior knowledge: (a) build upon what the student already knows, (b) provide much of the background information through discussion, (c) provide real-life experiences, (d) explain parts of the passage before the student reads it, (e) help the student develop expand her knowledge, and (f) encourage wide reading (Devine, 1986).

3. Teach strategies to help the student link new information with background knowledge. Help the student learn to summarize and paraphrase materials, generate questions, and predict what will happen based upon her knowledge and experiences.

4. Prior knowledge has been established as one of the most important factors contributing to students’ comprehension or lack of comprehension of reading materials. Before assigning reading selections, assess the level of knowledge and experience the student has regarding the major concepts and most important vocabulary. Use of the [write in name of strategy](descriptions attached) will also activate the student’s prior knowledge, bringing to conscious awareness what she already knows about the topic. [See Strategies: Anticipation Guide, KWLS, PreReading Plan, Semantic Feature Analysis: Concepts, Semantic Maps.]

5. After the student has read the assignment, repeat the prereading activity as a post-reading assessment. Compare the type and number of correct responses the student can produce after the reading to the level of knowledge she demonstrated in the prereading activity.

6. Before assigning independent reading, provide a preview of all new concepts and vocabulary in the assignment. List them on the board and provide ample opportunities for discussion.

7. Teach the student to use the KWLS (Know-Want to Know-Learned-Still Need to Learn) strategy (Ogle, 1986) to help her organize her knowledge of a topic both before and after reading a passage. [See Strategies: KWLS.]

8. To activate prior knowledge and engage the students’ interest in a discussion related to a new topic, use the Anticipation Guide activity before assigning the reading material. Create a set of statements regarding key concepts in the material to be read. The content of the statements must include information that is sufficiently familiar that the students will have an opinion about it. Guide the students in a discussion regarding their agreement or disagreement on each statement. Then direct the to read the assignment to find out more about the topic and to continue the discussion following the reading. [See Strategies: Anticipation Guide.]

9. When eliciting background knowledge from the student, try to organize the information in a semantic map (Pearson & Johnson, 1978). The final diagram should visually present the information in such a way that the relationships are evident. Seeing her own information organized in this way will help her create a framework to accommodate new information.
10. As a prereading activity to activate prior knowledge and set a purpose for content area reading, use Semantic Feature Analysis: Concepts (Anders & Bos, 1986; Bos, Anders, Filip, & Jaffe, 1989). Based on the upcoming reading assignment, the teacher creates a chart listing the key concepts across the top and most important vocabulary down the side. The student considers the whether or not particular words and concepts are related and fills out a chart (+ for yes, - for no, and ? for don’t know). She is then directed to read the assignment with the intention of correcting or confirming her predictions. This procedure is particularly effective in a group setting as students discuss their reasons for choices both before and after reading. [See Strategies: Semantic Feature Analysis: Concepts.]

11. Integrate reading assignments with Internet applications. To facilitate this, help the student learn how to locate different sources of information related to varied topics.

**Skill Instruction**

[For recommendations regarding comprehension of sentence structure, see Recommendations: Oral Language: Sentence Structure.]

1. Teach the student the importance of punctuation for understanding the meaning of a passage. Add impact to the lesson by presenting examples of sentences and sentence combinations that have very different meanings depending on where the punctuation is and what punctuation is used.

2. Teach the student critical reading skills such as recognition of fact vs. opinion, objective vs. persuasive language, supported vs. unsupported generalizations, and valid vs. invalid arguments.

3. Teach the student the difference between the topic of a reading selection (what it’s about) and the main idea (what the author says about the topic), while increasing her active involvement in the reading process (Longo, 2001). The topic can usually be summed up in a word or phrase while the main idea is usually a sentence. To find the topic, the student asks herself, “What is the selection mostly about,” responds in one or two words, and rereads the introductory paragraph and bold subtitles to confirm. To find the main idea, the student asks herself, “What is the writer saying about this topic,” reads the first paragraph to find the main idea statement, skims the rest of the selection to see how each relates to the topic, and writes a sentence stating the writer’s most important idea.

4. The ability to paraphrase requires active, conscious processing of information in order to extract and restate the meaning without changing it. Teach the student how to paraphrase that she reads for note-taking, summarizing, and oral and written reports. When teaching the student how to paraphrase begin with short sentences. Gradually progress to more complex sentences, paragraphs and then longer passages.

5. Teach the student how to make mental images of any material she is reading. Visualization improves comprehension by helping the student to retain the information read (as images) in memory as she assimilates the meaning, associate the new information with information she knows already, and recognize when she does not understand.

6. Develop sequential lessons to teach the student how to visualize what she is reading. Begin by stating short phrases that represent easily visualized, familiar images, and gradually increase the verbal information in length, complexity, and concept level. For some students, it helps to “set the stage” for each lesson by having them visualize themselves walking into an empty theater, choosing the best seat, seeing the lights dim, and seeing the screen light up with images as you begin presenting the oral information. Following each visualization, have the student describe exactly what she pictured. Ask her questions to elicit more specific details. As soon as the student appears comfortable with visualizing sentences, alternate between oral and written presentation.

7. Teach the student to attempt to visualize or make a "mental movie" of what she reads. As she reads each passage, have her describe in detail the images that she created. Initially, ask the student detail and inferential questions about the images and passages. As skill increases, allow her description of images to progress without interruption.

**Strategies**


2. Integrate instruction in reading comprehension with instruction in written expression. Many reading comprehension strategies can be used for enhancing the organization and quality of a student’s writing. For example, teach the student how to recognize compare-and-contrast formats when reading and then teach the student a strategy for planning and executing compare-and-contrast paragraph writing (Deshler, Ellis, & Lenz, 1996).

3. The student would benefit from a strategy that stimulates more active involvement with expository material and focuses attention on the most important information. The Center for Research on Learning at the University of Kansas has developed a number of strategies to promote reading comprehension as well as specific steps for strategy instruction that have been proven effective with adolescents with learning disabilities. Information on the Learning Strategies Curriculum is available from Center for Research on Learning, University of Kansas, 1122 West Campus Road, Lawrence, KS, 66045, (785) 864-4780, [http://ku-crl.org](http://ku-crl.org). Information on these strategies is frequently available on the website: [http://www.ldonline.org](http://www.ldonline.org).

4. To enhance the student’s reading comprehension, provide explicit instruction in several types of comprehension strategies such as paraphrasing, summarizing, and formulating questions from subtitles and answering them after reading the passage.

5. Teach the student reading comprehension strategies using a research-validated model of strategy acquisition (Schumaker & Deshler, 1992). (a) Administer a pretest to assess the student’s current level of performance, (b) obtain a commitment from the student to learn the strategy, (c) describe the strategy—the steps, the purpose, and the situations in which to use it, (d) model the steps of the strategy, thinking aloud as you apply it to the material to be learned, (e) have the student practice it verbally, using a mnemonic to help memorize the steps. Provide a cue card if necessary, (f) provide controlled practice in materials at the student’s independent performance level, gradually applying it to more challenging material, (g) administer a post-test to evaluate the student’s ability to apply the strategy and his improvement in the target skill, as well as to validate, for the student, his success, and (h) plan for and facilitate the generalization of the strategy into other academic and nonacademic settings.

6. Because the student has difficulty with sustained attention to the reading material, as much as possible, involve him in activities that will stimulate active reading and discussion throughout the assignment. Examples of activities are Directed Reading-Thinking Activity and Reciprocal Teaching. [See Strategies: Directed Reading-Thinking Activity, Reciprocal Teaching.]

**Self-Monitoring Comprehension**

1. Teach the student how to monitor her reading for meaning and a few specific strategies to use when she realizes that she did not understand what she just read. For example, she should reread that sentence or passage more carefully and, perhaps, aloud, read parts of the previous passage to see if she missed something, try to use context clues if the problem is a word she does not know, or ask someone.

2. Teach the student to check/reinforce her own comprehension at the paragraph level by paraphrasing the main idea and at least two supporting details orally or in writing. Teach the student to include a clear statement of the relationship among ideas.

3. Teach the student to monitor her comprehension. Direct her to stop at the end of each sentence and ask herself, “What did I just read?” If she can picture it or paraphrase it, she continues to read. If not, she rereads with a stronger focus on understanding the information. As skill improves, increase the number of sentences between self-checks.

**Predicting/Making Inferences**

1. To develop critical and active reading, either involve the student in an individualized or group Directed Reading-Thinking Lesson (DRTA). The DRTA has students predict what a selection will be about based on the title, then make other predictions about what will happen in the story or text at other stopping points. Students discuss their predictions and support them with reasons based on text-based information and/or prior knowledge. (Stauffer, 1969; Tierney & Readence, 1999). [See Strategies: Directed Reading-Thinking Activity.]

2. When reading a story to the student, stop at specific points and ask her questions about the story events. Ask her to predict what she thinks will happen next and give a reason for her prediction that is based on her own knowledge and what has been read to that point.
3. Prior to reading, assign the students to groups of two or three, and provide them with a list of prediction questions or possible outcomes. Have the students discuss these questions within their group and then read to find the answers. Alternatively, before reading, designate specific stopping points in the text and provide questions for each. The questions should refer to the next section rather than the section that has been read. At each point, the students will discuss whether their answers to the previous questions were correct and discuss possible answers to the question for the next section. Predictions must be supported by reasons based on prior knowledge and information in the text.

4. When reading with the student, make a prediction map on the board or paper. Stop at appropriate points and have the student predict what she thinks will happen next. Record the prediction on the map and then read to find out if it is correct. If the answer is incorrect, revise the map.

Retelling/Paraphrasing/Summarizing

1. Help the student improve her reading comprehension and ability to recall and retell textual information in three ways. (1) Provide frequent opportunities to practice. When students expect to be asked to retell what they have read, they begin to prepare for it while reading; (2) Provide explicit instruction in recognizing expository text structures and ample practice in analyzing text to ascertain the structures (e.g., comparison, contrast, sequence, cause-effect); and (3) Have the student reread before retelling. To facilitate the retelling, you can supply prompts that cue the student as to the text structure (e.g., Retell the passage and include the differences between…). Additionally, you can teach the student other memory and comprehension strategies to aid him in acquiring, storing, and retrieving the information (Carlisle, 2001).

2. In nonfiction materials, teach the student to use paraphrasing of the main idea and supporting details to help her draw a semantic map of the structure and content of the material.

3. Use a strategy such as the Paraphrasing Strategy (Schumaker, Denton, & Deshler, 1984) developed at the University of Kansas. The strategy uses the acronym, RAP, to remind students to Read the paragraph (or a limited section of text), Ask: “What was the main idea and the details (at least 2), and Put the information into their own words. This strategy is designed to improve comprehension by focusing attention on the important information of a passage and by stimulating active involvement with the passage.

4. When teaching the student how to paraphrase, ensure that the materials are at the independent reading level so that the student can fully attend to understanding the text, rather than shifting energy to word identification.

5. Encourage the student to be a more active reader by teaching her to summarize what she has read using a four-step strategy described by A. M. Longo (2001).

   a. Get information: (1) Write the topic in one or two words; (2) List the main ideas (3) List some important details that go with the main idea.
b. Reread and check information: Cross out information that is not important or redundant.

c. Write sentences: Write a sentence stating the topic, one stating the main idea, and a sentence for each detail. Put them in order.

d. Write a summary using the sentences: (1) Include words that indicate the organization of the information; (2) Combine sentences into more complex sentences.

6. Teach the student to ask two questions after reading a paragraph: (a) Who or what was the paragraph about, and (b) What was happening to them (Malone & Mastropieri, 1992). Place a blank line after each paragraph and have the student write a summary sentence for each paragraph. Write the steps on a self-monitoring card so that the student can check her application of the strategy.

7. Teach the student how to take notes in the margin to summarize information while she is reading to enhance her comprehension. Have her place questions marks by any sections in the text that she does not understand and ask a parent, teacher, or friend to explain it.

**Questioning**

1. Provide the student with questions to answer while she is reading. Have her read the questions before she reads the selection to establish a purpose for reading. After she has read the passage and answered the questions, have her write a brief summary that includes the main ideas and important details.

2. Prior to reading, provide the student with a set of questions to answer. Create some questions that require factual recall to be answered and others that may be answered using prior knowledge. Before the student reads the material, have her attempt to answer as many questions as she can.

3. Help the student set a purpose for reading by presenting her with a picture, title, segment of text, or a combination of these. Have her generate as many different questions as possible, then read to find the answers.

4. When reading stories or content area textbooks, teach the student to read the questions at the end of the chapter first so that she knows what information is important and can look for the answers as she reads.

5. When introducing a new chapter, have the student write the questions from the chapter on an index card and refer to the card while she is reading the chapter. Have her check off each question when she locates the answer.

6. Teach the student how to set a purpose for reading by turning chapter subheadings into questions and then reading to find the answer.

7. Teach reading study skills, such as surveying a chapter in a textbook prior to reading it, to establish a framework for understanding the information.

---

8. Teach the student how to create and answer the reporter questions for each subsection of content area reading material (when, where, who, what, why, and how).

9. Use the language experience approach to reading instruction with the student but place an emphasis on comprehension activities. After the student has written a story, demonstrate and provide practice in forming questions, paraphrasing the story, and using context clues to identify words.

10. Teach the student to recognize when a question cannot be answered based solely on the information given in the reading selection. Teach her to use prior knowledge as well as the information given in the text to make inferences.

11. In reading for key ideas and critical details, ask the student to underline or note elements that she would expect to be covered on a test.

12. After the student learns how to recognize key ideas and critical details, reinforce this skill by having her make up test questions for the teacher or other students on a literature or content area selection.

13. Teach the student how to apply SQ3R (Survey, Question, Read, Recite, Review; Robinson, 1970). This technique is used to help the student create a framework for the context to be read, set a purpose for reading, and learn to monitor comprehension. [See Strategies: SQ3R.]

14. Use the ReQuest procedure (Manzo, 1969; 1985) to increase the student's ability to ask questions actively when reading. Read a story together with the student. Take turns asking questions of each other. When first learning the procedure, ask questions about factual material. As soon as possible, ask questions that will promote higher-level comprehension skills. [See Strategies: ReQuest Procedure.]

15. Use a modified ReQuest procedure with the student (Alley & Hori, 1981) to develop verbal reasoning and active reading. [See Strategies: ReQuest Procedure.]

16. With any questioning strategy that the student learns, provide her with many opportunities to practice and apply the selected technique in school reading assignments.

17. Use Collaborative Strategic Reading (CRS), an intensive classroom or group-based reading comprehension strategy, that is designed to be used with expository text (Vaughn & Klingner, 1999). [See Strategies: Collaborative Strategic Reading.]
18. To improve her reading comprehension, the student needs to learn how to read actively. An effective activity to teach self-questioning, comprehension monitoring, and to promote active involvement with the reading process, is the Reciprocal Teaching procedure (Palinscar & Brown, 1986). This procedure is taught in small groups and includes the following four skills: questioning, summarizing, clarifying, and predicting. The first two skills, questioning and summarizing, help students learn to identify and paraphrase the most important information in the text. To begin, students may read a paragraph or passage together. After the passage is completed, they generate questions together about what has been read and then summarize the content in a sentence or two. For clarifying, students discuss any difficult or hard to understand sections and review the meaning of any new vocabulary. For the final skill, students predict what will happen in the next passage. The process of making predictions helps students link background knowledge with the new information. As students practice these procedures, they can take more responsibility for developing questions, summarizing the content, and making predictions about the next section. [See Strategies: Reciprocal Teaching.]

19. Teach the student a self-questioning strategy to use while reading content area information. Teach the student to: (a) Ask yourself: Why am I studying this passage? (b) Locate the main idea in the paragraph and underline it. (c) Think of a question about the main idea. (d) Read to learn the answer. (e) Look back at the question and answer for each paragraph to determine a relationship (Wong & Jones, 1982).

20. Teach the student how to ask questions about the text as she is reading. For example, she may ask whether or not she agrees or disagrees with the author, or how the information relates to her own world experiences. As a modification of this technique, the student may write down the answer to her main idea question in a complete sentence (Wong & Jones, 1982). Teach the student how to create a structured overview of a selection based on her written answers to main idea questions generated by use of the self-questioning strategy.

**Study Guides**

1. To encourage interaction with the text, provide the student with study guides in a variety of formats for her reading assignments.

2. Teach the student how to summarize important information from a chapter on a one-page or two-page study guide that she can then use to prepare for tests.

3. Provide the student with a structured study guide that provides specific questions and the page number and paragraph in the text where the information is located. As skill in locating information increases, eliminate these prompts.

4. After the student recognizes or is guided to recognize, the passage structure, provide an outline, based on the passage, in which she can record content. These summaries will aid retention and then may be used as study notes. Ensure that the student has prior knowledge of the concept of main idea and adequate summarization skills (Slater, Graves, & Piche, 1984). The figure below illustrates a sample guide for a passage with a cause-effect structure.
5. Insert questions into the text for the student to answer while she is reading. To minimize writing in the textbook, make a study guide with numbered questions pertaining to specific information in the text. Record the question number in pencil in the margin next to the related information.

6. Before the student reads an assignment, provide her with questions that highlight the most important points. Have the student answer the questions as she locates them in the text. After reading, discuss the questions with the student.

7. To set a purpose for reading and help the student understand the structure of information in the text, provide her with a study guide that will direct her to the key ideas, most critical details, and/or the organization of the information. [See Strategies: Study Guides.]

8. Provide the student with a study guide or student workbook that is produced by the publishers of the textbook. This will help the student to recognize and prioritize the information that is to be learned. Prepare exams that focus on the material covered within the study guide.

**Text Structures**

Make sure that the student is able to understand both narrative and expository text. Provide many opportunities for reading stories and factual accounts.

**Narrative**

1. Teach the student how to recognize the sequence of events, ideas, steps, times, and places in stories and literature selections.

2. Teach the student a simple story grammar to use when reading and discussing stories, such as that all stories have a beginning, middle, and end. As proficiency develops, introduce a more complex story grammar.

3. Teach the student a simple story grammar that includes these four questions: (a) Who is the story about? (b) What is she trying to do? (c) What happens when she tries to do it? (d) What happens in the end? (Carnine & Kinder, 1985)
4. Teach the student a story grammar, the underlying structure of stories, so that she has a framework for understanding new stories that she reads. Elements of a story grammar include: setting (time, place, situation), major characters, problem (and problems within the problem), resolution of the problem, and an ending (Thomas, Englert, & Morsink, 1984).

5. Teach the student a strategy that will familiarize her with the common elements of stories, help her to comprehend, recall, and retell stories, facilitate her writing of stories. STORE the Story uses a mnemonic that represents setting, trouble, order of events, resolution, and ending (Schlegel & Bos, 1986). [See Strategies: STORE the Story.]

6. When reading short stories, teach the student to: (a) identify the main problem or conflict, (b) draw inferences from the text about the personalities and motivations of the main characters, (c) identify how the main problem is solved, and (d) determine the theme or what the author was trying to say (Gurney, Gersten, Dimino, & Carnine, 1990).

7. Teach the student the following seven categories of story elements (Montague & Graves, 1993):
   a. Major setting: the main character is introduced.
   b. Minor setting: the time and place of the story are described.
   c. Initiating event: the atmosphere is changed and the main character responds.
   d. Internal response: the characters' thoughts, ideas, emotions, and intentions are noted.
   e. Attempt: the main character's goal-related actions are represented.
   f. Direct consequence: the attainment of the goal is noted; if the goal is not attained, the changes resulting from the attempt are noted.
   g. Reaction: the main character's thoughts and feelings in regard to the outcome are specified, along with the effect of the outcome on the character.

**Expository**

1. To help the student increase her understanding of how ideas are organized, separate the paragraphs in a report or article. Have her read the paragraphs, and then reassemble them into a logical sequence.

2. Encourage the student to discuss with others the materials that she has read. Provide structured activities for these types of discussions within the classroom.

3. Teach the student that the main idea is the sentence that holds the paragraph together. When the main idea sentence is deleted or covered, the paragraph loses its meaning. The student can check her choice of a main idea by reading the paragraph without that sentence to see if it does, in fact, diminish the paragraph's meaning (Wong, 1985).

4. Teach the student how to tell the difference among main ideas, supporting details, and tangential information in both fiction and nonfiction material.

5. Teach the student to recognize different patterns for the organization of information within a paragraph or within a longer selection. Examples include: sequential, comparison/contrast, or cause/effect.

6. Directly teach the student different ways that information in textbooks can be organized (e.g., listing, sequential, comparison/contrast, hierarchical, main idea and details, description, cause/effect).

7. Teach the student how to read the introduction of an article or a content area textbook chapter to find the general topic, what the author wants to say about the topic, the key points of the selection, and how the key points will be related to each other and the central idea. Then have her read the conclusion of content area text to find a restatement of the central idea, the key points, and the organizational pattern of the chapter.

8. Teach the student to categorize information from a reading selection to aid recall. Examples include: Major battles fought in Europe during World War II, or the effects of the lack of light on cave-dwelling animals.

9. Teach the student to use semantic mapping to clarify the key ideas and supporting details in a selection and the structure by which they are interrelated. After the student reads the selection, she might: (a) brainstorm everything that she can remember, categorize this information, and depict the organization of this information on a semantic map, or (b) use the headings and subheadings in the chapter to create a preliminary map and fill in the critical details from the text.

10. Directly teach the student to recognize and understand the different structures of expository material. Use graphic organizers to illustrate them. Examples of expository structures include: sequence (main idea and details which must be given in a specific order), enumerative (topic sentence and supportive examples), cause/effect (topic sentence and details telling why), descriptive (topic sentence and description of attributes), problem-solving (statement of problem followed by description, causes, solutions), comparison/contrast (statements of differences and similarities), and position/opinion (statement of opinion on a specific topic and argument for that position). The following figures exemplify the expository text structures of chronology, main ideas and details, and description.

11. When working with text ordered chronologically/sequentially, such as history or literature, teach the student to place events on a time line. This visual depiction will help her visualize the temporal relationships, as well as any cause/effect relationships.
12. Help the student increase her understanding of how expository text is structured. The title often describes the subject. The subject is organized into a series of paragraphs. The first paragraph usually explains the subject. Each paragraph has a main idea with supporting details that provides important information about the subject. Sometimes the main idea must be inferred. The last paragraph summarizes or explains the author’s viewpoints (Greene & Enfield, 1994; Smith, 1999).
Recommendations: Handwriting/Visual-Motor

HANDWRITING/VISUAL-MOTOR

Tests/Procedures: Handwriting, Handwriting Elements Checklist
Related Tests: Spelling, Writing Samples, Writing Fluency

Contents: Handwriting/Visual-Motor
- Further Evaluation
- Accommodations: Visual-Motor
- Accommodations: Handwriting
- Feedback
- Sample Programs/Software
- Readiness
- Materials
- Grip
- Practice
- Reversals
- Format
- Spacing
- Slant
- Alignment
- Letter Formation
  - Manuscript
  - Cursive
- Rate
- Self Monitoring/Evaluation

Further Evaluation

1. Refer the student to an occupational therapist to assess and provide therapy for hand strength, flexibility, and dexterity.

2. Based upon the severity of his fine-motor problems, refer the student to an occupational therapist who is skilled at dealing with visual-motor and handwriting problems.

3. Refer the student to an educational occupational therapist to evaluate hand skills, muscle tone, and general coordination to help ascertain the reasons for his apparent motor skills deficiencies.

4. Develop a writing portfolio to document growth in handwriting. Date all handwriting samples so that the student can see concrete evidence of progress.

5. To determine handwriting rate, ask the student to write a sentence that has been memorized over and over as many times as possible within a 2-minute period. Obtain the handwriting rate, the average number of letters written per minute (lpm), by dividing the total number of letters written by the total number of minutes.

6. Use the Zaner-Bloser scale of handwriting proficiency (Barbe, Lucas, Wasylyk, Hackney, & Braun, 1987), to determine if the student has the expected writing speed for his grade. Have the student copy the following sentence that contains all of the letters of the alphabet: “The quick brown fox jumps over the lazy dog.” Have the student practice the sentence one time and then ask him to copy a sentence as quickly as he or she can in three minutes. Count the total number of letters that he has written in the 3-minute period, and then divide this number by 3 to get the total letters per minute (lpm). Compare the student's proficiency level to the following scale:
   - Grade 1: 25 lpm
   - Grade 2: 30 lpm
   - Grade 3: 38 lpm
   - Grade 4: 45 lpm
   - Grade 5: 60 lpm
   - Grade 6: 67 lpm
   - Grade 7: 74 lpm

7. To evaluate the formation of specific letters, have the student copy a sentence that contains all of the letters of the alphabet, such as: “The quick brown fox jumps over the lazy dog.” Have him write the sentence using uppercase and then lowercase letters.

8. Identify the specific patterns of illegibility in the student's handwriting and provide corrective work.

9. Because the student’s handwriting is characterized by illegibility, slowness, tension, and fatigue, assess keyboarding skills to plan for further development.

**Accommodations: Visual-Motor**

1. Exempt the student (or allow the parents to do so) from assignments requiring visual-motor skills that are not directly related to academic learning (e.g., making thank-you cards, creating a pictorial cover for a book report).

2. For all assignments requiring visual-motor skills (e.g., map drawing, picture drawing, cutting, constructing), discuss with the student if a lesser standard of neatness, accuracy, and organization will be accepted without penalty or if she should be given an alternative assignment.

3. Provide the student with a word processing class until she masters typing and the use of a specific word processing program.

4. When tasks require visual fine-motor coordination (e.g., drawing a picture of an event in a book), substitute a language-based task (e.g., oral explanation, writing on the computer).

5. Provide the student with support in any classroom activity that involves cutting or motor planning (e.g., pasting pictures on a chart).
6. Provide ample work space for the student when she is asked to write or solve problems. Recognize that inconsistent letter size and spacing are the result of a neurological difference, rather than a lack of effort.

**Accommodations: Handwriting**

1. Shorten writing assignments and encourage the student to supplement his work with illustrations, clip-art, and verbal explanations.

2. For note-taking activities, provide the student with a partially completed outline so that he can fill in specific information under major headings.

3. Provide more time for all writing assignments, including note taking, copying, and taking exams.

4. Because of a compromised writing rate, the student will complete writing tasks at a slower pace than others. Reduce the amount of required writing so that the student can finish tasks within the allotted time frame or allow the student extra time.

5. Reduce the amount of copying required. For example, in math, provide the student with a worksheet with the problems, rather than asking him to copy the problems from a book.

6. When students are copying homework assignments from the board, check to see if the student is having difficulty. He is likely to be slow in finishing, have more difficulty than other students with the actual writing, write illegibly, or forget to write some or all of it. Offer to give the student paper with the assignments written on it or write the assignment yourself in his book.

7. Encourage the student to take a keyboarding course as an elective.

8. For taking notes, have the student use an AlphaSmart. The AlphaSmart 2000 model has a keyboard with an LCD screen, eight files for organizing different classes or school subjects, and a built-in spell checker. The student can then print out notes at a later time. Available from Intelligent Peripheral Devices, 20380 Town Center Lane, Suite 270, Cupertino, CA 95014, [http://www.alphasmar.com](http://www.alphasmar.com).

9. To increase the speed and legibility of written work, teach the student how to type and to use a word processor. Allow him to use it for all writing assignments.

10. Given the student’s dysgraphia, ensure that he is allowed to write all standardized essay tests using a word processor. His motoric difficulties will also influence typing speed, so provide extra time on written assignments as needed.

11. On tests and assignments, do not penalize the student for handwriting and letter formation errors.

12. (Progressive neurological impairment) The student needs to become proficient in typing and using a word processing program well before he can no longer use writing implements due to loss of hand strength and fine-motor skills. Provide the student with instruction in keyboarding and using a word processing program with daily instruction and practice. Along with manual writing in the classroom, the student should have a word processor, such as the AlphaSmart, and daily support to do some assignments on it.

13. Because typing is easier when fine motor difficulties are present, use various technological tools to assist with writing. Text production processes can be supported by using voice recognition software and word prediction programs.

14. Because of his extreme difficulty with handwriting, have the student dictate responses to a scribe or into a tape recorder, whenever writing is required. Encourage the student to develop handwriting skill, but only in ungraded and untimed situations.

Feedback

1. Although development of legible handwriting should be one instructional goal, do not respond critically to poor handwriting. Remember that the student’s poor handwriting stems from limited motor control not from a lack of effort.

2. Reinforce the student for properly formed letters. For example, let the student select a sticker whenever he carefully completes an assignment.

3. Because writing is difficult for the student, do not use “neatness” as part of the grading criteria. Evaluate written responses without attention to handwriting.

4. When working with the student on visual-motor activities or handwriting, provide ample positive reinforcement for effort as well as for improvement or quality of the product.

Sample Programs/Software

1. Use the program, *Handwriting Without Tears* (HWT)(Olsen, 1998) to help the student improve legibility. Developed by an occupational therapist, this program is designed to reduce student frustration in developing a legible writing style. The program teaches letter formations in groups based on their formation which facilitates memorization and production of the letter forms and reduces letter reversals. HWT incorporates prewriting skill development for young learners, supports visual-motor development, and incorporates visual-spatial cues. Available from Jan Z. Olsen, 8802 Quiet Stream Ct., Potomac, MD, 20854, (301) 983-8409, [http://www.hwtears.com](http://www.hwtears.com).

2. Use the *D’Nealian Handwriting* program. This program teaches letters in groups based on their formation, facilitating memorization and production, and eliminating letter reversals. The program incorporates auditory, visual, and tactile cues in teaching letter formation. Students begin writing words almost immediately. The letter style provides for a quick and easy transition to cursive. A computer disk allows the teacher to create individualized worksheets. Available from Scott Foresman-Addison Wesley, 1 Jacob Way, Reading, MA 01867, (800) 552-2259, [http://www.sf.aw.com](http://www.sf.aw.com).

Readiness

1. Because the student has not yet developed the muscular control or visual-motor skill needed for beginning handwriting, focus on readiness skills before beginning specific handwriting instruction.

   - To develop hand and finger coordination and strength, provide the student with activities such as consecutively touching each finger to the thumb, opening clothespins, and squeezing rubber balls.

   - Provide the student with lots of opportunities to use writing implements and scissors so that he can plan and execute movements using the small muscles of his hand. If necessary, directly teach the student how to visualize where the pencil, marker, or scissors should be at the end of each stroke or cut.

   - Provide the student with many opportunities for use of fine-motor skills in activities consistent with his current ability level. Such activities may include: simple paper folding; cutting paper across a bold line; cutting out large simple shapes with bold borders and tracing them; and copying large, simple shapes on the chalkboard. Use a variety of fun and interesting mediums, such as finger paints, watercolors, and glitter on glue designs. Also provide activities where the goal is not recognizable figures, but simply free-form designs.

   - Use activities such as tracing using templates, and coloring within simple, bold-line drawings, before asking the student to copy forms and draw pictures.

   - When providing practice with copying or tracing shapes, gradually decrease the size of the shapes as the student's performance improves and the tasks become easier. Do not decrease the size of the shapes until he has mastered the current size.

2. Use finger painting with the student to let him practice forming straight lines, curved lines, and circles. Play around with formation of a variety of shapes. When simple shapes are mastered, begin to teach uppercase letters. After letters are mastered with finger paint, provide practice with a pencil or a felt-tip pen.

3. Since the student is highly motivated to write, explain to him how spending time doing fine-motor activities will make handwriting easier.

Materials

1. Provide the student with paper with a dotted middle line to use for handwriting practice and for writing assignments.

2. The student needs a tactile reinforcer to enhance his awareness of the line on which he is supposed to write. Make a thin line with white glue over the bottom line on the paper (if using paper with guidelines). When the glue dries, it will leave a clear, raised line. Raised line paper, in a variety of styles, is also commercially available from PRO-ED, 8700 Shoal Creek Blvd., Austin, TX 78757-6897, (800) 897-3202, http://www.proedinc.com.

3. As a reminder to help the student keep his letters on the line, trace over the baseline with a red felt-tip pen.

4. To increase the friction of the pen against the paper and fine-motor control, have the student use a black flare pen on lined paper.

5. Let the student sample a variety of writing implements and select the one that he likes best for handwriting practice.

6. If assignments must be written in ink, permit the student to use an erasable ballpoint pen.

Writing Posture

Make sure the student’s desk and chair fit him properly. Make sure that the chair height allows his feet to be planted firmly on the floor (90° angle at hips and knees) and the desk comes to 2 inches below his elbow when he is sitting on the chair.

Grip

1. Teach the student how to hold a pencil. Have him hold the pencil between the index finger and thumb, resting the pencil on the middle finger and slanting the pencil at a forty-five degree angle.

2. Use a special pencil grip to help the student position the hand so that the pencil rests on the first joint of the middle finger and the thumb and index fingers hold the pencil in place. Various grips are available from Handwriting Without Tears, 8802 Quiet Stream Court, Potomac, MD, 20854, (301) 983-8409, http://www.hwtears.com. These grips promote more efficient/functional grasps, and provide a visual/tactile cue for correct finger placement.

3. Provide the student with a variety of pencil grips and have him try them over a period of time to see which feels most comfortable and helps most with fine-motor control. Pencil grips are available at most educational supply stores and office supply stores.

4. Use modeling clay around the pencil to help the student develop a more relaxed pencil grip.

5. Place a rubber band right above the shaved area of the pencil to help the student remember where to place his fingers on the pencil.
6. Teach the student an alternative grip, such as the D'Nealian grip (Thurber, 1988), that does not require much fingertip pressure to hold the writing instrument. Have the student position the pencil between the index and middle fingers with about a 25-degree slant.

**Practice**

1. Help the student become motivated to improve his handwriting. [Discuss practical reasons for improving legibility. Have him participate in meaningful writing activities. Help him understand how his handwriting may affect how someone evaluates his school papers or his job applications.]

2. Because the student has difficulty with fine-motor control, keep visual-fine motor activities short and intersperse them with activities that are fun, interesting, or active, such as listening to a story or playing on the playground.

3. Until legibility improves, include 10 minutes of handwriting practice as part of the student’s daily routine.

4. As the student has a tendency to begin making errors in letter formation after the first few correct productions, provide supervision or frequent monitoring until he has demonstrated correct production of the letter he is learning multiple times consecutively. Immediately, assign practice in using the letter in words, then sentences to facilitate generalization and automaticity.

5. When the student is concentrating on handwriting instruction, provide exercises that require little thinking so that he can devote his attention to legibility. As his handwriting improves, increase the conceptual level of the task.

6. Have the student concentrate on neat handwriting only when he is preparing the final drafts of papers.

7. Because of the severity of the student’s fine-motor problems, do not devote much time to handwriting instruction. Instead, help him improve his keyboarding and word processing skills.

**Reversals**

1. At the student’s [age, developmental level], reversals are expected. Provide cues to help her remember the orientation of letters and numbers but do not be concerned about a developmental weakness at this time.

2. Because the student has become anxious about her letter reversals in writing, do not bring attention to them. Treat reversals as spelling errors that will be corrected during the editing stage of writing.
3. Provide the student with a visual cue for recalling the orientation of frequently confused letters.

- To help the student distinguish between b and d, draw an association between the letter b and the word baseball. Tell the student, “If you want to play baseball, first you need a bat.” Draw an upright bat and then the loop as a ball. Have her memorize, “First, you need a bat.” Otherwise, you can only play catch.

- Show the student that the letter b can be formed with the fingers of the left hand and d with the right. Teach her that since the alphabet is written from left to right and b comes first in the alphabet, b is the letter made with the left hand. Since the letter d comes after b, it is made with the right hand. Give him practice in using this trick so that the differentiation becomes automatic.

- Provide the student with cards that include keywords containing frequently reversed letters, such as dog for d, that she may keep at her desk and refer to when writing.

- Teach the student how to form the letter b using a forward circle (clockwise) and the letter d using a backward circle (counterclockwise).

- Show the student how to check her papers for b/d reversals. By turning the paper to the right, a correctly formed b will look like the start of a pair of glasses.

- Help the student recall the orientation of letters by using language clues.

- Remind the student that a lowercase b is just a capital B that has lost its top.

- Draw a bed made of the letters b, e, and d, with the b as the headboard and the d as the footboard. When the student says the word “bed” and either looks at or imagines the picture, she will recall that the first letter has the /b/ sound and the last letter has the /d/ sound.

4. After identifying the letters that the student reverses, have her practice one letter daily in different applications. For example, have the student trace the letter and write it from memory, write several keywords that contain the letter, and circle as many of the letter that she can find in a magazine or newspaper article. At the end of the week, check to see that the student is able to recognize and write the specific letters that she has been practicing.

5. Provide the student with practice of letters that she frequently reverses. Present a model of the correctly formed letters, followed by the letter formed several times with a series of dots. Gradually fade out the dots so that the student forms the letter independently.

6. To reduce reversals in writing, have the student describe aloud the movement pattern she makes when writing a frequently reversed letter. For example, when forming the letter b, she may say: "start high, line down, back up and around."

7. Based upon her frequent letter reversals, teach the student cursive writing. Provide oral cues as you teach letter formation.

8. To help the student recall the direction of numerals, relate their orientation to an analog clock face. Show her that 2, 3, 4, and 7 always start at 11:00. The figure to the right is an example using the number 2.

9. Teach the student how to position his paper correctly. [For a right-handed writer, the bottom left-hand corner should point at his navel. For a left-handed writer, the paper runs parallel to the writing arm like a railroad track.]

10. Show the student how to hold his paper steady with the alternate hand when writing.

11. Provide the student with a clipboard to use in writing activities. This will make writing easier because the paper will remain in a consistent position.

**Format**

1. Provide visual cues to help the student remember to use margins and left-to-right progression. Glue stars on the paper to show the student where to start and stop writing.

   - To help the student learn to use margins, fold the paper along the side to make a crease down the vertical line to remind him where to stop writing.

   - To help the student remember to use margins, have him use a ruler and felt-tip pens to "format" a stock of blank composition paper. Use green pen to draw in the left margin and red pen to draw the right.

   - To help the student remember to observe margins, place a piece of scotch tape along the right side of the paper as a reminder to go to the next line.

   - To help the student visualize the format of a well-organized piece of writing, provide him with some samples of page formats. For example, demonstrate how to format the paper with name, date, title, three indented paragraphs, and equal margins. Show him samples of papers that are neatly formatted. The figure at right depicts a format for a simple composition.

2. Show the student how to use margins and indentations when formatting a paper.

3. Place a dot about 1 inch in from the margin to remind the student to indent paragraphs. Have him make a dot before starting each new paragraph.

Spacing

1. Show the student how to reduce the spacing between his words and letters to improve legibility. Explain to him that letters are written next to each other and a small space about the size of his letter o should be left between words.

2. To provide additional practice with spacing between letters, have the student practice writing words on graph paper placing one letter in each box. The sets of lines will help him with spacing, size, and alignment.

Slant

1. Since regularity of slant is affecting legibility, use lightly drawn slant indicators (/\\\\\/) on the paper to remind the student to form letters consistently.

2. Show the student how altering his paper position and then maintaining a consistent position can make it easier to produce letters with a consistent slant.

3. Provide opportunities for the student to evaluate the regularity of slant in his writing. Model forming letters with a consistent slant and provide practice for mastery.

4. As long as the student’s letters are parallel, allow their “slant” to be either straight up and down, to the right, or to the left.

Alignment

1. Discuss with the student how he can remember the proper heights of the letters by thinking of the following story: All letters start out living on the ground. Some, the short letters, stay there. Other letters stick their heads up into the sky, and still others hang their bottoms into the ocean. If letters who don't belong in the sky stick their heads up there, they'll blow away. If letters who don't belong in the ocean hang their bottoms in the ocean, they'll drown. At first, to reinforce this image, you may color-code the ocean, ground, and sky.

2. Use pictures to reinforce the height of letters. For example, a giraffe for tall letters, a dog for short letters, and a cat (or mermaid) with her tail hanging down for letters that have a tail below the baseline. Cut out pictures to match against the letters for instructional purposes.

3. Show the student how to place the base of each letter on the writing line. To encourage him to place each letter on the line, color code the line, used raised-line paper, or make a raised line with white glue.

Letter Formation

1. Provide the student with handwriting instruction that includes the following sequence of components: modeling, copying, feedback, correction of errors, and positive reinforcement.
2. Watch the student’s letter formation and reteach those formed incorrectly (sequence and direction of strokes). Monitor his practice until you are sure he will continue to write it independently in the correct [manuscript, cursive] style used in the classroom. Provide continued practice, in isolation and incorporated into other tasks, until he has established the pattern established in memory (i.e., can write it correctly without thinking).

3. Have the occupational specialist or learning disabilities specialist work with the student individually, outside of the classroom, to teach proper letter formation within one style of writing, such as D’Nealian. Have him practice tracing large letters and writing from memory to integrate the proper sequence as well as formation of strokes within a letter. To increase interest, provide practice making letters on different surfaces (e.g., shaving cream, white board, wet sand, chocolate pudding on a cookie sheet) and using different writing implements (e.g., finger paints, colored markers, glitter pens). Simplify letter formations as much as possible, such as dropping the tails off D’Nealian lowercase letters.

4. Show the student a letter on a card and have him trace it in wet sand or cornmeal.

5. Have the student make raised letters with glue sprinkled with dry colored gelatin, cornmeal, or sand. Have him trace the letter and say either its name or sound. After repeated tracings, have him turn over the card and attempt to write the letter from memory. With guidance, have him check the letter against the model for accuracy.

6. Demonstrate proper letter formation to the student. Provide systematic practice with one letter before introducing another.

7. Use the following progression to teach the student letter formation. Have him: (a) trace the letter, (b) complete a dot-to-dot pattern of the letter, (c) copy from an index card, (d) write the letter after seeing it briefly on a flash card, and (e) reproduce the letter from memory.

8. Show the student a letter on a card and have him trace it with his finger as he says the letter name. Have him then trace the letter with a crayon or felt-tip pen and then with a pencil. When the student is able to trace the letter accurately, have him copy the letter while looking at a model. When he can copy the letter accurately, have him turn over the card and attempt to write it from memory.

9. To teach letter formation, use the following steps: (a) write the letter on the board, modeling and describing how to form the letter; (b) have the students say aloud how to make component strokes and features and describe each step explicitly; (c) have the student say aloud how to make each letter as he forms the letter on his own paper; (d) have him compare his productions with model letters on letter strips or transparent overlays and describe how they differ and make necessary corrections; and (e) have him select examples of his best work.

**Manuscript**

1. Introduce letter shapes to the student with manipulatives, such as plastic letters. Before beginning paper and pencil tasks, have the student practice forming letters out of clay.

2. Roll out a slab of clay and have the student practice forming letters with a pencil or wooden stylus. Initially, provide a light etching for the student to trace more deeply.

3. Because of the student's fine-motor difficulties, introduce uppercase manuscript letters first because they are easier to form.

4. To help the student learn the motor movement associated with each letter, have him use his whole arm, making large letters in the air while naming the letter out loud.

5. Have the student trace a letter with a crayon on a plastic sheet placed over the printed model. Have him place the plastic sheet over lined paper and write the letter. Then, have him place the letter over the printed model to see how closely they match.

6. When teaching the student how to write letters, first guide his hand to show proper formation. Keep practicing until he feels that he can imitate the pattern independently.

7. When teaching the student how to form letters, provide a verbal description of the sequence of the strokes. When the student is forming the letters, have him verbalize the sequence of strokes while he writes the letter. Some handwriting programs, such as D'Nealian (Thurber, 1983, 1984), provide specific audio directions.

8. Teach the student lower and uppercase D’Nealian letters. This method: (a) provides audio descriptions for letter formation, (b) reduces the number of strokes needed to form letters, (c) eliminates component parts, and (d) provides a natural transition into cursive writing.

9. Verbalize the directions for producing a letter as you trace it on the student’s hand, back, arm, or finger. This will help him associate the oral directions with the kinesthetic/tactile formation of letters.

10. Have the student verbalize his movements as he forms large letters on the chalkboard. For example, to form the letter n, he would say: down, up, make a hump, and back down. Initially, encourage the student to make the letter as large as he can.

11. Use colors, arrows, and dots as cues to help the student remember the proper direction of strokes in letter formation.

12. To help him recall letter forms, place an alphabet strip at the top of the student's desk and on the inside cover of his notebook.

13. Permit the student to use manuscript or cursive writing, whichever is the most legible.

14. Do not require cursive writing, since the student's manuscript is legible and easier for him to write.

15. Do not require the student to learn cursive writing. Instead, help him focus efforts on improving the legibility of his printing.

16. Because the student is having extreme difficulty with the rhythmic movements required for cursive writing, allow him to print on all writing assignments.

Cursive

1. Have the student concentrate on improving the legibility of his cursive writing.

2. To help the student perceive words as units and reduce the frequency of letter reversals, teach cursive writing.

3. Teach the student cursive writing. Cursive writing minimizes spatial and directional confusion of letter forms. D'Nealian (Thurber, 1983) and Handwriting Without Tears (Olsen, 1998) are two of the easier forms of cursive writing to learn and to use. The student will need specific instruction in the formation as well as the direction of each stroke.

4. When introducing cursive writing, provide the student with as much practice as he needs with one letter before introducing another. As you teach him to join letters together, use real words to work simultaneously on spelling.

5. When introducing new letter forms to the student, follow a developmental sequence based on the similarity of motor patterns used to form each letter. For example, introduce formation of the lowercase cursive letter e with letters that are formed with a similar stroke, such as l, f, and k.

6. Use the following sequence for teaching the student lowercase cursive letters: The e family (e, l, h, f, b, k); the c family (c, a, d, o, g); the "hump" family (n, m, v, y, x); tails tied in the back (f, q); tails tied in the front (g, p, y, and z); the r and s (Hanover, 1983).

7. Check formation and joining of all cursive letters in writing. Provide practice in the correct formation of the letters that cause the student difficulty. Those that require a “bridge” or “handle” (b, o, v, and w) are often difficult.

Rate

1. To develop automaticity, fluency, and speed in cursive writing without losing legibility, provide directed and supervised handwriting practice at least once daily, preferably twice. Do not emphasize speed, only legible letter production. Speed will increase with mastery. While the student is concentrating on handwriting practice, provide exercises that require little thinking so that she can devote her attention to accurate and legible production. As she develops mastery, increase the conceptual level of the task. Once a week or so, date and keep a handwriting practice sheet so she can see concrete evidence of her progress.

2. Request consultation from an occupational therapist with expertise in handwriting skills for ways to make handwriting easier for the student and practice techniques to help automatize the motor act of letter formation.

3. In order to increase automaticity with letter formation and speed of writing, do daily timed writings. Encourage the student to write as many (letters, words, or sentences) as he can during a 2-minute period. Keep a graph that displays the daily numbers of letters per minute (lpm).
4. To build writing speed, have the student copy printed material as fast as he can for a 2-minute period. Have him set a goal for the numbers of letters to be produced within a minute.

5. Discuss with the student how his slow rate of writing is affecting classroom performance. Design a program to increase writing speed.

6. To build writing speed, have the student do daily timed writings. Count the number of letters or words that he is able to copy from a book in a 1- to 3-minute period. Chart performance daily so that he is able to see her progress.

7. Encourage the student to increase keyboarding speed. Provide daily practice using software designed to improve typing speed.

8. To reduce the mechanical challenges of writing, have the student use speech synthesis, word prediction, and word bank software. This will help the student produce a more legible product.

**Self Monitoring/Evaluation**

1. Teach the student how to evaluate his own handwriting in relation to letter formation, spacing, alignment, slant, and line quality.

2. Teach the student how use self-corrective feedback by comparing his own productions to correct models to monitor progress and needed improvements.

3. After handwriting practice, have the student evaluate his own writing. Ask him to circle his best production of the target letter and to explain why it is best. Provide immediate feedback. Have him practice the specific letters that need correction or improvement.

4. Provide frequent opportunities for the student to evaluate his own handwriting. Conduct brief conferences to help the student set appropriate instructional goals.

BASIC WRITING SKILLS

Tests: Spelling, Spelling of Sounds, Editing, Punctuation and Capitalization
Clusters: Basic Writing Skills, Phoneme-Grapheme Knowledge, Academic Skills
Related Sections: Phonological Awareness

Contents: Basic Writing Skills
  Spelling
  Further Evaluation
  Accommodations
  General Recommendations
  Word Lists
  Spelling Tests
  Rules
  Sample Programs
  Spelling Strategies and Approaches
    General Recommendations
    Phonology to Phonics
    Orthography
    Morphology
  Punctuation and Capitalization
    Further Evaluation
    Instruction
  Editing
    Further Evaluation
    Feedback
    Assistance
    Strategies
    Checklists

Spelling

Further Evaluation

1. Conduct a careful error analysis of the student's spelling to aid in selecting an appropriate remedial strategy. Evaluate several writing samples to determine any patterns of spelling errors. Attempt to determine if the student sequences sounds correctly.

2. Attempt to determine the specific strategies (phonological, orthographic, and morphological) that the student uses when spelling by analyzing errors to determine which are sound-based and which are orthographic/morphological (e.g., letter sequences and word endings).

3. Informally assess the student’s knowledge of phoneme-grapheme relationships by analyzing his attempted spellings on classroom writing assignments.

4. Use diagnostic teaching to ascertain an effective spelling study strategy for the student.

5. Determine exactly which words the student knows and does not know how to spell from a high-frequency word list, such as the 300 Instant Words (Fry, 1980). Establish a program to help the student master the spellings of these common words. [See Strategies: Instant Words 300.]

6. Dictate to the student a 100-word paragraph from a story in his reading series. Determine the percent of words spelled correctly. Analyze the frequency and types of spelling errors. Save the sample to use to evaluate progress. In several months, dictate the same passage again and analyze the spellings for growth.

7. Analyze several unedited writing samples. Attempt to determine the punctuation and capitalization rules that the student knows and uses, knows but does not always apply, and does not know.

**Accommodations**

1. Provide the student with a poor spellers' dictionary. This is a book with words listed according to many possible misspellings with the correct spelling after each listing.

2. Praise the student for systematic and logical attempts to spell words even when the words are spelled incorrectly. For example, if he spells the word “rain” as “rane” that would be considered a good English spelling.

3. Do not penalize the student for misspellings in written work. Provide assistance as needed with correcting spelling for final drafts.

4. Do not draw attention to spelling errors until the student is ready to edit the final drafts of papers.

5. Provide the student with a pocket-sized, electronic spelling checker and teach him how to use it.

6. Help the student learn to use a spell checker on a word processing program to edit his work.

7. As an aid to spelling, have the student use word prediction software that will provide suggestions of words and spelling based upon the first few letters.

8. Based upon his severe difficulties with spelling, teach the student how to use voice-activated word processing programs or voice recognition software. The student speaks into a microphone and the text is then translated into a word processing format on the computer. Although this procedure is not error-free, it will significantly reduce the demands on spelling, allowing the student to concentrate more fully on expressing and organizing his ideas.

General Recommendations

1. Integrate instruction in spelling and word identification so that the student sees the connections between phonemes and graphemes as well as between graphemes and phonemes.

2. Until the student’s willingness to write improves and his confidence about spelling increases, de-emphasize the need for correct spelling. Immerse the student in frequent, purposeful writing activities. As skill develops, provide formal spelling instruction.

3. Discuss with the student the difference between “invented” or temporary spelling and conventional spelling. Explain to the student how learning to spell words correctly will help him increase knowledge of English spelling patterns and make it easier for others to read his writing.

4. Emphasize the functional use of spelling. Demonstrate the importance of correct spelling in practical and social situations.

5. Have the student spend 10 to 15 minutes daily studying and practicing spelling words. Make sure that the study method he is using is effective.

6. Use a variety of spelling games and exercises to build interest and to reinforce correct spelling and the acquisition of spelling generalizations.

7. Reinforce spelling skills within the context of stories. The following game, adapted from Forte and Pangle (1985), may be used to practice words from a spelling list, an individualized spelling list, or a high-frequency list. To begin, write the words to be practiced on index cards. Follow these steps: (a) Pair students together to play the game. Provide students with a pencil and sheet of lined paper. Place the stack of word cards between them. (b) The first student draws a word card and then writes a sentence to begin the story that uses the word. When the student writes the spelling word, he looks at the word, turns over the card, and attempts to write the word from memory on a piece of paper. The spelling is then checked and the procedure continued until the word is written correctly. The student reads his sentence aloud. (c) The second student draws a word card and writes the next sentence in the story writing his spelling word from memory. The second student then reads the two sentences. (d) The players continue to draw word cards and write and read the sentences until all cards are used and the story is completed. (e) As a final step, the students may want to edit their story, illustrate it, and/or read it aloud to the class.

8. Give the student practice using his spelling words in written compositions and letters.

9. Play a board game but use spelling accuracy instead of dice to move ahead. Dictate a word that the student should be able to sound out based on the letter-sound association. If he writes the word with all of the appropriate sounds and no others, even if misspelled, he can move ahead. The exception is sight words. Those must be spelled correctly. When the student has list of 5 words that he has written, have him read the list of words aloud.

Word Lists

1. Do not use separate lists for reading and spelling. The student’s spelling words should come from within the reading/spelling rules and his reading sight words.

2. Provide the student with a reduced list of spelling words. Begin with five words a week. As performance improves, increase the number of words on the list.

3. Because of the student’s difficulties with spelling, do not use the basal spelling program. Instead, have the student create his own spelling list, selecting words that are frequently misspelled in his writing. Alternatively, you select words that he frequently misspells in writing.

4. Do not assign the student any spelling words that he cannot read easily, does not know the meaning of, or does not use in his writing.

5. Present the student with just three or four new spelling words at a time at three intervals throughout the week rather than 10 or 15 words all at one time. Provide study time when the new words are presented.

6. Because the student has difficulty with spelling, use a spelling flow list with daily testing rather than a fixed list with weekly testing (McCoy & Prehm, 1987).

7. Focus on mastery of the spelling of commonly used words and teach only a few spelling words at a time. Have the student identify from 3-6 words that he uses in his writing, but spells incorrectly. Write the words on spelling flow list form. Have him study the words and then test him daily on the words. Mark each correctly spelled word with a "+" and each incorrect word with a (-). When a word is spelled correctly 3 days in a row, cross it off the list and add a new word. File all correct words alphabetically into a word bank. One week later, review the words in the bank. If a word is incorrect, add it back to the list. [See Strategies: Flow List - Spelling.]

8. Select specific spelling words for the student to master, such as words with phonically regular spelling patterns. Remind the student if he listens closely to the sounds in words that he will spell them correctly.

9. Have the student select words that are misspelled in his writing for extra credit spelling words.

10. Have the student develop his own spelling dictionary that includes words that he frequently misspells in his writing. Use these words as the basis of his spelling program.

11. Have the student enter words that he has trouble spelling into a pocket notebook. Encourage him to use his personalized dictionary when he edits his writing.

12. Select spelling words from Instant Words (Fry, 1980), a list of the 300 most common words used in writing. Have the student keep a chart that displays the words that have been mastered. [See Strategies: Instant Words 300.]
13. Select words from “Instant Words-The 1000 Most Used Words in the English Language” and "Frequently Misspelled Words" (separate lists for elementary and high school students) from The Reading Teacher's Book of Lists as the basis of the student's spelling lists. Pretest before assigning words (Fry, Kress, & Fountoukidis, 2000).

Spelling Tests

1. When assigning the student a list of words to study, be sure to give him a pretest to identify the words that he knows. Replace these with other words so that he is continually learning new words.

2. Dictate to the student words with phonically regular spellings, one at a time. Pronounce the sounds of the word separately and slowly in sequence. Remind him to write each letter sound as he hears it.

3. When dictating spelling words to the student, say each word slowly and pause between syllables. Repeat the word several times so that the student has time to listen to, write, and check the word.

4. This procedure will help the student learn to sequence sounds.

5. Provide corrective feedback to the student immediately after completion of a spelling test. Have the student touch each letter of the word with his pencil as you spell the word out loud. Have the student correct each word that has an error.

6. Use a developmental scale to evaluate spelling tests. Instead of scoring responses correct or incorrect, assign point values based upon the number of correct letters:
   - 0 points: no correct letters
   - 1 point: one correct letter
   - 2 points: two correct letters
   - 3 points: three correct letters (and so on)

7. Use a developmental scale to grade spelling tests. A spelling rating scale is more sensitive to measuring growth than use of dichotomous scoring (correct or incorrect). This type of scoring system will help you monitor a student’s progress in sequencing sounds correctly. Use the following scale, adapted from Tangel and Blachman (1992) and Kroese, Hynd, Knight, and Hiemenz (2001), to evaluate performance on spelling tests.
   - 0 points: random letters
   - 1 point: One phonetically related letter
   - 2 points: Correct initial phoneme
   - 3 points: Two correct phonemes (does not have to be correct grapheme)
   - 4 points: Correct number of syllables represented (only used for multisyllabic words)
   - 5 points: All phonemes in the word are represented
   - 6 points: All phonemes in the word are represented with possible English spellings (e.g., rane for rain).
   - 7 points: Correct spelling
Rules

1. Teach the student only the most common spelling rules (e.g., when a word ending in y is made plural, drop the y and add ies; u always follows q; when adding an ending starting with a vowel, double the final consonant to maintain the short vowel sound). Reinforce generalization to words in classroom writing.

2. Teach the student that each syllable within a word must contain at least one vowel. Reinforce the student for including a vowel in every syllable.

3. Do not have the student rote-memorize spelling rules. Instead, build his knowledge of the alphabetic system by teaching him how to segment spoken words into phonemes, how to match up graphemes with the phonemes, and how to spell common English spelling patterns.

Sample Programs


3. Use high-interest activities to help the student build his spelling skill. One book that contains a wide selection of classroom games and activities to reinforce spelling skill is Selling Spelling to Kids (Forte & Pangle, 1985).

4. Use daily dictations to help the student master the spelling rules that he is learning. An example of a manual that provides dictations that review spelling rules, word building, and word patterns is The Spell of Words (Rak, 1984).
5. Use a systematic program to teach the student morphology within the context of reading decoding and spelling. Words (Henry, 1990) is a program designed for students in grades 3 – 8 and students with learning disabilities. In structured lessons using a discussion format, students learn about letter-sound associations, syllable patterns, the three major language origins in English (i.e., Anglo-Saxon, Latin, and Greek), morpheme patterns (compound words, prefixes, roots, and suffixes), and practice decoding and spelling multi-syllabic words taken from math, social studies, and science textbooks. Words can be used effectively by teachers, instructional aides, or parents. Available from Pro-Ed, 8700 Shoal Creek Blvd., Austin, TX 78757-6897, (800) 897-3202, http://www.proedinc.com.

Spelling Strategies and Approaches

General Recommendations

1. Discuss with the student the strategy that he is presently using to study his spelling words. Determine whether or not the present technique is effective. If not, teach the student a new strategy to try.

2. Teach the student how to use a specific spelling study strategy. A variety of techniques can be found in many texts on teaching students with learning difficulties and on many educational websites, such as http://www.ldonline.org. Make sure that any spelling strategy selected includes multiple writings of the word without copying from a model.

3. Teach spelling through direct instruction, rather than expecting the student to learn how to spell words through reading or by looking up difficult words in a dictionary. Provide opportunities for the student to practice a spelling strategy independently.

4. Regardless of the selected spelling strategy, provide opportunities for the student to write the word correctly without a model and then to self-check his accuracy.

5. Have the student use a spelling method that involves visual, auditory, and kinesthetic modalities and places an emphasis on recall.

6. Teach the student how to use the Fernald method (Fernald, 1943) for studying spelling words. If the student continues to have difficulties, use a modification that increases the tracing, writing from memory, and reinforcement. [See Strategies: Fernald Method for Spelling Instruction, Fernald Method for Reading and Spelling: Modified.]

7. Teach spelling and reading patterns simultaneously so that they are mutually reinforcing (e.g., teach the cvc pattern and have the student read and spell words that have this pattern).

8. Provide opportunities for the student to practice his spelling words on the computer.
9. To reinforce sound segmenting and sequencing, as well as spelling of sight words, incorporate games. The following is an example: The teacher makes word cards that correspond with the phonics skills the students are learning and which include sight words. The students play a board game in which they each write (on paper, a small white board) the word that the teacher dictates. If the student who has the turn spells the word with all of the appropriate sounds and no others, even if misspelled, he may move ahead. If he has spelled it incorrectly, play passes on to the next student. The exception is sight words. Those must be spelled correctly.

**Phonology to Phonics**

1. As spelling skill develops, encourage the student to listen to the sounds in words and then try to write the sounds that he hears in order. This will help him increase understanding of the relationships between spoken and written words.

2. Give the student daily practice in sounding out words for spelling. Using only phonically regular words, dictate words and sentences for him to write. Accept phonically correct misspellings. As he learns spelling patterns, expect him to use them where appropriate. Any parts of the words that have patterns he has not yet learned may be spelled as they sound.

3. To improve spelling, help the student learn to determine the number of syllables that he hears in a word and then the number of sounds. Have him pronounce the word slowly as he makes a mark or pushes out a tile or marker for each sound. As skill improves, have the student write the sounds that he hears. [See Strategies: Elkonin Procedure: Adapted.]

4. Have the student study his spelling words using a tape recorder. Use the following steps: (a) have the student look at the word while hearing it pronounced; (b) have the student look at the word while hearing it spelled letter by letter; (c) have the student repeatedly spell the word aloud with the tape until he can write it from memory; and, (d) have the student write the word from memory three times, checking for accuracy after each attempt.

5. Dictate short words with regular sound-symbol correspondence for the student to write. Pronounce words slowly so that the student can hear the separate phonemes. Have him pronounce each sound as he writes the letter or letter combinations.

6. Dictate simple spelling words to the student that he can rebuild with magnetic plastic letters or letter tiles. Have the student form the word with the letters, cover the word, write the word, and then check the word for accuracy. Have the student repeat the procedure until he can spell the word three times consecutively, correctly.

7. Have the student sort words with common phonic elements and spelling patterns (e.g., beginning or ending letters, double letters, medial vowel sounds, etc.) into groups and tell how each set is similar. Have him then practice spelling the words in categories.

8. Use color to highlight regular word parts. For example, when helping the student analyze a word, write the phonically regular parts in green and the irregular parts in red.
9. When studying the spelling patterns of words with the student, use a three-part classification with color coding: (a) predictable (green), (b) unpredictable but frequent (yellow), and (c) unpredictable and rare (red) (Venezky, 1970). Draw a comparison to a stop light. Green words mean “go”; yellow words mean “pause and think”; and red words mean “stop and think.”

10. Help the student learn to generalize the words that he is learning to other words with the same phonemic element. For example, if he is learning to spell the word night, introduce and have the student practice other common words that share the ight spelling pattern.

11. Teach the student how to sequence sounds in correct order when spelling. Have him pronounce a word slowly as he writes each sound. Although this strategy will not always produce correct spellings, it will enable the student to use a spell checker or a poor speller's dictionary when he wishes to verify the spelling of a word.

Orthography

1. Because most of the student’s spellings represent phonetically accurate spellings, provide an intervention that will focus upon the visual recall of words.

2. Because of a weakness in orthographic knowledge, the student has trouble memorizing specific letter sequences in words. Provide extensive review and practice to build orthographic awareness.

3. Discuss spelling demons with the student. Show him words that contain problem letters, including silent letters and uncommon spelling patterns. Explain to him that special strategies are often needed to memorize these words. [See Strategies: Spelling: General Teaching Principles.]

4. Have the student practice high-frequency "spelling demons," commonly used words that contain an irregular element. Discuss with the student the part of the word that has the irregular spelling pattern. Then suggest some strategies to help him remember the spelling. Strategies to suggest include: color-coding (marker, highlighter) only the tricky part of the word; creating a visual image that would be a clue to the spelling (e.g. antelope: two ants in wedding clothes, and carrying suitcases, running away); and pronouncing the word out loud the way it is spelled (e.g., Wed-nes-day, lab-o-RAT-ory).

5. Have the student use the Look-Spell-See-Write strategy to highlight the visual image of a word for spelling. Print the word to be learned on a piece of paper or index card for the student. Make sure that the word is one that the student can read easily. The student then looks at the word while reading it aloud, says each letter, tries to create a mental picture of the word, and writes it three times, each time checking it against the card for accuracy. If he makes an error at any point during the three trials, he goes back to the original study-steps. [See Strategies: Look-Spell-See-Write.]
6. Use a letter cloze procedure to practice spelling. Give the student an index card that has a word at the top and then underneath the word written several times with different letters deleted. Gradually, reduce the number of letters provided in the targeted word. On the last trial, have the student turn over the card and write the entire word from memory. This method can be adapted by omitting specific word parts, such as vowels, consonants, consonant blends, prefixes, suffixes, or the irregular element of the word.

7. Teach a spelling study strategy to help the student master words with unusual spellings. One such strategy is Alternate Pronunciation, in which the student pronounces the word he is learning in a way that all letters can be heard (e.g., lab o rat ory or Wed nes day). (Ormrod, 1986). The purpose of this spelling strategy is to help the student recall the correct spelling of a word although the letters may not carry their most common sounds or may be silent. Use the following steps: (1) break the word up into parts in such a way that any difficult letters to remember will be pronounced; (2) memorize the alternate pronunciation; (3) write the word according to the alternate pronunciation without looking at the model; (4) check the spelling; (5) if correct, repeat step 3 two to four times more; and (6) if incorrect, devise a new pronunciation that will help the student correct the error.

8. Use an adaptation of the Simultaneous Oral Spelling method (Bradley, 1981; Gillingham & Stillman, 1973) to have the student practice his spelling words. Use the following steps: (1) the student proposes a word that he wants to learn; (2) the word is written for the student or made with plastic script letters; (3) the student pronounces the word and says the letter names; (4) the student covers the word as soon as he thinks he can write the word from memory, saying the alphabetic name of each letter of the word as it is written; (5) the student says the word and checks to see that it is written correctly; (6) the student repeats Steps 2-5 twice more; and (7) the student practices the word in this way for 6 consecutive days.

9. To practice spelling with the student, write a word on the chalkboard (a whiteboard does not work for this). Give the student a tiny piece of wet sponge. Have him say the word, then trace over the letters you have written, erasing them with the sponge. Give him the chalk and have him write over the lines he has erased. Give him a card with the word written on it so he can check his spelling each time. When he knows he can write the word without a model, have him do so on the cleaned chalkboard, on a whiteboard, or on paper. Provide frequent, then intermittent reinforcement.

10. Present a spelling word to the student using a tachistoscope, flash card, or computer. Expose a word for several seconds and then ask the student to write the word from memory. Decrease exposure time and increase the length of the word as skill develops.

11. As the student is studying irregularly spelled words, have him underline the parts of the word that are not predictable from the pronunciation. Have the student use the following steps for practicing spelling: (a) pronounce the word slowly while looking carefully at each word part, (b) say the letters in sequence, (c) recall how the word looks and say the letters, (d) check recall by looking at the correct spelling, (e) write the word from memory, and (f) compare the written word with the correct spelling. Repeat these steps until the word is spelled correctly (Horn, 1954).

Morphology

1. Use *Words* (Henry, 1990) to provide an integrated program of reading decoding, spelling, and morphology. [See description under Sample Programs, above.]

2. Assign the student one spelling word a week, such as the word “friend.” Teach him how to spell all of the derivations of the word (e.g., friends, friendship, unfriendly, friendliest). Discuss how the addition of morphemes alters word meaning. For practice, provide a sentence for each of the derivations, with a blank where the word should be. Based on the context, have the student fill in the blank with the appropriate word.

3. Teach the student how to spell common prefixes and suffixes and then to add these common affixes to root words. For fun, have the student put together root words and affixes to make meaningful nonsense words. For example, *hypermortation* means the state of excessive death (hyper – excessive, mort – death, ation – state or quality).

4. To help with spelling, teach the student about inflectional and derivational morphemes. Inflectional morphemes (e.g., past tense or plurals) provide additional information about time or number without changing word meaning or part of speech. Derivational morphemes (e.g., prefixes and suffixes) alter the meaning or the part of speech (e.g., teach-teacher). Provide practice with adding both inflections and derivations.

**Punctuation and Capitalization**

**Further Evaluation**

1. Analyze several samples of the student’s writing to determine errors in punctuation and capitalization. Make a list of the most common errors to target for instruction.

2. Provide the student with a short passage that does not contain punctuation. Have him add in the correct punctuation and capitalization. Review any errors and target these rules for instruction.

**Instruction**

1. Teach the student punctuation and capitalization rules sequentially, one rule at a time, with practice in a variety of situations (e.g., worksheets, finding the use of the rule in reading, writing sentences and paragraphs, and editing his own or a peer’s work).

2. Introduce punctuation and capitalization rules to the student as he needs them for writing. Do not teach a new skill, such as the use of quotation marks, until he is ready to incorporate it into writing.

3. Make sure that the student masters one punctuation or capitalization rule before introducing another. For example, teach the student how to use a period at the end of a sentence. When this rule is mastered, introduce the use of a question mark. As the student is learning a new rule, incorporate tasks requiring use of previously learned rules.
4. Choose one error made by the student in writing and discuss it. Illustrate correct usage. Have the student practice using this skill correctly until it is mastered.

5. Teach the student how to recognize and write complete sentences, including starting each sentence with a capital letter and ending each sentence with the appropriate punctuation mark.

6. Have the student keep a list of the punctuation and capitalization rules that he is learning on an index card. Have him use the card as a reference when editing.

**Editing**

**Further Evaluation**

1. Further evaluate the student's proofreading skill by having him edit several of his rough drafts. Ask the student to mark and attempt to correct all errors. Perform an error analysis to see the types and percentage of mistakes that he is able to correct.

2. Provide the student with papers to proofread that list the number of errors to be located on the top of the paper, or in the margin by each line, if necessary. Perform an error analysis to identify how many and what type of errors the student was able to identify and correct.

3. Use the following pretest (Schumaker, Deshler, Nolan, Clark, Alley, & Warner, 1981) to assess editing skills. Follow these steps: (1) Give the student a list of expository writing topics from which to choose. Ask him to write at least six lines. Allow at least 20 minutes. (2) Ask the student to read the composition, circle the errors, and correct them. (3) Ask the student to rewrite the composition, corrected. (4) Repeat Step 3 in the next session with a new topic. (5) If the student has identified less than 80% of the errors, teach the Error Monitoring Strategy. [See Strategies: Error Monitoring Strategy.]

**Feedback**

1. Use a consistent set of proofreading symbols when editing the student's work. Make sure that he understands the meaning of all the symbols.

2. When editing the student's paper, do not mark every error. Instead, select a few errors for him to correct.

3. After the student has proofread a paper, praise him for both identifying and correcting any errors.

4. Discuss with the student the types of errors that he makes frequently in writing, such as omitting word endings. Demonstrate and provide practice in checking word endings carefully when proofreading papers.

Recommendations: Basic Writing Skills

Assistance

1. Make sure that the student receives additional help from someone (teacher, parent, peer) in proofreading papers before he turns in a final draft. Consider setting up a buddy system for peer editing in class.

2. Prior to having the student edit a paper, underline all misspelled words so that he can correct the spellings.

3. Have the student proofread his paper for spelling errors, underlining all words he thinks may be spelled incorrectly. Teach him how to use a spell checker to make the needed changes.

4. Provide opportunities for the student to help younger students proofread and correct their papers. In addition to building his self-esteem, he will gain additional practice with editing.

Strategies

1. Teach the student a specific strategy for proofreading and editing his papers. One strategy is the Error Monitoring strategy which uses the acronym COPS (Capitalization, Overall appearance including sentence structure, Punctuation, and Spelling) (Schumaker et al., 1981). [See Strategies: Error Monitoring Strategy.]

2. Teach the student a modification of the Error Monitoring strategy (Schumaker et al., 1981), using the mnemonic SH! COPS! (Spelling, Handwriting, Capitalization, Overall appearance, including visual format (e.g., margins, indentations, poor erasures), Punctuation, and Sentences (structure, sentence boundaries). [See Strategies: Error Monitoring Strategy.]

3. To avoid the problem of seeing what one expects to see or meant to write when proofreading for spelling, have the student start from the bottom of his paper and check the spelling of the words while “reading” backwards. The student may find it easier to spot the errors when the words are out of a meaningful context.

4. Encourage the student to read his paper aloud when proofreading. This will help him detect usage errors.

5. Have the student read his rough draft into a tape recorder. Have him play back the tape and listen to the material before rewriting sections.

Checklists

1. Give the student a checklist to use when he proofreads his paper. Make sure that the student understands how to use all of the rules on the list. Alternatively, make a list of the student’s most frequent writing errors and have him use this list when he proofreads his papers.

2. Proofread the student’s paper before he corrects it. Count, but do not mark, his errors in spelling, punctuation, capitalization, and usage. Give the student a card on which you have written the number of each type of error. Challenge him to find all of the mistakes (or a percentage) of the mistakes you found. He could correct each type of error in a different color and, if he does not know how to correct it, underline the error to show that he found it. Give credit for the percentage of errors found, regardless of correction, as well as credit for corrections.

3. Instead of marking the specific errors in the student's paper, put a check in the margin by any line that contains an error. If there are two mistakes in the line, place two checks. Have the student try to find and correct the errors in each line.
WRITTEN EXPRESSION

Tests: Writing Fluency and Writing Samples


Related Tests: Spelling, Spelling of Sounds, Editing, Punctuation and Capitalization

Cluster: Written Expression

Related Sections: Oral Language, Reading Comprehension

Contents: Written Expression

Further Evaluation

General Recommendations

Accommodations

Computers/Typing

Motivation

Journal

Grammar, Syntax, Morphology

Vocabulary

Prewriting

Topic Selection

Background Knowledge

Semantic Maps/Graphic Organizers

Story Structure

Paragraphs

Report Writing

Compositions/Essays

Revising

Feedback

Revising versus Editing

Rewriting

Outlining

Note-taking

Further Evaluation

1. Conduct a more intensive evaluation of the student's writing skill. Collect and evaluate at least four samples of classroom writing. Determine appropriate goals and objectives for enhancing writing performance.

2. Use the Writing Evaluation Scale to evaluate the student's writing skill in more depth (WJ III Tests of Achievement: Examiner’s Manual). Have the student keep a writing folder that contains samples of her work. Conduct frequent evaluations to assess progress and establish new objectives.

3. Before developing a specific instructional program for writing, conduct a careful and complete assessment of writing ability. The purpose of this assessment is to identify the specific factors that are affecting writing performance and to determine the student's strengths and weaknesses.

4. Have the student develop a writing portfolio or a showcase of her best work. Use the writings in the portfolio to measure and monitor her growth over the school year, or if possible, several years. Have the student be responsible for selecting the pieces to go in the portfolio. Meet with the student to discuss growth, strengths, and goals.

5. Analyze several samples of the student’s spontaneous writing. Particularly assess her [Specify skills that appeared weak or skills in which the student’s competence was not clear.]

6. Compare the student’s apparent competence in a piece of writing that she has handwritten to writing she has done on the computer to determine whether or not writing improves when the motoric demands are reduced.

7. Evaluate various examples of the student’s written expression according to the Six Traits + 1 of the Writing Rubric. This approach to evaluating students’ writing categorizes the many components of written expression into six traits, plus one. These are ideas (content), organization, voice (the writer’s personality or adopted persona coming out through the writing), word choice (rich and precise vocabulary usage), sentence fluency (rhythm and flow of the language), and conventions (basic writing skills)—plus—presentation (the “look” of the finished piece). Each trait is evaluated on a 6-point scale according to specified criteria. Use of the Six Traits teaches student writers to analyze their own writing and that of others in a workshop atmosphere while maintaining a clear focus on what they need to do to improve. Training and materials are available from Northwest Regional Educational Laboratory, 101 SW Main, Suite 500, Portland, OR 97204, (503) 275-9500, http://www.nwrel.org/assessment/index.asp.

8. Use the Process Assessment for the Learner (PAL) test (Berninger, 2001) to evaluate the student’s writing skills in more depth and identify the specific skills requiring intervention.

**General Recommendations**

1. Analyses of the student’s oral language and writing abilities document her difficulties expressing her ideas in both speaking and writing. Consult with the speech-language pathologist (SLP) for specific recommendations. The SLP and the general education teacher(s) should have ongoing communication in regard to procedures for reinforcing newly developing language skills in the classroom. Correspondingly, the SLP can integrate vocabulary and concepts introduced in the classroom into therapy sessions. The selected procedures and techniques would be designed to enhance both oral and written formulation.

2. Provide daily guided discussions that will help the student increase her awareness of the strategies that she uses when writing. Use brief teacher-student conferences to help the student understand how she approaches writing tasks and then how she can use alternative strategies.
3. Use the instructional/evaluation approach advocated by the Northwest Regional Education Laboratory (NWREL) to help the student become aware of what good writing looks and sounds like. NWREL provides training in teaching the Six Traits of Writing + One. Northwest Regional Educational Laboratory, 101 SW Main, Suite 500, Portland, OR 97204, (503) 275-9500. http://www.nwrel.org/assessment/index.asp.

4. Use the writing process approach with the student for writing assignments (Flower & Hayes, 1980; Graves, 1983). Within this approach, help her to understand the purpose of each stage of the writing process. Explain that writing is a recursive activity that usually involves multiple drafts and revisions, prior to publishing. [See Strategies: Writing as a Process.]

5. Consider using a direct instruction approach, such as Expressive Writing (Engelmann & Silbert, date?), to teaching basic written expression skills. Within the framework of a highly structured, teacher-directed process, students learn to integrate sentence writing, paragraph construction, and editing skills. Level 2 includes more sophisticated and conversational writing with complex sentences and more advanced punctuation. Expressive Writing is intended for grades 4 and above. Available from SRA/McGraw-Hill, 220 East Danieldale Rd., DeSoto, TX 75115-2490, (888) 772-4543, http://www.sra4kids.com.

6. Make sure that the student spends at least 30 minutes daily on writing activities.

7. Before writing, have the student consider the purpose, her point of view, and the audience who will be reading her paper.

8. Teach the student the differences between narrative and expository styles. As a basis for discussion, give the student a paragraph written in narrative style and another written in expository style, but with similar information. Discuss with the student the stylistic differences.

**Accommodations**

1. Adapt all writing assignments to match the student's present level of oral language skill. Adjust the grading criteria accordingly.

2. Provide the student with [sufficient time to complete, extended time] on all writing assignments.

3. Reduce the amount of writing that the student is expected to complete, both in the classroom and for homework.

4. When an assignment requires a large amount of writing, allow the student to dictate answers to an instructional/parent aide or, at home, her parent. Depending on the situation, a peer could take dictation, if it would not cause the student embarrassment.

5. Allow the student to take [written exams, content area exams] orally. If necessary, she can go to a quiet room and dictate her answers to an aide or into a tape recorder for grading at a later time.

6. On some assignments, provide a scribe or typist for the student. Have her dictate her thoughts to another who will write them or type them on a word processor. Have her then read the printed copy and [discuss, make] revisions.

7. Help the student become an advocate for herself by discussing the possible accommodations that she may require on written language assignments to be successful in both school and vocational settings.

Computers/Typing

1. Provide specific instruction in how to use technology as a substitute for writing. For example, teach the student how to use a tape recorder to complete different types of assignments. Provide practice in taking oral examinations and preparing and giving oral reports, essays, and short stories.

2. Provide the student with instruction and daily practice in using a word processing program until she is proficient at typing and using the program functions that she will need most often (e.g., spell checker, moving and revising text, saving, setting up files, printing).

3. Because the student has such difficulty expressing her ideas in writing, provide her with and teach her how to use voice recognition software. For written assignments, she can dictate her first draft, and revise it using the keyboard. [For students with severe reading difficulties, incorporate into this recommendation a screenreader and voice synthesizer to read what has been translated into print on the screen to facilitate revisions.]

4. Allow and encourage the student to write her letters and school assignments on a word processor.

5. Provide the student with good quality computer programs that are designed for creating and publishing stories.

6. Provide the student with a portable word processing device, such as the AlphaSmart, or a laptop computer to use in her classes for recording notes, taking exams, and writing papers. Available from AlphaSmart, 20400 Stevens Creek Blvd., Suite 300, Cupertino, CA 95014, (888) 274-0680, http://www.alphasmart.com.

Motivation

1. Develop an incentive program to motivate the student to increase the quantity of her writing. Establish a set of rewards and set criteria for the amount of writing expected for each assignment. You may want to develop specific criteria for a minimum level of quality and discuss these with the student. Gradually fade the reinforcement as the student's competence, and hopefully, her motivation increase. [See Strategies: Token Economy Systems, Mystery Motivator, Positive Reinforcers.]
2. As a service to younger students, have the student write short summaries of lower-level books and attach them to the inside jacket covers. The younger students can then read the summaries to see if they are interested in the books.

3. Based upon her interest and talent, provide the student with activities that include opportunity for both artistic and written expression. For example, have her write and illustrate a story or book, or a brief description of a picture she has drawn. Provide opportunities for her to share her written work with others.

4. Have the student work in cooperative learning groups to write stories. Ensure that she participates in the writing activity by assigning her a specific role, for example, during the prewriting activity, recording the ideas generated by the students in her group.

5. Have the student engage in meaningful writing activities that emphasize the communicative and interactive nature of writing, such as writing letters or postcards to friends.

6. Identify the types of writing that the student may be required to perform in vocational and other settings in the future, such as applications for jobs, college, or a bank loan. Assign a variety of relevant writing assignments.

   **Journal**

1. Have the student keep a daily journal. Allow her to select her own topics and provide topics if she cannot generate any ideas. Set time limits or designate the quantity of writing (e.g., two sentences, a page). When reviewing the journal, write specific and legitimate positive comments about the content.

2. Encourage the student to keep a journal or diary on all trips and during summer vacation.

3. Start the student writing a daily journal. Invite her to ask questions of you in her journal, if she has specific topics to which she would like a response. When she turns in the journal, ask her to turn down the corner or bookmark any pages to which she would like a response.

4. Select an interesting journal entree the student has written and ask her if she would be willing to read it to her classmates. Secure her prior agreement in private.

5. Have the student select entries from her journal that she could use to develop into stories.

   **Grammar/Syntax/Morphology**

1. Do not require the student to participate in grammar exercises, such as memorizing and identifying the parts of speech. Instead, concentrate on methods that will improve the quality of her writing, such as providing models, direct feedback, or sentence-combining exercises.

2. Provide practice writing paragraphs in different verb tenses: present, past, and future. During the editing stage, help the student check to ensure that she maintains consistency with verb tense.
3. Because the student’s visual-spatial abilities are so much stronger than her language abilities, consider using Manipulative Visual Language (MVL) (Gore & Gillies, patent pending) to teach grammar and sentence structure. Developed by teachers of the deaf, MVL is a hands-on program that provides students, deaf or hearing, with a visual, manipulable model of English grammatical elements. The program utilizes 2- and 3-dimensional forms—variously shaped, colored, and coded—to represent different parts of speech. Concepts of nouns, verbs, verb tenses, prepositions, and other parts of speech are introduced through the use of these shapes. Once the concepts are understood, English sentence structure is introduced, and ultimately, literature is incorporated. MVL is recommended for elementary students to establish an early, strong foundation in English grammar and is also appropriate for use with older students still struggling with these skills. MVL can also be used to teach the syntax of American Sign Language. Instructional materials and training in using the system are available from Jimmy Challis Gore, (520) 744-2168 (TTY or use Relay Service), e-mail: JGore3312@aol.com or from Robert Gillies, 23 Bridge Street, Yarmouth, ME 04096, (207) 846-8937, e-mail: caitnor@mac.com.

4. Because the student needs to develop correct sentence structure “from the ground up,” use a strategy that does not look like it was designed for young children. The Sentence Writing Strategy (Schumaker & Sheldon, 1985) assists the student in learning to write grammatically correct sentences of increasing complexity and the related grammatical skills. This strategy, appropriate for middle school age and above, starts with simple sentences and gradually adds sentence elements until the student is writing compound-complex sentences. Instruction can be done individually or in a group. Available from the University of Kansas Center for Research on Learning, Lawrence, KS 66045, (785) 864-4780, http://www.ku-crl.org.

5. Use sentence starters to give the student practice in different ways to expand sentences (e.g., "That is the man who ____________" or "The movie got exciting when ____________"). Provide practice with a variety of sentence patterns. Use this activity to complement teaching specific sentence types.

6. Use sentence-combining exercises to help the student write longer, more complex sentences. Present the student with a set of simple sentences to combine. Begin teaching sentence combining with just two sentences and gradually progress to more complex transformations. Specific patterns may be taught, for example, by asking the student to use the word “who” to combine the sentences. Use this technique several times a week for 10 to 15 minutes.

7. Teach the student to combine sentences into more complex structures by using transitional words (e.g., continuation, sequence, conclusion, causal, conditional, comparison/contrast). Directly teach transitional words to introduce subordinate clauses and to clarify the meaningful relationship among sentences. A good list of transitional words is “Signal Words,” in The Reading Teacher’s Book of Lists (4th ed.), (Fry, Fountoukidis & Kress, 2000).
8. Use graphic organizers to demonstrate the relationships among prefixes, suffixes, and root words. Write the root word in the middle of the map and then prefixes and suffixes extend from the side. After completing the map, have the student attempt to write all of the words that can be formed through the addition of various affixes. You can put the root word in the middle so that the student can read across from prefix to root word to suffix, creating various derivations of the word. Or, as an alternative, a prefix or suffix can be placed in the center of the map.

9. Ask the student to expand orally on a sentence that she has written, adding descriptive words and phrases, additional details or more explicit adjectives. Have the student then rewrite her sentence incorporating her new expansions.

10. Use a slotting technique (Poteet, 1987) to help the student expand sentences. Take a story that the student has written and put in blanks where the sentence can be expanded. Have her add adjectives, adverbs, phrases, and/or clauses to make the writing more mature.

Vocabulary

1. Help the student increase her vocabulary by having her work with a peer or a small cooperative learning group to generate as many words as they can, related to a current topic of study, and explain how the words are related to the topic. As a second step, to clarify the conceptual or grammatical relationships among the words, have the group design a semantic map to connect them.

2. Because her oral vocabulary is more mature and extensive than the words she uses in writing, encourage the student to use more of her oral vocabulary in writing by assuring her that she will not be penalized for spelling mistakes, and praising her when she uses more precise vocabulary.

3. Help the student eliminate overused or redundant words in her writing, such as good and nice. List the target words at the top of the paper before she begins writing a story to remind her that she must think of substitutes for these words. You may also generate with the student, or a group of students, words and phrases with strong, definite meanings, categorizing them by part of speech. Then, when stuck on an overused word, the student would check the adjective list for an alternative word with a more precise meaning, such as virtuous.

4. Use a five-step strategy (Harris & Graham, 1985) to help the student expand vocabulary in her compositions. Target a certain type of word, such as nouns, adjectives, or verbs. To begin, select a picture and present the following five steps on a chart:
   a. Ask the student to look at the picture and write down a list of the type of targeted word, such as adjectives or describing words.
   b. Have the student think of a story that will use the selected words.
   c. Ask the student to write a story that makes sense and uses as many of the words as possible.
   d. Have the student read the story and ask these questions: Did I write a good story? Did I use the selected words?
   e. Have the student edit the story and try to use more of the type of words selected.

5. Prior to writing, have the student set a goal for the number of describing words to be used in the story. After completion of the story, have the student count the number of targeted words used and chart this number on a graph. Students can also do this type of activity in pairs or small cooperative groups. The additional dialogue with peers can help students expand their own word knowledge.

6. To build awareness of the importance and power of word choice for a writer, read short stories and essays to the student that are rich in the use of words that evoke clear ideas, vivid images, and emotions in the reader. Brainstorm and list the words and phrases that she found particularly effective or which were used in an unexpected way. Define words that are new to her. For comparison, read stories and essays in which the word choices are mundane and brainstorm and list the words that are over-used. Compare strong and weak word choices, their effect in communicating the intent of the writer, and the response they evoke in the reader. Have the student start a list of “strong words” to refer to when she writes, and to add to it whenever she finds a word or phrase that she particularly likes.

7. Use a synonym cloze procedure to help the student increase her writing vocabulary. After a draft of a story is complete, underline words that could be more descriptive. Delete each word to be changed and then write it under the line. Have the student, or help her, determine other words that would make the story more interesting.

8. Teach the student how to use a thesaurus to locate more precise vocabulary for her papers and themes.

9. Have the student review her paper and underline all words for which she would like a synonym. Teach her how to use a thesaurus or a pocket-sized, computerized spelling checker with a thesaurus to find and select alternative words.

10. To increase vocabulary, demonstrate how words can be grouped into a superordinate system. As an example, the superordinate structure of animals would include cows, horses, and zebras. Or, students can practice grouping words into semantic categories, such as things to eat or drink.

Prewriting

1. Help the student increase her sensitivity to and interest in the purpose and communicative functions of writing. When making assignments, provide clear, concise reasons as to why a given writing activity is important so that the student views writing as a meaningful activity.

2. In the prewriting phase, provide the student with a variety of activities that will involve her in thinking about and discussing the topic in detail.

3. Just prior to teaching language and thinking skills in writing, such as using descriptive language, organizing information, or using introductions or conclusions, read with the student and have the student read many examples of writing illustrating both good and poor use of the skill. Ensure that any reading she does is at her independent reading level.
4. For prewriting, encourage the student to jot down all of the ideas and details she can think of about the chosen topic without regard to spelling or handwriting. Then, help her put together all of those that are related in some way and throw out those that do not seem to fit. Guide her in using this rough organization to develop a simple outline, a chart, or a graphic organizer. Putting each detail on a piece of paper from a sticky pad will allow her to try out and change arrangements easily.

5. Use a colorful action picture to elicit oral details from the student or choose music for her to listen to. Have her record her thoughts about the picture or the music, then create a composition or story based on her thoughts and the notes.

6. Have the student generate and then answer a series of questions that she will be able to use to organize the writing assignment. Have the student locate and answer the questions before writing.

7. Prior to writing, brainstorm with the student any words or phrases that she thinks she may want to use in her paper. List all the words on the board or a piece of paper. As skill improves, you may designate specific categories of words, such as action or descriptive words.

**Topic Selection**

1. For writing assignments, let the student select topics that are familiar and interesting to her. You might also allow her to discuss a chosen topic with several peers to get their information, record it, and incorporate it into her writing.

2. To improve motivation and provide support for skills and idea generation, have the student pair up with a peer and select a topic to write about that they are both interested in. Have them work together to collect data and organize the information that they acquire about the topic.

3. Help the student learn to narrow her topic so that she can “write more about less” to draw the reader in. Help her to select a topic, event, or experience, discuss it, and choose only one part to write about. Have her look at that one piece as though through a microscope—all aspects are magnified and more are evident. Read to her or have her read many pieces of writing in various genres that illustrate this approach and, for contrast, many that just say a little about a lot of things. Discuss the differences and what makes one more interesting than the other. For example, if her topic is her trip to Disneyland, rather than just listing all of the rides she went on, she could select one, Space Mountain, and describe it as a total experience—the boredom of waiting in line, her anticipation as she moved closer to the launch pad, the feeling and sights of “entering space,” the motion of the car and her fear or exhilaration, and so on.

4. Have the student keep a writer's notebook where she can record any ideas that she may have for future writing topics.
Background Knowledge

1. Prior to presenting writing assignments, make sure that the student has the background knowledge required to write about the topic. If not, provide the necessary instruction.

2. Before writing an assignment, encourage the student to answer several questions, such as: What do I know about the topic? What experiences have I had with it? What do I want to say about this topic? Have her record her ideas on paper before she starts to write.

3. Have the student write about an interesting picture. Before she begins, have the student describe all the things she sees, relate the picture to her own experiences, and tell what seeing the picture makes her think about. List her responses on a paper. When the student cannot think of anything else, help her to categorize the ideas. Once the student's ideas are organized, have her write a story about the picture.

4. To help the student and her classmates generate ideas for writing, use a prereading technique. For example, to generate ideas for a position paper, you might use the Anticipation Guide. Write a few statements about a controversial topic, have the students consider, individually, if they agree or disagree (and to what extent), and conduct a discussion. Before starting, tell the students to write down their thoughts as they consider the statements and to continue to write down ideas, theirs or others,’ throughout the discussion. Stop the discussion while the students are still quite involved and much information has been shared. Direct the students to write a statement of their opinion about the topic and use their notes to provide well-considered reasons. [See Strategies: Anticipation Guide.]

Semantic Maps/Graphic Organizers

1. When teaching the student text structure strategies, such as semantic mapping, provide sufficient practice with the technique for her to feel competent before assigning writing. For example, draw semantic maps on the board when lecturing or have students work in groups to create maps based on the lecture.

2. Work on prewriting strategies using graphic organizers. Teach the student how to organize her ideas and details into topic areas or generate subtopics related to the main topic and add details. Help her to recognize information that does not belong to any of the subtopics and to omit it.
3. The ability to visualize a variety of text structures will help the student to organize her ideas in any writing assignment for which she can envision a structure. As you teach different types of text structures, match each to a graphic organizer and explain how they are related. For example, as depicted by the first figure, below, contrast may be depicted as a 3-column table. If contrasting frogs and toads, the first column would have a list of the traits to be considered (e.g., skin); the second column, a description of a toad’s skin (bumpy); and the third column, a description of a frog’s skin (smooth). If one wanted to compare and contrast, emphasizing that for each difference there is a similarity, she might use a graphic organizer similar to the second one below. There, a trait to be considered would be in each box and the difference between the toad and frog in the circles right below. For example, both have skin but the toad’s is bumpy and the frog’s is smooth.

<table>
<thead>
<tr>
<th>Trait</th>
<th>Toad</th>
<th>Frog</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. When using a structured overview or semantic map, after the map has been created, have the student verbalize the relationships among the ideas and details before writing.

5. In the instructional program, place an emphasis on prewriting activities, such as brainstorming followed by semantic mapping, so that the student’s ideas will be organized prior to beginning a writing assignment.

6. Teach the student to use graphic organizers, semantic mapping, and/or structured overviews to organize her ideas and clarify the relationships among her ideas prior to writing.

7. Use graphic organizers to help the student improve her vocabulary. For example, have her place a word in the center of the map and then generate synonyms or antonyms for the word in the outside circles. Or have her write a word in the center of the map, and then generate all the derivations of that word (e.g., friend-friends, friendly, friendship, unfriendly, befriended, etc.)

8. Use an adaptation of the K-W-L (What I Know, What I want to Learn, and What I’ve Learned) strategy that adds mapping and summarization (Carr & Ogle, 1987). To add the mapping component, have the student categorize the information listed under L. The topic forms the center of the map. For example, if the student were learning about the planet Saturn, she would write "Saturn" in the center of the map. Lines are then added to show the relationship between the main topic and the facts that have been learned. For the summarization component, the student can use the map that depicts the organization of the information. The center of the map becomes the title of the essay and each category is used as the topic for a new paragraph. The student may then add supporting details to expand the paragraph or explain the topic further.

9. Use maps, webs, or frames to assist with writing. Initially, teacher modeling and cuing are necessary until the student learns to use the strategy independently. Begin mapping with the brainstorming of ideas. The purpose of brainstorming is to increase background knowledge and help the student retrieve prior knowledge. During the brainstorming or free association stage, place emphasis upon divergent thinking and the rapid production of ideas. Write one- or two-word cues to represent concepts or ideas as they occur. When the student is not able to generate any more ideas, return to each cue, elaborating upon the idea within. Color-code ideas that can be grouped or categorized together, and/or write the ideas on a graphic organizer developed for the text type (e.g., compare-contrast). Develop paragraphs for each category, expanding upon the ideas already formulated.

10. As the student becomes more familiar and confident with the use of cognitive mapping and graphic organizers, help her learn to categorize the ideas as they are generated. Once she can construct her own organizers, she will be likely to benefit from explaining her organization and ideas to others.

**Story Structure**

1. Provide a variety of oral language activities that will help the student develop the characters, plot, and outcome of her stories prior to writing. Use organizational strategies that emphasize oral development of the story prior to writing.

2. Teach the student simple questions to use when writing stories. For example, write on an index card: Add additional questions as the student's skill increases.

3. Teach the student a simple story grammar to help her organize her stories. Teach her that all stories have a beginning (setting, main characters), a middle (a problem), and an ending (resolution to the problem). Have her complete a story chart prior to writing.

4. Teach the student to use a story structure to identify the elements most stories share. Having a framework into which to set the elements of a story as she hears or reads them, makes it easier to store and retrieve the content. Knowing the structure and the critical elements also facilitates the generation of ideas for stories, their internal organization, and elaboration of the elements. STORE the Story (Schlegel & Bos, 1986) is a relatively simple strategy for teaching story structure; the acronym stands for Setting, Trouble, Order of events, Resolution, Ending. The teacher explains and guides discussion of the elements, demonstrates and models the strategy, and provides guided practice and independent practice. For writing, this strategy is easily integrated with the Writing Process Approach. [See Strategies: STORE the Story, Writing as a Process.]

5. Give the student practice with story structure using a macro-cloze technique. Delete specific information from the story, such as the setting, description of the main characters, or the ending. Help the student reconstruct the missing story part. Have her check to make sure that the missing story part is consistent with the other information in the story.

6. Use the mnemonic strategy, W-W-W, What=2, How=2 (Graham & Harris, 1989) as a prewriting strategy for narrative text. Prior to writing, have the student answer the following questions:
   - Who is the main character? Who else is in the story?
   - When does the story take place?
   - Where does the story take place?
   - What does the main character do?
   - What happens when he or she tries to do it?
   - How does the story end?
   - How does the main character feel?

**Paragraphs**

1. Teach the student that a paragraph expresses one main idea and the topic sentence introduces the idea. Details are provided to support the main idea, and final sentences are used to summarize the main idea or provide a transition to a related idea.

2. Review with the student the major purposes of a topic sentence: introduction of the type of paragraph or essay that is being written and clear specification of what the paragraph or essay will contain. Have the student develop a variety of topic sentences to introduce different types of paragraphs or essays. The student would benefit from activities, such as those provided in *Writing Skills 2* (King, 1993) and *Writing Skills for the Adolescent* (King, 1985).

3. Teach the student how to write short paragraphs that follow a narrative sequence. Give her a series of pictures that illustrate a sequence of events and have the student write a sentence about each card. Show her how to use sequence words, such as *first, then, next,* and *finally.*

4. Teach the student different cohesive ties that can be used in reports organized by chronology (e.g., *first, then, later, finally*). Show her how to write a transition sentence between paragraphs.

5. Teach the student how to write a variety of formula paragraphs including: expository or enumerative, contains the main idea and supporting details; sequential, describes an event in chronological order or in a number of ideas; and compare/contrast, describes similarities and differences between two things. Provide sufficient opportunities to master one type of paragraph before introducing another.

6. Teach the student how to organize expository paragraphs by using statement-pie (Hanau, 1974). The statement is the main idea of the paragraph and the "pie" includes the proof, information, and examples. Model how to write a main idea statement and then develop several related supporting sentences (the pies). Provide systematic practice with multiple examples until the student is ready to use this format to write paragraphs.
7. Use the strategy presented by Sparks (1982) to help the student develop expository writing skills. Teach the student that main ideas are the first power (1st power), and that the details are second powers (2nd power). Additional details are placed under the second power sentences (3rd power). The student can indent details under higher powers to illustrate subordination.

   1st Power: Main idea statements
   2nd Power: Major details or subtopics
   3rd Power: Minor details.

   Begin teaching a three-sentence paragraph and progress to seven-paragraph reports.

**Report Writing**

1. To facilitate writing in a more literate style, teach the student to differentiate between oral and literate language. After reading many examples of oral and literate language and discussing the differences, a sequence of activities requiring increasing skill may include: (a) dividing pairs of sentences into categories of style (oral and literate), (b) labeling a given sentence as oral or literate in style, (c) rewriting sentences from oral to literate style based on previous practice in complex sentence structures and cohesive devices, and (d) rewriting passages in a variety of styles (e.g., letter to a close friend, news article) (Wallach & Miller, 1988). As much as possible, include practice using the student's language.

2. Provide the student with and teach her how to use educational software designed to facilitate research, the use of reference materials, organization of reports, and access to reliable information on the Internet. An example is the Microsoft Encarta Reference Suite which includes an encyclopedia, a globe, reference materials, and a research organizer. The encyclopedia articles have associated pictures, sounds, videos, and links to related websites. The globe allows the user to magnify any area, see different types of geographical boundaries (e.g., political, climate), mark geographic points, and filter out cities by population levels. Reference materials include a thesaurus, a dictionary, famous quotations, a style guide, a dictionary of computer terminology, and an almanac. The Research Organizer facilitates the organization of electronic “notecards,” proper citation of resources, incorporation of graphics, and putting the report together. An option enables the user to have the built-in speech synthesizer read the text aloud. Available from Microsoft Corporation, One Microsoft Way, Redmond, WA 98052-6399, (888) 218-5617, (U.S., Canada) or (716)871-2915, http://www.encarta.msn.com/products/info/refsuite.asp.

3. The World Wide Web is an extraordinary resource for information of virtually every type and the student needs to become a proficient and savvy user of this tool. Teach the student how to use the Internet as one of her sources of information for reports, how to judge the veracity of the information she finds, how to cite Internet references, and how to copy text and pictures (with proper citations). Incorporate lessons on Internet safety covering a wide range of risks (e.g., believing whatever she comes across, chatting with Internet acquaintances, providing personal information, giving out a credit card number on an unsecured site).

4. Help the student learn to differentiate major topics from minor details as she is collecting and organizing facts for a report. Have her list all the information that she thinks is important (or provide her with a list of information) and then help her think of ways to categorize the major and minor points.

5. Teach the student how to use a variety of reference books both to obtain information and to find out where to go to obtain information. Also, teach her how to use the public library computers to search for and put a hold all types of library materials and how to use her home computer to log on to the library’s system so that she can “search the stacks” from home.

6. Teach the student how to organize index cards to gather information for writing a report. Teach her to write keywords for the major topics in the upper right-hand corner. Teach her how to sort and organize the cards prior to beginning the first draft.

Compositions/Essays

1. Help the student improve expository writing skill by providing assignments that will help her develop confidence as a writer. Provide intensive feedback and several opportunities for revision.

2. Teach the student a simple and systematic method of building and organizing compositions by using Kerrigan's Integrated Method of Teaching Composition (Kerrigan, 1979). [See Strategies: Kerrigan’s Integrated Method of Teaching Composition.]

3. As the student’s discussion of topics in her expository writing appears disjointed, focus writing instruction on clear introductions, transition sentences, and conclusions.

Revising

Feedback

1. Help the student improve her attitude toward writing by increasing the amount of attention and positive feedback she receives on drafts of assignments.

2. In helping the student with her writing, always stress meaning first; then teach any skills that she needs in the context of meaning.

3. Make sure that the student receives specific and legitimate feedback on her writing assignments so that each one she hands in is an opportunity to find out what she did well and what she needs to work on. Try to avoid handing back a paper with a grade and no comments as the effort that writing requires from the student requires acknowledgement.

4. Have a brief revision conference with the student before she attempts to revise a paper. Discuss specific ideas and suggestions that will help the student improve the paper. If needed, write these down so that the student can refer back to this information when revising her work.

Revising versus Editing

1. When revising her work, encourage the student to focus upon the meaning of the text, not on the detection and correction of errors in basic writing skills.
2. Help the student understand that when she is revising and organizing her ideas, she should not simultaneously attempt to edit for spelling, punctuation, and sentence structure. Although some revision strategies provide an editing step, the focus of revision activities is upon organization, clarification, and elaboration of content. Errors of mechanics can be corrected on the final draft.

**Rewriting**

1. Teach the student how to use the word processor to revise her work. Due to her difficulty with [visual-motor skills, sentence formulation, organization of ideas, frustration tolerance, sustained attention], she will be unwilling and, probably, unable to handle paper-pencil revisions without a high level of anxiety and a feeling of being confronted with an overwhelming and undoable task. Since revision on a computer is so much easier, she is more likely to put more effort into it.

2. Always have the student write her first drafts on every other line on the paper so that when she revises, she has room to rewrite and make marks indicating relocation and deletion of material.

3. Help the student learn how to revise her papers. Make a short list of questions to provide a purpose for reading through her draft and to help her focus on specific aspects of writing. Questions might include: Are there any sentences that are difficult to understand? Where can I make this sound better with more details? Do I have any words that are boring? Have the student focus upon content and communication, not upon mechanics such as spelling or capitalization errors.

4. Show the student various editing techniques that are used for revision, such as cutting up parts of a paper with scissors to reorganize sections or circling blocks of text and drawing an arrow to show where they should be inserted.

5. Show the student how to use a cut-and-paste revision process. Have her locate the best passages in her writing and cut them out. Have her arrange them in different orders. Have her reassemble the pieces in the best order and then write the necessary transitions.

6. Have the student work with a peer who will help her organize and revise her papers.

**Outlining**

1. Teach the student how to take notes in an abbreviated outline format when reading and then to use the notes for studying for tests.

2. After the student has taken notes during a lecture, have her rewrite the notes in a more organized format, such as an outline or graphic organizer.

3. Teach the student how to create an outline of a chapter using several steps. Have the student: (a) skim the chapter, (b) write down headings and words in bolded type, (c) take notes on important points, (d) draw lines and arrows from additional notes to the headings and bolded type, (e) put roman numerals by the headings and bolded type, (f) put capital letters next to additional notes notes, (g) review items, (h) cross out unnecessary information, (i) renumber and reletter, and (j) create outline.

**Note-taking**

1. Teach the student a strategy for active listening and note-taking, such as listening for key words, specific verbal cues, that indicate sequence (e.g., *first*, *then*), a change of ideas (e.g., *but*, *nevertheless*), and importance (e.g., *more important*, *listen to this*). Taped lectures from the student's classes are effective practice materials. Provide explicit systematic instruction. Include guided, then independent practice. Monitor the quality of the student’s notes.

2. Teach the student how to organize her class notes into a semantic map or graphic organizer.

3. Help the student to increase her awareness of the key points of a lecture. Listen to a lecture with her while you both take notes. After the lecture, encourage her to develop and organize her notes. Then, compare and contrast both sets of notes by looking for and discussing the key points you both wrote down and important information that she has omitted.

4. Teach the student how to take notes from a textbook using the 2-column note-taking strategy. The student folds her paper in half length-wise to make two columns. She titles the first column, “Names, Numbers, Terms, Topics,” and the second column, “Definitions, Explanations, Information.” As she reads, the student writes any important proper names, numbers or dates, and new vocabulary in the first column, one item to a row. As textbooks are divided into sections by subtopic, after reading each section, the student is to take the subheading, make it into a question, and write it in the first column. If it is already a questions, she creates a topic statement out of it instead. For each item she writes in the first column, she writes associated information in the second: for names—the importance of the person or place, for numbers or dates—what they refer to, for terms—the definition, and for the question—a brief answer, which should state the main idea. Have the student skip a line or two, and go on to reading and taking notes in the same fashion on the next subsection. To study, the student folds the paper so that only the first column is visible, uses a card to cover all but the first item, reads the first item, and recalls the related information from the second column. She continues, each time covering the items below the one on which she is focused. When she completes the first column, she turns the paper over so that only the second column is visible and repeats the procedure, this time mentally reviewing the related information in the first column (Rooney, 2001).
MATHEMATICS

Tests: Calculation, Math Fluency, Applied Problems, Quantitative Concepts
Clusters: Basic Math Skills, Math Reasoning
Related Clusters: Fluid Reasoning

Contents: Mathematics

Further Evaluation
Resources and Programs
Instructional Approaches
Technology in Mathematics Instruction
Terminology
Accommodations and Modifications
  General
  Homework
  Visual Format
Basic Math Skills
  General
  Self-Monitoring
  Noting Process Signs
Number Sense, Numeration, Place Value
  Concept Development
  Classification: Creating Sets
  From Sets to Numbers
  Counting and One-to-One Correspondence
  Using Numerals
  Number Patterns and Ordinal Numbers
  Recognizing and Writing Numbers
  Place Value
Basic Facts
  General
  Using Strategic Organization to Memorize Facts
  Other Memorization Methods
  Motivation
  Fluency
Algorithms
  Teaching Concepts with Manipulatives
  Teaching Algorithms
  Reminders for Algorithms Sequences
Application
  Word Problems: Primary School and Above
  Problem-Solving Instruction

Recommendations: Mathematics

Problem-Solving Strategies
Higher-Level Mathematics
Problem-Solving Instruction
Problem-Solving Strategies
Computer Software
Measurement and Estimation
General
Time
Money
Calendar
Life Skills Mathematics

Further Evaluation

1. Use a standardized diagnostic math test to assess in depth the student's understanding and mastery of math concepts and skills.

2. Use diagnostic teaching to evaluate the student’s mastery of the prerequisite skills necessary to learn the skills currently presented in the curriculum. Plan a program to teach the necessary skills.

3. Informally assess the student’s understanding of the Piagetian concepts that are critical foundations of mathematical concepts and relations: object permanence, conservation of matter, reversibility, seriation, one-to-one correspondence, and classification.

4. Evaluate the student’s understanding of the concepts underlying addition and subtraction in a variety of situations and with a variety of materials. Make sure she understands that numbers represent the quantity of any type of entity within a set, that addition is the combining of sets, and that zero also represents a set that has nothing in it (the null set). Before the student will be able to make sense of the value of money and equivalencies in money (e.g., the number of nickels in a quarter and the reason) and measurement (e.g., time: seconds, minutes, hours, days, weeks, months, years), she must understand sets and how they can be combined.

5. Before teaching math facts, give the student [a timed test to see what facts she can complete correctly within 2 minutes, an oral test using flashcards to see which facts she can answer within 3 seconds.] Use the results to develop a program for fact learning. Have the student chart her progress as she masters new facts. [See Strategies: Addition Fact Chart, Multiplication Fact Chart.]

6. To assess the student's conceptual understanding of basic computation, give her a worksheet with a few addition, subtraction, multiplication, and division problems. Have her work out the problems using concrete objects, such as beans or marbles. Ask her to think out loud as she sets up and works the problems.

7. When it is unclear why the student is missing specific computational problems, conduct an oral interview with her. Ask her to talk through the steps as she solves the problems.

8. When the student makes errors on word problems or computation, analyze the errors to find the component skills or prerequisite information she is missing and/or the rules she misunderstands. Without intervention, the student will continue to make the same systematic errors.

9. Use task analysis to help the student master computational algorithms. Identify the algorithm to be learned. List and arrange all the prerequisite skills and the steps needed to perform the algorithm into a logical teaching sequence. Determine exactly which steps the student cannot perform through informal testing and then teach the steps in sequence.

10. Assess the student’s comprehension of algebra word problems by providing problems accompanied by tables representing the variables involved in each problem. Ask the student to fill in the values of the variables based on the information given in the problem. The student’s ability to associate the variables and values indicates her comprehension of the problem.

**Resources and Programs**

1. For a valuable resource for teaching mathematics from readiness skills through algebra and geometry, especially in developing conceptual foundations, the teacher is referred to Today's Mathematics: 10th Edition: Part 1: Concepts and Classroom Methods (Heddens & Speer, 2000a), and Part 2: Activities and Instructional Ideas (Heddens & Speer, 2000b). These companion books provide comprehensive and detailed information regarding national math standards, a graded scope and sequence for curriculum expectations, developmental levels within strands of mathematics, explanation of and instructional approaches in developing mathematical concepts and procedures from readiness through beginning high school math, and integration of technology, as well as specific activities and suggestions for classroom instruction.

2. For specific suggestions for teaching mathematics to students with special needs, the teacher is referred to Teaching Mathematics to Students With Learning Disabilities, Fourth Edition by Carol A. Thornton and Nancy S. Bley (Pro-Ed, 2000) and Windows of Opportunity: Mathematics for Students With Special Needs edited by Carol A. Thornton and Nancy S. Bley (National Council of Teachers of Mathematics, 1994).


4. A valuable on-line resource for teachers in mathematics education, from research summaries to lesson plans, is AskERIC. The website is [http://ericir.syr.edu/](http://ericir.syr.edu/).

5. One source of videodisks that provide visual representations of math concepts and practice in problem-solving, and that may be used to supplement the existing math program, is Optical Data School Media, a subsidiary of SRA/McGraw-Hill, 220 East Danieldale Road, DeSoto, TX 75115-2490, (888) 772-4543, SRA: [http://www.sra-4kids.com](http://www.sra-4kids.com), Optical Data Corporation: [http://www.opticaldata.com](http://www.opticaldata.com).

6. As the student is having difficulty memorizing math facts and the steps of the basic operations, supplement her current math program with a multisensory program, such as Touch Math. Touch Math is available from Innovative Learning Concepts 6760 Corporate Drive, Colorado Springs, Colorado, 80919-1999, (888) TOUCHMATH (or 868-2462), http://www.touchmath.com. [See Strategies: Touch Math.]

7. As the student needs a highly structured, multisensory, incremental approach to learning the language of math for comprehension of word problems, use the Touch Math Story Problems Kit. This program provides for reinforcement of the concepts of each operation, instruction in the related language, and application to practical problems. Touch Math is available from Innovative Learning Concepts 6760 Corporate Drive, Colorado Springs, Colorado, 80919-1999, (888) TOUCHMATH (or 868-2462), http://www.touchmath.com. [See Strategies: Touch Math.]

8. Use a highly structured, sequential program for teaching basic math skills that includes teacher-directed instruction, hands-on activities for concept formation, continuous review and integration of previously learned skills, and ongoing evaluation. Many excellent programs are currently available.

**Instructional Approaches**

1. For effective math instruction, develop a program for the student with the following components: a high level of academic response rate, mastery of the skill/procedure, corrective feedback, behavioral reinforcement, modeling, imitation, prompting/cuing, and guided and independent practice. (Bryant & Dix, 1998).

2. Before you introduce new skills, ensure that the student has full mastery of the prerequisite skills. In addition to directly teaching the new skill/concept and its relationship to known skills/concepts, engage the student in activities that guide her to build a bridge between the new and the known.

3. Teach all new concepts and extensions of known concepts first with concrete materials, making sure that the student has a chance to experiment with the materials and understands the new concept before moving to the next level of abstractness. For example, when teaching simple fractions, use a variety of materials (e.g., tiles, pizza, Cuisenaire rods) to represent the whole and the fraction. Make sure she understands or learns the related terminology (e.g., numerator, denominator) by having her talk about what she is doing with the materials. Provide plenty of practice in manipulating the materials to solve problems. Then present similar types of problems using pictures and requiring her to draw pictures to represent the problems posed. When she has mastered this step, associate these materials with numbers. If necessary, tallies may be used as a level between pictures and symbols. The last step is to use numbers alone to represent new concepts. [Adapted from Principles and Standards for School Mathematics, National Council of Teachers of Mathematics, 2000]
4. The student is unlikely to learn new concepts, extensions of concepts, or procedures at the symbolic level until she has experienced it multiple times with concrete objects or, at least, pictures.

5. Because the student appears to have a strength in inductive reasoning, use a guided discovery approach to teaching new concepts and extensions of new concepts. Guide the student to solve problems and then to generate a rule based on her observations. Then have her test the rule in further examples.

6. Because the student appears to be stronger in deductive reasoning than in inductive reasoning, use a rule-based approach in teaching new concepts and extensions of new concepts. Explain the concept/extension to the student, demonstrate how it works, state the rule governing it, ask questions to assess understanding, and have the student practice its application.

7. Teach all new math concepts and processes through direct instruction, not a discovery method. The student will benefit most from instruction that is structured and step-by-step and rules are clearly stated.

8. Despite the student’s difficulty memorizing math facts and learning the algorithms, do not hold her back from learning more advanced mathematics concepts and skills. With her excellent reasoning and problem-solving skills, she will be able to acquire higher level mathematical concepts. Keep in mind that basic math skills are just a small part of mathematics.

9. The student has difficulty understanding procedures in math activities and does not intuit mathematical relationships. Spell them out explicitly and repeatedly, gradually asking her what she is to do next until she can verbalize the procedure. Then have her practice the procedure until it is memorized.

10. When introducing new concepts and skills, use modeling and demonstrations. Have the student watch you perform the task as you talk yourself through it and then have her perform the task as you talk it through.

11. Supplement the student's basal math textbook with additional examples and practice exercises. Allow the student to move on in the text only when she has demonstrated mastery of the current skills.

12. As the student requires more vivid models as well as supplementary explanation and practice of the concepts and procedures taught in the classroom, investigate computer software that will be compatible with the current curriculum. Use of videodisk programs has been shown to be effective in improving ability to solve algebra word problems for college students with learning disabilities. Important components of the software program were elaborate visual representations and program adherence to principles of effective instruction (i.e., review of previously learned material, remedial instruction as needed, direct instruction format including modeling and guided practice, response feedback, and ongoing assessment).
13. Immerse the student in an integrative, problem-solving approach to mathematics. She will reflect on and integrate new concepts and procedures more thoroughly when collaborating on problems with a partner or small group. Before using this approach, however, the student and her partners will need training in how to work as a group so that all students participate fully.

14. Avoid involving the student in competitive games and drills. Instead, emphasize cooperation among students in mathematics activities.

15. The student will require systematic reinforcement of acquired math knowledge, concepts, procedures, and strategies. Before providing reinforcement, however, make sure that the student has developed a solid understanding of the targeted topic.

16. The student requires frequent review and reinforcement of concepts and procedures learned. Begin each lesson with a review of the mathematical skills and concepts covered the previous day and, additionally, provide weekly and monthly reviews.

17. Frequent communication between the student’s math teacher and educational therapist or tutor would be particularly helpful. As much as possible, the educational therapist should teach new concepts and procedures before they are presented in the classroom. Provide the educational therapist with a copy of the class math book to prepare lessons.

**Technology in Mathematics Instruction**

1. Integrate the use of calculators into the instructional program to give the student practice in reasoning through problems involving arithmetic that would be too complex or time consuming to do with paper and pencil. Using numbers taken from facts about the world adds a motivational and real-life component. Examples include finding the number of seconds it would take to go to the moon if you travel at x seconds per mile, or the difference between the number of steps it would take you to walk around the earth at the equator compared to crossing the poles.

2. Teach the student how to use a calculator and its various processes.

3. Give assignments incorporating the use of a calculator to guide the student in exploration of mathematical concepts. For example, the student may be assigned to find the square root of a number by successive approximations based on the square roots (moving into decimal places) of the numbers above and below it.

4. Incorporate use of the calculator into assignments that will reinforce the student’s use of math processes. For example, to reinforce rounding numbers, the teacher may provide a list of numbers and their sum if they had been rounded. The student’s task is to round the numbers, consecutively entering them into the calculator using addition. If she rounded correctly, the cumulative sum will match the teacher’s.
5. Use hypermedia when creating or selecting computer programs for the student to use. Hypermedia incorporates links within a program to other types of media or instructional components such as pop-up menus, definitions, sounds, explanatory or descriptive visual images, and the choice of doing remedial, on-level, or advanced problems. One such program is HyperStudio, available from Roger Wagner Publishing, 1050 Pioneer Way, Suite P, El Cajon, CA 92020, (800) 497-3778.

6. Incorporate the use of digital cameras to provide a practical understanding of how math is applied. For example, students can take pictures of geometric shapes or angles that they see in their environment and incorporate them into creation of a computer program or report on architecture.

7. Based on her interest and high aptitude in mathematics, teach the student how to use computers as mathematical tools. For example, teach the student how to use electronic spreadsheets, numerical analysis packages, and/or computer graphics.

8. Have the student use computer programs that build problem-solving skills in an applied context.

**Terminology**

1. While teaching classification skills, use each attribute that the student identifies as a springboard for teaching quantitative terms such as big, small, narrow, wide, tall, short, thick, and thin. Also teach the terms for comparative concepts such as big, bigger, and biggest.

2. Encourage the student to notice and compare attributes of objects in her environment. Ask questions such as, "Which is the tallest piece of equipment on the playground? Which is the shortest?"

3. Use manipulatives to teach the student and provide practice with the concepts of bigger than, equal to, and smaller than.

4. Teach the student that several terms can indicate the same process. For example, adding, plus, and all can refer to the operation of addition. Other related terms would include sum, total, more than, and greater than.

5. Introduce all new terminology while using concrete objects and manipulatives to teach the concept and emphasize its use as you and the student move into working with numbers and number sentences. Make sure that she uses the terminology expressively. For example, you might ask, “How does the number of boys in the class compare with the number of girls?” so that she will answer, “There are more boys than girls.” You can then ask her to express the same concept in other ways, such as, “There are fewer girls than boys,” and “There are not as many girls as boys.”
6. Teach the student to be flexible with the math vocabulary used to express number relationships. Teach it in concert with the skill or operation for which it is used. For example, teach minus, subtract from, less than, how much more, what is the difference when using manipulatives to teach the concept of subtraction.

7. When the student is familiar with the concept of joining two sets to create a third set, introduce the vocabulary of addition (e.g., "Four stars added to three stars is the same as seven stars").

8. When the student is familiar with verbalizing the operation of removing one subset from a set, teach her the terms for subtraction.

9. Have the student develop a written file of math vocabulary. On a 3 x 5 index card, have her write the word, the definition, and make a picture to illustrate meaning. Have the student file the words alphabetically. Provide opportunities for review.

10. Provide the student with clues that will help her to recall specific math terminology. For example, to differentiate between the terms, numerator and denominator, she can remember that the denominator is down.

11. Using the student's math textbook or a list of math terminology, identify and then teach specific math vocabulary that she needs to know. Provide review, as needed.

**Accommodations and Modifications**

**General**

1. Be aware of the linguistic complexity of all word problems that the student is expected to answer. Rephrase or rewrite the problems as needed.

2. Due to the student’s difficulty with language comprehension, when asking her to solve story problems that are presented orally, use concrete objects or visual diagrams to illustrate the problems.

3. Include the following [accommodations, modifications] in the student’s individualized educational plan (IEP). [Include any appropriate accommodations and modifications.]

4. Accommodations and instructional procedures for the student should focus on relieving the burden on working memory by automatizing lower-level skills [and alleviating anxiety.]

5. When working with the student on math problems, spread the practice time over short periods. Have the student complete six to eight problems rather than an entire page.

6. Before calling on the student in math class, make sure that she will be able to respond successfully to the question. If necessary, provide or review a question with her before class begins.

7. Do not have the student do timed tests, written or oral. Provide her as much time as she needs to complete a test. If extra time cannot be made available, reduce the number of problems she is expected to do.

8. Avoid the use of timed math tests with the student. Do not emphasize speed or rapid recall of math facts, but instead accuracy, persistence, and understanding.

9. When grading the student's papers, give her partial credit for parts of problems solved correctly. For example, give some credit for correct reasoning even if the computation is incorrect.

10. Do not penalize the student for errors on math worksheets. If necessary, simply record the number of problems correct. Instead, attempt to determine the reason for the errors and then provide appropriate instruction.

11. Because the student has not developed automatic recall of math facts and algorithms, provide her with a calculator to use in all activities focused on mathematical reasoning. This will allow her to concentrate on the reasoning process without diverting attention to the more mechanical aspects of the task.

12. After completing problems, have the student use a calculator to check calculations and then rework any incorrect solutions.

13. Due to the student’s specific disabilities in [mathematical procedures, retrieval of math facts, etc.] allow her to use a calculator on any standardized group-administered achievement test.

14. Do not have the student copy problems from books or the board as she is likely to either copy incorrectly or have difficulty reading her own handwriting. It would be far better to write the problems using a colored marker on her special grid worksheets, one digit to a square. Have the student work the problems in pencil to provide for good contrast between the problem and her work.

15. Before the student works a page of math computation problems, have her highlight the process signs before starting. Help her decide on colors for each of the four signs and consistently highlight each in its own color.

16. Keep a supply of the student’s special graph paper [3/8” squares with bold lines dividing the paper into quadrangles] in the classroom. This paper will help her line up her numbers correctly and keep her work on different problems widely separated from each other making them easier to read and work with. [See Strategies: Math Computation Forms.]

17. Remind the student to use scratch paper (the grid paper), even when the problems being done would normally not require it. Encourage her not to save space on her worksheets. She should leave plenty of space around any problem on which she is working.

18. Ensure that all assigned word problems are presented at the student's independent reading level.

19. Since the student has difficulty reading the story problems in her math textbook, develop taped readings that she can listen to as she reads along in the book. Teach her how to recognize the end of a problem and use the pause button to stop the tape.

20. To discourage the student’s tendency to attempt all word problems mentally, regardless of the complexity, always make sure that she has scratch paper to use, even when the problems being done would normally not require it.

**Homework**

1. Before the student takes home math assignments, make sure that she understands the directions and process for solving the problems. Work the first few problems with the student at school.

2. Reduce the student’s homework and classroom assignments so that she can complete her work in the same amount of time as do other students. Start by cutting her work by [50%] but in such a way that she attempts each type of assigned problem (e.g., all the odd numbers).

3. To encourage flexibility, when assigning practice on a new operation (e.g., multiplication of fractions), incorporate problems involving previously presented operations (e.g., addition and subtraction of fractions) throughout the assignment.

4. Make sure that the student has one or two review problems on each homework assignment.

5. Place a limit on the amount of time the student is to work on math homework. Grade her work on a percentage basis, using the number of items she has completed as the total number of possible points.

6. Request that the student's parents put a check next to those items completed with their assistance. In this way, the teacher can monitor the types of problems with which the student is having difficulty.

7. Provide homework assignments that will help the student improve her skill using a calculator. For example, when she is assigned 10 problems, have her solve the problems and then use a calculator to check for accuracy.

**Visual Format**

1. Accommodations and instructional procedures for the student should focus on alleviating the visual confusion caused by her handwriting and enhancing orderliness on the worksheet.

2. The student perceives math worksheets and textbook pages as visually confusing. Focus accommodations and instructional procedures for the student on enhancing the visual structure and appearance of orderliness on the page.

3. Make sure worksheets are visually clear with only a few problems on each page.

4. To enhance visual clarity and prevent the student from becoming confused, the student requires a strategy. Use the following suggestions:

- Use special computation paper with squares sufficiently large for one digit per box and with bold lines segmenting the paper into compartments to separate problem solutions. [See Strategies: Math Computation Forms.]

- Fold the paper in fourths or sixths to have "frames" to outline each problem before copying computation problems onto a sheet of paper. Copy/write only one problem in each frame.

- Use graph paper with squares of [one] centimeter to keep rows and columns of numbers in order. Show the student how to write only one digit in each square.

- Turn the paper sideways and use the lines to delineate columns.

5. To help avoid errors, teach the student to use verbal mediation to aid in accurate copying of problems from text to paper. Teach the student to double up long numbers, rather than say every digit. For example, 5234 + 874 would be said as "fifty-two thirty-four" (write) "plus eight seventy-four" (write).

6. Do not require the student to copy math problems from a chalkboard or math textbook. Instead, provide all practice problems clearly printed and aligned on worksheets.

7. Teach the student to circle the item number so that she does not confuse it with digits in the problem.

8. Use a 5" x 8" index card, a folded piece of paper, or sticky pad to mask the half of the page on which the student is not working.

9. Teach the student to use a template with a cut-out square made out of poster paper. The square should be large enough so that it will expose one computation problem and block out distracting visual information on the page.

10. Provide worksheets with formats already written for the type or types of problems the student is expected to work. The figure below is an example of a multiplication format.
Basic Math Skills

General

1. Immediately after the student has demonstrated what appears to be true understanding of a process or concept, ask her if she would be willing to teach it to someone else. Teaching forces one to clarify her own understanding of a process. Make sure the teacher is available to help if she needs help.

2. Teach the student how to use a number line, counting forward and backward, to solve addition and subtraction problems.

3. Concentrate on teaching the student the supporting concepts and algorithms of addition and subtraction. She is not ready for multiplication until she has mastered these operations.

4. When reviewing the four basic operations, explain and demonstrate to the student the relationship between addition and multiplication and between subtraction and division. For example, demonstrate how 8/2 = 4 means that 2 can be subtracted from 8 exactly 4 times.

5. When reviewing the four basic operations, explain and demonstrate to the student the relationship between addition and subtraction and between multiplication and division. Create examples to demonstrate these principles, such as if 2 + 2 = 4, then 4 - 2 = 2, or if 4 x 3 = 12, then 12/3 = 4.

6. Review the concept of zero as used within all the basic mathematical operations. For example, teach the student why one cannot subtract a number from zero (unless using negative numbers), but can add any number to zero. Teach the student why any number multiplied by zero is zero and that zero then becomes the place holder in the answer.

7. When reviewing computations with the student, place the emphasis on how she solved the problems, rather than on the accuracy of the solutions.

8. Teach the student how to interpret problems set up horizontally as well as problems set up vertically.

Self-monitoring

1. Help the student develop self-monitoring skills by estimating answers to math calculations. Have her estimate the answer and write it by the side of a problem before she calculates the answer.

2. After the student has learned to estimate, teach her to ask herself, "Does this answer make sense?" after solving a problem.

3. Teach the student to talk through the steps of computation problems as she attempts to solve them.

4. Have the student work with a peer or a small group to check each other's answers on an assignment. When they find an answer that is dissimilar, have them review the problem step-by-step to discover the error and then correct the missed problem.

5. Teach the student how to check her answers to problems with all types of operations by using the reverse operation. As examples, teach the student to check her division answers by multiplying the divisor by the quotient to get the dividend; for ratio equality by using cross multiplication of terms.

Noting Process Signs

1. Before the student works a page of math computation problems, have her color code the operation signs. Help her decide on a color for each of the four signs and consistently highlight or trace each in its own color.

2. Enlarge the operation signs on math worksheets, draw them with heavy lines, or highlight them so that the student is more likely to notice them.

3. Teach the student to look at and say the process sign aloud, before she begins to solve a problem.

4. To reduce the student’s tendency to overlook operations signs, in all assignments, include a mixture of problems rather than just one operation, such as a page of addition problems.

Number Sense, Numeration, Place Value

Concept Development

1. Use concrete objects and manipulatives to teach all new concepts and to extend previously presented concepts. Then, if the student is ready, provide similar work with pictures, then tallies, and finally numbers.

2. Provide the student with discovery-oriented activities that will promote understanding of mathematical relationships including object permanence, conservation of matter, reversibility, seriation, one-to-one correspondence, and classification.

3. Provide the student with mathematical puzzles and patterns that will allow her to discover varying relationships based on quantity, order, size, and shape. Integrate instruction in the related language, such as comparative (e.g., *big, bigger, biggest*), shape names, and ordinal numbers.

Classification: Creating Sets

1. Introduce the concept of sets and develop classification ability by teaching the student to sort objects, first using familiar objects, then pictures.
2. To teach the concept of sets and develop classification ability, provide sorting activities such as the following. Using many physical objects, ask the student to sort through them to find all those that match an object shown by the teacher (e.g., all the balls, like this, on the toy shelves). Subsequently, have the student find sets of orally described objects (e.g., all the balls in the room, all the tools that may be used for drawing). Gradually work with more abstract objects and attributes of objects such as pictures, then shapes.

3. The student is having difficulty with number concepts because she has not yet developed flexibility in working with classification and multiple attributes of sets (groups). Provide guided exploration in classification activities and once she understands the concept of grouping according to similarities and differences, extend the concept to flexibility of classification (i.e., grouping objects/pictures based on similarity of attribute, then regrouping the same objects/pictures based on a different attribute).

4. Use activities to develop the concept of classification that are based on finding similarities and differences between and among objects. Examples include:

   - Using a variety of objects, such as small, toy chairs, cars, people, and food, place one of each kind in each of two or more shoeboxes. Have the student sort through the pile of objects provided to find similar items and sort them into the appropriate boxes. Do the same activity using pictures cut from magazines.

   - Using manipulatives such as Attribute Logic Blocks, Cuisenaire Rods, and flannel boards, guide the student to discover a variety of attributes by which these materials may be sorted. Attributes include color, shape, size, thickness, width, height, and use.

   - To provide practice in classifying and creating sets, create experiments in which the students participate. Examples of sets amenable to experimentation are objects that float/sink, those that feel heavy/light, and those that can be seen through/those that cannot.

5. To guide the student in developing flexibility in classifying objects:

   - Take a set of objects and divide them into groups based on a particular attribute (tools and cooking utensils). Have the student explain on what basis you separated them (What are the differences between groups and what are the similarities within groups?).

   - Reassemble the objects into one group and ask the student to group them on some other basis (e.g., metal and wood) and discuss the attribute on which she made the distinction (in this case, what they are made of).

   - Continue taking turns classifying objects in different ways.
• When the student appears to have a solid understanding of this concept, extend the concept by using two attributes to differentiate between groups (e.g., height and function).

• Progress to more complex relationships (e.g., color or function).

• Gradually move to more abstract materials such as Attribute Logic Blocks, Tangrams, and Cuisenaire Rods, and eventually to number and letter patterns.

From Sets to Numbers

Engage the student in guided activities to develop the concept of sets, including what makes a set, the empty set, naming sets by attributes (classification), and representing sets by the amount of items (number). Related objectives and activities include:

• Teach the student that the members of a set may or may not contain objects/pictures that have a common attribute. For example, a star, a ball, and a tree may all share membership in a set just because they are described as such.

• Provide activities to develop the concept of the empty set, the idea that a set may have no members. For example, give four students boxes with three, two, one, and no crayons in them, respectively. Have each student describe the contents of their box, ending with the student who has no crayons. Explain that her box contains the empty set. Or, ask questions for which the answer is "none," such as the number of members in the set of zebras in the classroom.

• Teach the student that sets in which members have a common attribute may be named for that attribute. For example, a group of colored objects may be sorted into a red and a green set.

• Help the student to develop conceptualization of sets at the semi-concrete level by representing groups of physical objects by pictures. When the student clearly understands the representation, introduce new concepts with pictures. Assess comprehension by asking questions about the relationship among objects in the environment.

• Help the student to develop conceptualization of sets at the semi-abstract level by teaching her to represent each member of a set with a tally, such as a Popsicle stick. This will encourage her to consider the number properties of sets rather than other characteristics of the objects.

Counting and One-to-One Correspondence

1. When the student is counting small items, teach her to separate each from the group as she counts it so that she does not miss any or count the same item twice. Provide systematic practice until the procedure is automatic.
2. Teach the student to count to [appropriate number] and provide practice in activities that will highlight their use in daily living. For example, have the student count the students ordering milk, pass out a certain number of books, or play board games that involve moving a marker according to a number on a chosen card or spinner.

3. Give the student practice in counting and recognizing cardinal numbers by activities such as counting buttons into numbered compartments of an egg carton.

4. Teach the student that when a number represents a set, it refers to the amount of objects in the set, not the nature of the objects. Teach the student that when items are counted, the order in which the numbers are counted does not matter and the last number named represents the number of the set.

5. Engage the student in activities to develop the concept of one-to-one correspondence. This is a prerequisite to understanding addition and subtraction.

6. Teach the student to use one-to-one correspondence to compare quantities; teach the associated vocabulary. For example, have her match each member of one set with a member in another set. Help her verbalize if one set has the same number as the other set or not. Gradually, introduce comparative terms such as more, less, same, equal and have her use these terms in statements describing the relationship between the sets (e.g., “There are more shoes than stars”; “There are the same number of shoes as stars”).

7. The student does not count on because she is still unsure that the quantity of a group of objects is invariable (if nothing has been done to it). Students who count on assume that 6 is really 6 so they do not have to count it. To help the student understand the process of counting on, have her count all the objects in two sets and write the answer. Then guide her in counting on and in comparing the answers. She may need to practice this many times to understand the validity and efficiency of the latter approach.

8. While working on comparing the number of items in two sets, work on developing the concept of conservation of matter. Help the student to see that one has the same number of objects, no matter how they are arranged, the same number of objects is still present. Engage the student in activities to experience conservation of other attributes, such as volume and length.

**Using Numerals**

1. Do not introduce numerals to the student until she is developmentally ready to use the symbolic representations. Make sure that she understands one-to-one correspondence by providing appropriate readiness experiences, such as counting objects and matching or comparing one set of objects to another.

2. Use a variety of activities to guide the student to associate number symbols with the amount of items within a set, such as matching large models of numbers (e.g., plastic, rubber) with cards according to the number of pictures on each.
3. Use games to reinforce the idea of numbers representing a set and rapid recognition of the number of items in a set. For example, play a version of Bingo in which the teacher holds up a card with a set of dots on it and the students cover the corresponding number on their Bingo cards. To reinforce rapid recognition of item amounts up to [3, 5], the teacher can show the cards for decreasing intervals of time.

4. As a conceptual basis for addition, using manipulatives or pictures, teach the student how to join two sets so that all members of the first set and all members of the second set are combined to form a new set. When this concept is mastered, have the students give each of the sets a number (in writing or with number tiles).

5. Use objects or pictures to teach the student that sets may be broken up into a variety of subsets. For example, a set of five objects contains: five subsets of one member each; one subset of two and one subset of three; one subset of four and one subset of one; or one subset of five and one subset of zero.

6. As a conceptual basis for subtraction, using manipulatives or pictures, teach the student that one subset of a set may be removed from the set, leaving the other subset(s).

Number Patterns and Ordinal Numbers

1. Help the student develop the concept of pattern recognition using familiar objects in simple patterns, such as fork, spoon, fork, spoon, fork, spoon. Guide the student to describe the pattern. Very gradually, increase the complexity of the pattern and the abstractness of the items in the pattern (e.g., from objects to colored beads to pictures to amount of items in pictures). Eventually, move to recognition of simple number patterns. At each level, when the student is able to identify the pattern, have her complete similar patterns.

2. Help the student develop the idea of number sequence. Use a number line to answer questions such as: "What number comes just before...?" "What number comes just after...?" Work with segments of numbers and fade use of the number line as each segment is mastered. Provide a wide range of activities so that the student learns that before, after, and between relate to the sequence of numbers in general (abstract) not just on the number line.

3. Introduce the concept of ordinal numbers by using terms for numbers during activities throughout the day in the classroom. For example, when getting ready to go outside, specify who should line up first, second, and so on.

4. Reinforce the use of ordinal numbers with gross-motor activities such as having a few students stand on a number line on the floor. After each one says the cardinal number, tell the student the corresponding ordinal number (e.g., "Joel is first in line, Desiree is second"). Then, using ordinal numbers instead of names, give each student an instruction (e.g., "Will the second child clap her hands two times?").

5. As the student learns to recognize numbers, color-code the repeating patterns of the numerals in the units column, then the tens columns, and the hundreds column.
Recognizing and Writing Numbers

1. Provide the student with many opportunities to form a stable visual image of numbers before she is asked to write them. Suggestions include playing with number puzzles; placing number models in sequence; matching number tiles, cards, or models; and feeling a number model with eyes closed and naming it.

2. At home or at school, use games to reinforce number recognition and counting skills. For example, play board games that require moving a marker a specified number of squares, card games such as 21,” or dominoes with a peer or parent who will encourage accurate counting with comments such as, "See if you have a domino with three dots just like this one."

3. Teach the student to recognize the cardinal numbers by their names. You may use gross-motor activities to reinforce number recognition by writing the numbers to 10 on a long sheet of butcher paper and having the child count her paces, simultaneously stepping on each square and looking at the number. Alternatively, you may use numbers on steps.

4. To help the student get ready to start writing numbers, provide multisensory experiences to help familiarize the student with the form. For example, the student may copy a model to make numbers out of clay, make cookies in the shape of numbers, trace numbers in wet sand or on tactile number cards.

5. Teach the student to write numbers within the framework of the classroom handwriting program. If necessary, supplement the program with a variety of tracing activities and writing from memory. Provide supervision to ensure that the student traces or produces the letter in the proper formation and with the correct sequence of strokes.

6. Motivate the student to produce the letters correctly by having her practice writing them in a tray of chocolate pudding. If she writes the number correctly, she may lick her finger clean or use a washcloth.

7. When the student reverses numbers on a math worksheet, do not count the answers as incorrect. Instead, provide cues to teach and reinforce the correct orientation of those numbers.

Place Value

1. Ensure that the student has developed a solid understanding of place value before introducing regrouping (borrowing and carrying).

2. When teaching place value, tell the student a story with pictures to help her understand that no more than 9 of any set may go in one column. The following is an example of a place value story with related pictures.
Once there was a person who moved into a house. Although the landlord had told her that no more than 9 people could live in the house, eventually a tenth person moved in. The landlord said, "Only 9 people can live in that house," and he evicted all of them. So, they became one family (of 10 people) and moved into an apartment house. The apartment house had room for 9 families just like theirs—10 people each. But families kept moving into the apartment house and before they knew it, there were 9 families there. Eventually, a tenth family (of 10) moved in. When the landlord found out, he said, "Only 9 families can live in that house." And he threw them all out. So the 10 families formed a community (How many families are in that community now? How many people?). The community then moved into a huge, brand-new apartment complex. This new landlord told them, "Only 9 communities can live in this complex." And they said, "OK," but, eventually, other communities (of 100) moved in. Finally, when the tenth community moved in.

3. Using manipulatives (e.g., Unifix cubes, Base Ten Blocks), teach the student the concept of place value. Teach her how to “trade up” (regroup) for the next largest set and how to use a place value mat. If you use a dry erase board for the mat, she can write the digits corresponding to the blocks in each column. Write the resulting number on another piece of paper. Try to guide her to discover and verbalize that the value of the digit within the number is related to its position on the board and the way it is represented by the objects (e.g., small blocks, sticks equivalent to ten blocks, flats equivalent to 100 blocks or 10 sticks).

4. When the student has learned the concept of place value, show her how reading printed numbers relates to the place value of the digits. Write the number, have the student place the corresponding number of blocks on the mat, and have her read it. Point out that the digit with the highest value is named first. When she understands this, reverse the process so she learns to write multi-digit numbers.

5. When the student understands the connection between the place of the digits comprising a number and the value of the digits, extend the concept to working with expanded notation.

6. Review or reteach place value using manipulatives to clarify the function of zero as a place holder and as representing an empty set. Use a place value mat or a box divided into parallel compartments. Represent multiple-digit numbers on the mat/box and practice reading them. Start with no zeros in the number, then one zero, then two. Transfer the activity to reading numbers written on paper.

7. Review the rule of one digit to a column and make sure the student understands and can explain the reason for the rule. Use manipulatives to illustrate this concept.

8. Explicitly connect regrouping on the place value board with regrouping using numbers on paper. Have the student work the printed problems by doing them on paper and the board. When she moves a ten-stick (or any manipulative representing a group of ten) over into the tens column, she puts the one in the box above the tens column in the printed problem. Give the student lots of practice in verbalizing what she is doing as she works the problems both on the board and on the paper.

**Basic Facts**

**General**

1. Do not require the student to memorize facts until her understanding of the process is firmly established.

2. Have the student overlearn the math facts for all operations.

3. Continuously reinforce previously learned facts interspersed with practice of more recently learned facts. Continue fact practice even when the student seems to know them automatically.

4. Rather than drill the student on math facts at this point, find out what strategies she is using and help her become more efficient in those that are reasonable.

5. Do not have the student compete with other students when practicing math facts. Instead, have her keep her own private performance chart. Draw an analogy to a runner's "Personal Best."

6. Once the student understands mathematical operations, shift the focus to memorization of facts. Make adequate provisions for overlearning by using games, language masters, tape recorders, computer software, tracing activities, and peer tutoring.

7. Have the student participate in selecting a method that she will use to learn her facts. After using the approach to study for several days, have the student evaluate whether or not the method seems effective. If not, have her select another approach to try.

8. As the student has great difficulty memorizing and retrieving math facts, use Touch Math, a systematic instructional program for teaching computation skills. Touch Math uses dots on each number to represent its value, emphasizes use of the Touchpoints as a bridge to conceptualizing and memorizing the facts, and provides visual prompts to help students learn the algorithms. Touch Math is available from Innovative Learning Concepts 6760 Corporate Drive, Colorado Springs, Colorado, 80919-1999, (888) TOUCHMATH (or 868-2462), http://www.touchmath.com. [See Strategies: Touch Math.]
Recommendations: Mathematics  p. 21

9. At this time, do not spend time trying to get the student to learn facts that she has historically been unable to recall. Instead, for computation problems, give her pocket-sized charts with addition and multiplication facts. Teach her how to use the addition chart for subtraction and the multiplication chart for division. If she has difficulty finding the number at the intersection of the row and column for the fact she is checking, provide a template made from strips of colored transparency material in the shape of a reversed L. At the juncture of the two strips, cut out a square through which the answer can be seen. The student may use the chart any time she wants for the answers to math facts but encourage her to guess the answer before looking. That way, she gets immediate reinforcement if she is right and immediate correction if she is wrong. Additionally, eventually, visualizing the location of the answer may help in retrieving it. When a fact has become truly automatic, she should black it out. This will continuously strengthen her ability to recall the fact as well as allow her to see how many facts that she has left to learn.

Using Strategic Organization to Memorize Facts

1. The student creates elaborate strategies for reconstructing the answers to simple math fact problems because she has not memorized basic math facts. As she has demonstrated understanding of the concepts underlying [addition, subtraction, multiplication, division], organize the facts for easiest learning and recall, then provide daily drill and practice. Use a systematic plan for practice so that previously learned facts are reinforced along with more recently learned ones. [See Strategies: Addition Fact Memorization: Organizational Structures; Math Facts - Instructional Sequence.]

2. Mental organization of math facts reduces memory demands and facilitates retrieval. Teach math facts in a sequence and using an instructional approach in which each new set of facts is related to facts or processes the student already knows. Suggestions for instructional sequences are attached to this report. [See Strategies: Addition Fact Memorization: Organizational Structures; Math Facts - Instructional Sequence.]

3. To reduce memory demands, teach the student strategies to use to solve computation problems based on facts she already knows. Some multiplication examples follow:

   - use skip counting and hatch marks (e.g., for 5x4, count by fives, stopping when you have made 4 hatch marks)
   - use repeated addition for the lower multiplication tables
   - split one factor in half and add the products (e.g., 4 x 7 2 x 7 = 14, and 14 + 14 = 28, so 4x7=28);
   - lower one factor by 1, multiply, then add one more set (e.g., 4 x 7 3 x 7 = 21, and 21 + 7 = 28, so 4x7+28);
   - for the nines table, teach the “magic 9s” trick.

Recommendations: Mathematics  p. 22

- Start with any number times nine (e.g., 6x9). Reduce the number by one (6-1=5) and put it in the tens place (5—). Ask: “That number (5) plus what (x) equals 9 (5+x=9)” Put that number in the units column. Thus, the answer is 54.

- Hold both hands up, palms out, thumbs adjacent. Imagine a number on each finger, from one to ten, starting with the left little finger. To multiply 6 times nine, count on your fingers from the left until you reach 6. Turn finger 6 (right thumb) down. The number of fingers to the left of this finger (5) represents the tens column. The number of fingers to the right (4) represents the units column. The answer is 54.

4. While teaching [addition, multiplication] facts, help the student to develop flexibility and a deeper understanding of number relationships by working with [addition, multiplication] sentences (e.g., 2+5=7). This will reinforce the [addition, multiplication] facts while increasing readiness to learn the [subtraction, division] facts. Provide a variety of guided activities with addition [multiplication] sentences in which one of the numbers or relational signs is omitted. Have the student figure out the number/sign that would make the sentence true and explain how she did so. Use the fact groups the student is studying for the arithmetic sentences. As she develops facility in filling in the missing element, she will be able to come up with the related [subtraction, division] facts. The ability to complete 6+2=8, 6+6=8, and 2–6=8, facilitates comprehension and acquisition of 8–2=6 and 8–6=2.

5. Try teaching addition facts as “families” centered on sums. For example, the “3 family” has 4 “brother-sister pairs:” 0+3, 1 + 2, 2 + 1, 3 + 0. Given three blocks and 2 empty frames, the student can practice making different brother-sister pairs and matching them to number cards (as above) and then to addition fact cards. This type of structure may be easier for her to learn than the usual +1, +2, +3. One advantage to teaching facts in this way is that in any subtraction fact, the higher number is the family name and the other number is one of the brother-sister pairs. The answer is the missing brother-sister pair.

Other Memorization Methods

1. Provide peer tutoring to help the student learn basic math facts and whole-number computation. The success of this program depends on a high degree of tutor competency in the skill addressed, training and monitoring the tutor, and the tutor’s use of principles of effective instruction.

2. Have a peer or parent provide practice sessions with flash cards so that the student can become automatic with her math facts. Additionally, using flash cards that have the answer recorded on the reverse side, have the student practice facts for several minutes daily. Provide frequent review of the newly mastered facts.

3. Teach particularly difficult multiplication facts by using a rhyme with a picture clue. These may be made by the student or class.

4. Have the student use computer math games that provide immediate feedback to reinforce facts and operations she has mastered. Provide time for the student to practice independently.

5. Use a write-say procedure to help the student memorize her multiplication facts. Give the student a worksheet of problems with answers. Have her cover the row of answers with an index card. Have her look at the problem, say the answer, and then move the card to check the answer. If the answer is incorrect, have the student look at the problem and answer, cover it with a finger, and then write it from memory several times, checking for accuracy each time. Assign only a few facts at a time.

6. Record a set of number facts on tape at a slow pace, repeating each one twice. Have the student hold a flash card in her hand as she listens to each fact being said. Encourage the student to repeat the fact aloud with the taped presentation. As an alternate activity, have the student say, then write, each math fact. Present only a few at a time. Provide daily practice for 5 minutes until all facts are mastered.

**Motivation**

1. Set up a reinforcement program for the student for improving retention of math facts. For example, she could earn a sticker or a set number of points for each new fact learned.

2. To increase motivation, teach the student how to monitor her progress in automaticity of math facts by using a chart with each math fact in each square. As she learns each fact to an automatic level, allow her to highlight the square. If she understands the commutative property, she may fill in 2 squares for each fact learned. [See Strategies: Addition Fact Chart, Multiplication Fact Chart.]

3. Use computer programs to motivate drill and practice but do not let it replace regular monitoring of fact knowledge through [oral response to flashcards, written timed tests.]

4. To increase motivation in fact practice and to avoid the student feeling overwhelmed by the perceived number of facts to memorize, document mastered facts on a math fact table. When the student can respond to a fact problem within three seconds, when presented in combination with other facts, in three consecutive opportunities, have her highlight the fact on the chart. Understanding of the commutative property (4 + 7 = 7 + 4), allows her to color in two squares. [See Strategies: Addition Fact Chart, Multiplication Fact Chart.]

**Fluency**

1. To help the student increase her speed in math operations, drill her on math facts using visual stimuli such as flashcards, computer programs, and, when she can respond to a math fact within 3 seconds, worksheets. Eventually, move to timed tests.

2. Administer daily timed multiplication tests to see how many facts the student can complete within a minute. Record and monitor her progress.

3. Use Precision Teaching to help the student memorize her math facts. Have her complete daily timed drill activities where she competes against her own best score. [See Strategies: Precision Teaching.]

4. Use the Great Leaps Math Program (Mercer, Mercer, & Campbell, 2002) to build fluency in the basic facts, including addition, subtraction, multiplication, and division.

Algorithms

Teaching Concepts with Manipulatives

1. For any skill or operation, allow the student to use manipulatives as long as necessary. Prematurely shifting her to numbers alone may interfere with conceptual mastery.

2. Make sure the student understands the concept underlying each new algorithm that is introduced. Use manipulatives, such as Cuisenaire Rods (Davidson, 1969), beans, or money to introduce all new concepts.

3. Use visual aids and manipulatives to illustrate new ideas and extensions of previously learned concepts. Use real objects first (e.g., food, measuring liquid, wood for building, crayons), then pictures. Later, move to Cuisenaire Rods, Unifix Cubes, tokens, and other semi-concrete materials.

4. When teaching the student concepts of fractions and decimals, use tangible objects, such as money or food. For example, demonstrate cutting a pizza in pie-shaped pieces.

5. Use manipulatives that are already compartmentalized to teach fractions. For example, an empty egg carton may be used to teach fractions with a denominator of 12.

Teaching Algorithms

1. In teaching the student computational algorithms, ensure that she understands the underlying concepts so that the procedures and the sequence of steps make sense. For example, one must understand place value to understand regrouping.

2. Provide opportunities for the student to teach the math algorithms and concepts that she has recently learned to other students. Have her assume the role of instructor and teach the concept using her own words.

3. Reteach the concept of fractions, including what the numerator and denominator represent, the reason for needing a common denominator, the methods for finding common denominators, the procedures for reducing fractions, and the meaning of improper fractions and mixed numbers.

4. Before introducing decimals, make sure that the student understands fractional concepts so that she can see the relationship between the two and acquire an understanding that decimals are an easier and more consistent way to express fractions.

5. To provide a basis for higher-level math, help the student develop concepts and skills with percents, decimals, fractions, and negative numbers.
Reminders for Algorithm Sequences

1. Make flowcharts for the student that illustrate the sequence of steps required for any particular operation that she is learning. Have the student keep the flowcharts clipped inside her math textbook and/or workbook to refer to whenever necessary.

2. Provide the student with an index card that contains clear verbal explanations of questions to ask herself as she works math problems. For example, when learning regrouping techniques for subtraction, write the question "Is the top number larger than the bottom number?"
   a. If yes – subtract
   b. If no – regroup (borrow)

3. Analysis of the student’s errors indicate that she understands that the procedures are rule-governed but that she misunderstands or misapplies them, or has made up a rule for herself. To help her use and remember the correct rules to use, provide her with memory aids such as decision map. The figure below represents a decision map for subtraction with regrouping.

   ![Decision Map for Subtraction with Regrouping]

4. Teach the student memory strategies for performing new math algorithms in the correct sequence. For example, for long division, teach her to write the symbols representing the steps at the top of her paper, to recite, “Divide, multiply, subtract, check, bring down,” or make a tune for it and sing it. The figure to the right shows a visual cue for long division.

5. Provide tape-recorded instructions for solving computation processes. Fade use of the tape gradually as the student memorizes the steps.
6. Use color coding to: (a) identify starting and stopping places within a problem; (b) code the units, tens, hundreds, and thousands place; (c) indicate where the final answer should be written; and (d) highlight important features, such as operation signs, the question being asked, or the key information being asked in the problem.

7. Remind the student that reading starts on the left and moves right, whereas the math computations of addition, subtraction, and multiplication start on the right and move left. If she requires a visual cue to remind her, place a green dot or arrow over the units column and have her place her pencil point on the dot or arrow before beginning the problem.

8. Consider using the Touch Math instructional approach and materials to teach the basic algorithms. As the student is not having difficulty with math facts, do not teach the touchpoints. The computational algorithms are taught systematically, with visual and auditory cues, self-talk, and ample practice. The materials can be used along with the classroom math program. Touch Math is available from Innovative Learning Concepts 6760 Corporate Drive, Colorado Springs, Colorado, 80919-1999, (888) TOUCHMATH (or 868-2462), http://www.touchmath.com. [See Strategies: Touch Math.]

**Application**

**Word Problems: Primary School and Above**

**Problem-Solving Instruction**

1. Do not teach the student "tricks" for solving math problems, such as identifying cue words (i.e., how many or altogether means addition). Instead draw attention to understanding the language of the problems.

2. Ensure that when the student is asked to solve story problems, the computation involved is not difficult. This will allow the student to concentrate on understanding the language of the problem.

3. Before teaching word problems, set up practical situations in the classroom that would be described in a word problem. Have students work collaboratively to verbalize the situation, the numbers involved, and what has to happen. Then have the student create word problems that represent the situation they just experienced.

4. Have the student and several peers physically act out word problems. For example, the students could count up and divide a set of blocks or demonstrate making change for a purchase in a grocery store. Guide them to talk about what they are doing in mathematical terms.

5. To ensure that the student understands the different types of story problems that she is expected to solve, have her solve them first using manipulatives.

6. Provide the student with a mixture of story problems that require different mathematical operations. Have her determine what operation(s) are appropriate for each problem.
7. As the student appears to misinterpret word problems, have her restate the problem in her own words and identify the givens and the problem goal before planning the solution.

8. The student is more likely to understand word problems and find solutions if she can relate to their content. As much possible, make problems relevant to the student’s life. This will also increase her motivation.

9. When introducing word problems to the student, present concrete situations that she will be able to visualize or draw.

10. Provide the student with extensive guided practice in reading [multiplication, addition] word problems, setting them up with manipulatives and then as computation problems, and solving them. Use problems that incorporate many types of objects (e.g., eggs, nickels, miles, minutes). Try to use situations that would be familiar to her as well as practical (e.g., paying for her family to see a movie at $7.50 each).

11. Orally present the student with a very simple [addition] story problem. Teach her how to make pictures of the problem or to set it up with real objects (e.g., cookies). Make the connection between this and the activities she did using the place value board. Transition to having the student write math statements to represent the story problem.

12. When the student has become comfortable with representing simple, brief word problems, provide longer narratives that describe real-life situations and that include more information and events. Provide a series of math-related questions about the story that are not necessarily more complex but that require careful consideration to identify the required information and operations. At times, include questions that cannot be answered with the data given and/or ask the student to list information that is not required to answer any of the questions posed.

13. Teach the student to recognize the number of steps (operations) involved in a word problem, what they are, and how to sequence them correctly.

14. Have the student work with a partner or in a cooperative learning group to write or solve word problems. Provide a variety of activities such as creating problems for a set of objects, writing problems for a given equation, or solving problems written by a peer or from another group of students.

15. Teach the student how to recognize when she does not have all of the information needed to solve a problem. Some example activities are:

   - Give the student word problems in which specific information needed to solve the problem is missing. Have the student identify what is missing, provide the information, and then solve the problem.

   - Have several teams of students create story problems that cannot be solved because information is missing. Have them exchange problems and discuss why they cannot be solved. Have the students then rewrite the problems so they can be solved.

16. Help the student learn to identify extraneous information in word problems. With a marker, have her cross out any extraneous information before she attempts to solve a problem.

17. Teach the student how to interpret what is asked in a math problem as well as how to use resource material to find the data needed to solve the problem. Several suggestions follow:

- If you use familiar objects to create problems and generate questions, the student's interest level will be higher. Additionally, the student will have the objects to help solve the problem.

- Combine math and content area learning. For example, use data in reference books to create math problems and teach the student to use the reference books to find the answer. An example would be, "If everybody in the world gave you a penny, approximately how much money would you have?"

- Provide easy-to-read reference books for each student or cooperative group and challenge them to create math problems using information in the book. Examples of reference books are encyclopedias, atlases, the Guinness Book of World Records, or books on the human body.

- Create problems for the student that require experimentation or that combine experimentation with use of a reference book. Examples would be, "How many tablespoons of liquid equal a cup?" or "If you leave Tucson on foot for Yuma, can you make the trip in less than 1,000,000 steps?"

**Problem-Solving Strategies**

1. When the student has difficulty with the computation involved in a story problem, have her substitute smaller numbers so that she can understand the operation(s) involved and then calculate the problem a second time using the original numbers.

2. Teach the student how to plan what she needs to do to solve a problem. Different techniques, such as the following, may be called for by the type of question asked:

- Decide what operation(s) to use (e.g., Harry weighed 250 pounds. He weighed 72 more pounds than James. How much did James weigh?)

- Make a table, graph, or chart of the information provided (e.g., Hansel and Gretel went to the witch's house every day except Sunday. On Mondays and Thursdays, Hansel went twice. On Wednesday, Gretel went in the morning, at noon, and once after Hansel was in bed. Who traveled to the witch's house more times in a month?)

- Make a drawing of the information provided (e.g., Mehitabel planted a square garden with 12 garlic plants on each side to keep the snails away. How many garlic plants did she plant?)

---

Recommendations: Mathematics

- Make inferences and logical deductions (e.g., The Carsons went to Jack-in-the-Bag and spent $20.75 for lunch. An adult meal costs $4.95 and lunch for a child costs $2.95. How many people are in the family? How many of them are children?)

3. Teach the student a simple strategy to use for solving story problems. For example, teach her to: (a) read the problem, (b) reread the problem to identify what is given (What do I know?) and to decide what is asked for (What do I need to find out?), (c) use objects to solve the problem and identify the operation to use, (d) write the problem, and (e) work the problem (Smith & Alley, 1981). Write the strategy on an index card for easy reference.

4. Teach the student a specific math problem strategy to use for solving story problems. [See Strategies: Math Problem-Solving Strategy.]

5. When teaching the student any problem-solving strategies, use the following sequence. First, teach the steps to the strategy, have the student memorize them (or, if necessary, provide a cue card), and then work with the strategy until she has mastered its use. Second, teach a self-questioning strategy that will prompt the student to use the strategy when appropriate to the task. Third, provide follow-up training to ensure retention and use of the strategy.

6. Teach any problem-solving strategies as directly and explicitly as you would any academic skill, providing for instruction and ample guided and independent practice, monitoring for misunderstandings and errors. Incorporate instruction and practice in when to apply the strategy.

7. When choosing a strategy, consider both the procedures or information targeted for instruction and the particular strengths of the student. Select from the following strategies those that you think would be most beneficial to the student: restating the problem; acting out the problem; estimating the answer; using a model; guessing and checking; making a drawing; working backward; solving a simpler, related problem; constructing a table or graph; looking for a pattern; applying a formula; and writing a mathematical sentence.

Higher-Level Mathematics

Problem-Solving Instruction

1. Because the student has not automatized many procedures commonly applied in algebraic problems, the cognitive attention necessary to reason through the problem is diverted to the steps in the procedures. To overcome this problem, she requires far more practice with a variety of problems addressing each new concept and procedure taught, and extensions of those previously taught. This will necessitate moving through the curriculum at a slower pace and periodically reviewing material covered previously.

2. Teach the student how to differentiate among assignment propositions, relational statements, and questions.

3. As the student appears to have difficulty converting relational statements (e.g., a plane travels 10 times faster than a car, Tia’s grade is 17 points higher than Robin’s) into mathematical expressions, focus instructional time on interpreting and paraphrasing a wide variety of relational statements and then representing them in mathematical form.

4. To help the student recognize the mathematical structure of word problems, provide direct instruction in comparing a group of word problems and identifying those with the same mathematical structure by drawing representations of the problem structures (i.e., equation network), for example, with a chart or diagram (d’Ailly, 1995).

5. When presenting a new type of problem or equation, in addition to instructing the student in how to work them, give her examples that have already been worked. Give her time to study them, answer any questions she has, and have her use them as models while working problems with the same structure. This strategy should help her recognize the problem structure at a later time and facilitate the solution.

6. The student’s difficulty with comprehending word problems increases along with level of abstraction. She will have more success if, within each procedure or concept presented, concrete factual problem types are introduced first, concrete hypothetical second, abstract factual third, and abstract hypothetical, the most difficult, last. Examples of each problem type follow:

- **Concrete Factual**: A farmer has eight more hens than dogs. Since hens have two legs each, and dogs have four legs each, all together the animals have 118 legs. How many dogs does the farmer own?

- **Concrete Hypothetical**: There are four more girls in an English class than boys. If there were six times as many girls and twice as many boys, there would be 136 pupils. How many boys are there?

- **Abstract Factual**: The value of a given number is six more than the value of a second number. The sum of two times the first number and four times the second number is 126. what is the value of the second number?

- **Abstract Hypothetical**: A given number is six more than a second number. If the first number were four times as large and the second two times as large, their sum should be 126. what is the second number? (Caldwell & Goldin, 1987).

### Problem-Solving Strategies

1. To help the student learn to analyze and then reintegrate the information in a problem, teach her to create a situational model (e.g., picture, diagram) of the problem before trying to set up a quantitative representation such as an equation. Research indicates that inclusion of this intermediate step (the situational model) is positively related to correct solutions (d’Ailly, 1995).

2. Teach the student that if a problem looks too complex, to substitute lower or simpler values, figure out the solution, then use the solution to solve the more complex problem.

3. As the student is confused by problems that contain many variables, the following strategy may be helpful. Teach her to construct a different problem, similar to the one that is given but with fewer variables and solve it. This may help her to clarify her understanding of the given problem using all of the variables and allow her to solve it by adapting the solution she used in the simpler problem (d’Ailly, 1995).

4. Teach the student that when a problem appears too confusing to start on, to try and find part of the answer and see if she can proceed from there. Alternatively, she can try to break the problem into smaller or simpler questions, solve them, and combine the results (d’Ailly, 1995).

5. To aid the student in organizing her approach to algebraic word problems, teach her to follow the following 6-step procedure: (1) Read the problem carefully; (2) Decide what question the problem asks and choose a variable to represent the unknown; (3) Consider the other information given in the problem and how it relates to the unknown; (4) Write an equation or equations expressing the given relationships; (5) Solve the equation or equations; (6) Check the answer. (Bassler et. al, 1975).

6. Help the student learn to: recognize the problem, identify the steps to follow, determine what numbers are needed to solve the problem, draw a picture if possible, write a number equation, sequence the computation steps, estimate the answer, check the answer for reasonableness, self-monitor the entire process, and investigate alternate ways to solve the problem.

7. Teach the student the following strategies to try when she is having difficulty proving a logic statement:
   - Contrapositive: When the statement that must be proven is positive (e.g., If X is true, then Y must be true), instead try to prove the equivalent negative statement (e.g., If Y is false then X must be false). Either is a sufficient proof.
   - Contradiction: Assume that the statement that must be proven is false. Using this assumption, the student tries to prove either that one of the conditions given in the problem is false, that something she knows to be true is false, or that what she wishes to prove is true. If she can do any of these, she has proved the original statement. (Schoenfeld, 1979).

8. Guide the student learn to think about how she tried to solve the problems and to comment on what she did well and how she could improve her performance. Ask questions such as:
   - How did you do this problem?
   - I noticed you had some trouble with _____. How did you proceed?
   - How could you solve the problem in another way?
9. Use the following types of self-questioning strategies to help the student learn how to represent algebra word problems (Hutchinson, 1993):
   - Have I read and understood each sentence? Are there any words whose meaning I need to ask?
   - Have I gotten the whole picture of the problem?
   - Have I written down my representation of the problem on my worksheet? (goals; unknown(s); known(s); type of problem; equation)
   - What should I look for in a new problem to see if it is the same kind of problem?

10. For solving algebra number problems:
   - Have I written an equation?
   - Have I expanded the terms?
   - Have I written out the steps of my solution on the worksheet? (collected like terms; isolated unknown(s); solved for unknown(s); checked my answer with the goal; highlighted my answer)
   - What should I look for in a new problem to see if it is the same kind of problem?

11. For algebra instruction, engage in modeling, provide guided practice activities, and check students’ responses (Maccini, McNaughton, & Ruhl, 1999). Maccini et al. recommend that instructors employ the following principles to help students succeed in higher-level mathematics courses:
   a. Before beginning instruction:
      - Administer a daily quiz of previously learned skills.
      - Give a general orientation to introduce the strategy; explain the rationale for self-questioning strategies.
   b. During instruction:
      - Provide a clear and precise presentation of the skill or concept with a range of examples as well as non-examples.
      - Make use of manipulatives and computer assisted instruction when possible.
      - Teach students self-questioning strategies.
      - Provide guided practice, reinforcing instruction with structured worksheets.
      - Provide feedback and reinforcement by offering opportunities for monitoring student level of understanding and providing corrective and positive reinforcement.

   Maccini et al. also recommend requiring a level of mastery, using set criteria, providing independent practice, and assessing students frequently using a variety of measures, such as oral and written responses.

**Computer Software**

1. Use educational software to encourage the student to reflect on new concepts and practice new procedures. Select software with care, however, to ensure that it matches the teaching objectives and is well designed. [See Strategies: Software Selection Tips.]

2. Use tutorial computer software to reinforce word problem-solving strategies, representations, and solutions but make sure that the student is able to transfer the ability demonstrated when using the program to paper-pencil tasks.
Measurement and Estimation

General

1. When the student has to memorize rote information, such as units of measurement, help her to create visual or auditory associations to help her remember them. For example, 12 inches in a foot could be drawn as a footprint of a bare foot with 12 inchworms end to end crawling across it. To add in that there are 3 feet in a yard, 2 more feet could be drawn, toe to heel with the first foot (without the worms) tightly bordered by a fence filled in with grass to represent a “yard.”

2. Help the student learn to differentiate situations where an exact answer is needed from those where an estimate is more appropriate.

3. Teach the student to estimate length in terms of familiar objects. For example, a regulation baseball bat is 1 meter in length. A notebook is approximately a foot in height.

Time

1. Use a strategy to teach the student to state the time on an analog clock. [See Strategies: Telling Time: Instructional Strategy.]

2. Teach the student how to read both a digital clock as well as an analog clock. Have her practice setting the hands on a clock to match the time on the digital clock.

3. Teach the student how to tell time to the hour, half hour, and quarter hour. Teach her the different ways to express these times. For example, 8:30 might be referred to as eight-thirty, half-past eight, or thirty minutes past the hour.

Money

1. When teaching the student money concepts, use actual money or realistic facsimiles. Have the student perform problems that involve actual manipulation of the money.

2. Teach the student the value of coins and bills. Provide practice in exchanging coins and bills while maintaining equal value.

3. Provide opportunities for the student to practice making change. Discuss money in relationship to things that the student wishes or needs to purchase. Use a catalog of merchandise for ideas.

4. Provide daily opportunities for the student to increase her skill with money. For example, have her purchase lunch or budget daily spending.

5. To increase the student's flexibility in making change, provide her with practice matching equal value of coins. For example, using real money, ask her to show you as many ways as she can think of to give someone 50 cents in change. Explain to the student why the combination with the fewest coins is usually returned.
6. Teach the student how to use a cash register. Help her increase her speed and accuracy in making change.

7. Teach the student the skills needed for money management, such as how to set up a bank account, balance a checkbook, determine interest on a loan, and/or use a credit card.

**Calendar**

1. In order for the student to develop a better sense of time sequences (days, weeks, months), give her a calendar to use to keep track of important events. Cross off each day as part of the daily classroom routine or if used at home, before bedtime. Mark the end of the month by turning the page. Use a calendar that has a holiday or seasonal picture for each month.

2. Use a yellow highlighter to draw a line separating the weekend days from the weekdays or color the weekend days yellow.

3. Teach the student how to obtain information from a calendar. Make sure that she can name the month, day of the week, and the date. As exercises, have her count the number of Tuesdays in a month and identify any holidays in the month. Have her identify yesterday's date and tomorrow's date.

**Life Skills Mathematics**

1. Identify and teach the student the basic math skills that she will need for adult independent living.

2. Encourage the student to enroll in a consumer mathematics course.

3. Provide opportunities for the student to apply math in real situations, such as getting change at a Laundromat, finding the correct bus fare, or determining the cost of clothing on sale.

4. Provide extensive practice in practical application of all new math skills that the student has learned or is learning, both in story problems and real-life (e.g., measuring for cooking, deciding on one shirt over another depending on budget considerations, building a bookshelf).

5. Teach the student the survival math skills that she is missing and incorporate them into independent living situations (e.g., balancing a checkbook, determining interest on a car loan, budgeting her salary, measuring for cooking).

6. Teach the student to read simple maps, using a highlighter to follow along a route and a different color marker to mark key points along the way. Gradually increase the complexity of the maps.

7. Before the student begins employment, determine the on-the-job demands for mathematical literacy. Make sure that the student is sufficiently prepared to meet these requirements.
8. Devise a variety of real-life situations/simulations in which the type of operation you are teaching is used. Teach students how to write down computation problems as they arise and use calculators to solve them.
KNOWLEDGE/CONTENT AREAS/STUDY STRATEGIES

Tests: Academic Knowledge, General Information
Clusters: Knowledge
Related Sections: Memory, Oral Language, Reading Comprehension, Written Expression

Contents: Knowledge/Content Areas/Study Strategies
  General
  Accommodations
  Instructional Approaches
    General Instruction
    Background Knowledge
    Multimodality/Experiential Learning
    Learning and Study Strategies

General

1. Identify the student's special interests and hobbies. Find ways to use her present knowledge to enhance learning of new situations.

2. Suggest that the parents spend time with the student or have other adults do so, specifically to expose her to a wide variety of experiences, explain what is happening, name objects and actions, and answer questions. They may also watch videotapes together to introduce historical events, give a sense of time periods in history, and introduce abstract concepts.

3. The World Wide Web is an extraordinary resource for information of virtually every type and the student needs to become a proficient and savvy user of this tool. Teach the student how to use the Internet as one of her sources of information about the world and how to judge the veracity of the information she finds. Browse the web with her to show her how to find interesting information about places, people, and events. Teach her how to use the web to shop, find out medical information, communicate by e-mail, and a myriad of activities that have the potential of opening the world to her. Incorporate lessons on Internet safety covering a wide range of risks.

4. Teach the student how to use interactive educational software as much as possible to facilitate her ability and enhance her interest in working with certain information. An example is the Microsoft Encarta Reference Suite which includes an encyclopedia, a globe, reference materials, and a research organizer. The encyclopedia articles have associated pictures, sounds, videos, and links to related websites. The globe allows the user to magnify any area, see different types of geographical boundaries (e.g., political, climate), mark geographic points, and filter out cities by population levels. Reference materials include a thesaurus, a dictionary, famous quotations, a style guide, a dictionary of computer terminology, and an almanac. The Research Organizer facilitates the organization of notes, proper citation of resources, incorporation of graphics, and putting the report together. An option enables the user to have the built-in speech synthesizer read the text aloud. Available from Microsoft Corporation, One Microsoft Way, Redmond, WA 98052-6399, (888) 218-5617, http://encarta.msn.com/products/info/refsuite.asp.
Accommodations

1. Ensure that all content area textbooks are adjusted to the student’s level of language and reading competence.

2. Introduce junior encyclopedias to the student as reference material for general information.

3. Permit the student to tape record all class lectures so that she may play them back at a slower pace later and take notes.

4. Have the student arrange with another student, who takes good class notes, to make a copy of her notes for each class session. This will allow the student to listen carefully to the lecture and to participate in class discussion. If needed, the student may arrange this through the instructor.

5. Defer grading of content area tests until you can meet with the student and discuss her responses in private. This will ensure that unanswered questions, incomplete responses, and accidental omissions caused by limited [attention, basic skills] do not compromise assessment of the content the tests were designed to assess.

6. For classroom lectures, provide the student with an outline or study guide so that she can follow along, fill in missing information, and have a complete outline for studying and review.

7. Develop a clear scope and sequence for the student based upon the objectives he can master within a specific time frame. If the content is covered too rapidly, the student will not have time to learn the information.

Instructional Approaches

[See Recommendations: Oral Language [Multimodality Instruction, Lectures]]

General Instruction

1. When introducing new concepts, information, and procedures, activate and evaluate prior knowledge of the topic. If necessary, preteach key vocabulary and foundational concepts before beginning the instructional unit.

2. When introducing new concepts, information, and procedures, use pictures and non-symbolic visual information along with any other input—oral, sign, or print.

3. Use learning strategies where appropriate to strengthen the student’s ability to hold information in short-term memory while working with it and to help him retrieve the steps of procedures.

4. Provide a study guide well before a test. Include questions for key concepts and events. Give to the special education teacher so she can teach the student strategies for how to find the answers and study them, then guide him in using the study techniques in the material to be tested.
5. To help the student work independently but more successfully in a study guide or open-book test, the teacher can organize the questions by where they are found in the book, draw a vertical line with a highlighter down the left side of a section of questions, then write the page numbers of the book on which the answers can be found next to each section of the test/guide.

6. To help the student comprehend the concept of history, develop a timeline with the student for the specific country the class is studying. Use pictures as a reminder of famous events along with the dates and number of years between events. Make sure the student understands what the timeline represents. Try to relate the number of years between events to a length of time that could have meaning in his experiences. Use the timeline as a framework for the student to understand when an event happened. Use videotapes to get a sense of different time periods.

7. To enhance student learning, activate the student’s prior knowledge, teach key vocabulary, provide an advance organizer, present a reasonable amount of material, help students keep track of where you are in the presentation of the material, and reinforce and evaluate concept learning. [See Strategies: Content Area Instruction: Components of Effective Lessons.]

8. Reduce the amount of content presented to the student at any one time. Make sure that she has mastered the material before introducing new material.

9. Before starting class, list on the board what you are going to do in class that day (e.g., go over homework, discuss answers to yesterday's question sheets, watch video on geysers, answer question sheet, assign homework). Review it with the class. During class, check off activities/items as they are started and cross them out as they are completed.

10. For content area instruction, begin each lesson with a review of the content covered previously, introduce relevant objectives for new material, activate student knowledge about the present lesson, present the lesson, encourage discussion, and provide guided practice activities (Scruggs & Mastropieri, 1992).

11. In content area classes, do not expect the student to learn any formula by rote. Using familiar concepts and information, teach her the general concepts and variables relating to the formula. Then, introduce the formula, provide many examples of its application, and explain why it is applied in that context.

12. Use graphic organizers to help the student organize known information. Select a topic that has several subordinate ideas and is familiar to the student. Write the topic in the middle of the map. Place the related concepts in circles around the main topic and draw lines to the main concept. Then write a summary statement based on the graphic organizer.

13. To help promote comprehension and recall of text, use familiar, concrete analogies that are easy to picture. “Far analogies” that contain few obvious links between topics (e.g., soccer and math) appear to promote learning better than “near analogies” that have high surface similarity (e.g., soccer and rugby). Far analogies require the reader to process information at deeper levels (Halpern, Hansen, & Riefer, 1990).
14. Use a five-step process to teach the student concepts: (a) decide what concepts and related vocabulary to teach, (b) assess the student's knowledge of the concepts and related vocabulary (c) use pre-learning or prereading activities to facilitate learning, (d) conduct the learning or reading activity, and (e) provide post-learning activities that further reinforce the concepts and information learned (Bos & Vaughn, 2001).

15. Remember and incorporate four critical concepts in teaching: (a) activate prior knowledge, (b) relate new information to information the students already know, (c) organize the information to be presented, and (d) show the organizational framework.

16. Have the student work on projects or assignments in collaborative groups so that the students have an enhanced opportunity to share general knowledge about the topic. Make sure that all of the students have and perform specific roles within the group (e.g., facilitator makes sure everyone has a chance to offer ideas, courtesy clerk makes sure that everyone acts with respect to each other, timer keeps the discussion on topic and keeps track of time, scribe takes notes).

**Background Knowledge**

[See Recommendations: **Reading Comprehension: Prereading Activities**]

1. Provide periodic reviews of previously learned information to help the student maintain acquired knowledge.

2. Discuss pictures in the text with the student. Have her discuss what is happening in the picture and predict what the outcome will be. Introduce new vocabulary as you discuss the picture.

3. Use the Pre Reading Plan (PReP) strategy (Langer, 1981, 1984), a three-step procedure, to activate and increase the student's background knowledge. This strategy is most effective when done with a group. In the first step, have the student(s) brainstorm or free associate any key words or concepts related to the topic that come to mind. In the next step, have them evaluate their responses by answering the question: "What made you think of...?" In the third step, encourage the students to form new questions based on the discussion. [See Strategies: PreReading Plan.]

4. Before beginning a new unit in any content area class, evaluate and activate the student's prior knowledge of the topic, using a well-established activity such as the PreReading Plan, Semantic Mapping, Semantic Feature Analysis for Key Concepts, or Anticipation Guide. If necessary, preteach background knowledge, vocabulary, and key concepts before introducing the unit. [See Strategies: PreReading Plan, Semantic Feature Analysis: Concepts, Anticipation Guide, Semantic Maps: Advance Organizers.]

5. Because the student's environment and cultural knowledge are, for the most part, [Navaho, Chinese, Mexican], a critical aspect of introducing all new content area instruction to her will be to evaluate prior knowledge and spend whatever time is needed to fill in missing concepts and experience.
6. To activate prior knowledge and help the student incorporate new material into her knowledge base, guide a small group discussion prior to having her read content from textbooks. Keep the sessions to about ten minutes and have the students summarize what they already know about the topic and what they think they will learn.

**Multimodality Instruction/Experiential Learning**

[See Recommendations: Oral Language: Multimodality Instruction.]

1. When presenting lecture content or new information, use visual aids (e.g., pictures, maps, charts, graphs) [and manipulatives] to help the student visualize the concepts or information being presented.

2. In planning units, incorporate films and videos that will reinforce or introduce textbook content or help to enhance the knowledge required as foundation for the next unit.

3. To help the student increase her knowledge of [science, social studies, humanities], encourage the parents to have her watch educational television programs, such as [Between the Lions, Sesame Street, Reading Rainbow, Nova, National Geographic] and a wide variety of educationally-oriented, interesting videotapes, such as [animal habitats, functions of the body, prejudice, crafts, legends, and conservation.]

4. Encourage the student to watch movies on the topics that she is studying.

5. Show the student how to review material through various sensory modalities (e.g., type it on the computer, listen to it on tape, read the information aloud, and tell it to someone else) and explain the value to her in doing so.

6. Organize field trips for the student to provide direct experiences related to the information that she is or will be learning about.

7. To build background knowledge, supplement instruction with non-written sources of information, such as videos, computer simulations, simulation games, field trips, guest speakers, storytellers, and music.

8. Provide the student with varied experiences to expand cultural and world knowledge (e.g., ballet performances, library and museum visits, observances in a variety of religions, visits to historic places). Before going, tell the student about your trip, the purpose for going, and what she can expect to see and do there before going. Guide discussion and elicit questions before, during, and after the experience.

9. Invest in one or two magazine subscriptions for the student. Select magazines at her independent reading level that will introduce new information about the world and expand her current knowledge. The reference librarian at the local library may be able to suggest magazines to review.
Learning and Study Strategies

[See Recommendations: Memory: Mnemonic Strategies.]

1. Use learning strategies where appropriate to strengthen his ability to hold information in short-term memory while working with it and to help him retrieve the steps of procedures.

2. Teach the student a variety of study strategies that will enhance content area learning. Teach her how to: (a) use mnemonic strategies to improve memory of specific information, (b) review prior tests to determine why errors were made and how to correct the mistakes, (c) summarize sections of the text with an outline or using a tape recorder, and (d) prepare index cards to help memorize factual information.

3. When reading content area textbooks, encourage the student to identify the main points, paraphrase orally what has been read, take notes while she is reading, and reread sections of the text when needed.

4. To improve understanding of text, teach the student how to generate questions by identifying the main idea of a passage and then formulating a question about the main idea.

5. Teach the student a variety of cognitive strategies so that she can actively monitor her comprehension. Teach her how to summarize a passage, paraphrase a passage, create visual representations, and generate questions.

6. Because she has difficulty determining what is important in passages, do not have the student underline material as a strategy for selecting the important information. Instead, provide the student with an outline or study guide that highlights the important vocabulary and concepts and have her fill in the details.

7. Because the student has difficulty deciding on what is important in the text, discuss the important ideas prior to assigning reading.

8. Provide a study guide well before a test. Include questions for key concepts and events. Give to the special education teacher so she can teach the student strategies for how to find the answers and study them, then guide him in using the study techniques in the material to be tested.

9. To help the student work independently but more successfully in a study guide or open-book test, the teacher can organize the questions by where they are found in the book, draw a vertical line with a highlighter down the left side of a section of questions, then write the page numbers of the book on which the answers can be found next to each section of the test/guide.

10. Help the student learn when, where, and how to apply strategies, and to evaluate the efficacy of the strategy. Provide guided practice and feedback as the student learns to use a new strategy.

11. Provide guided practice with all strategy instruction. Work with the student so that she learns how to apply the strategy. As the student gains more competence, have her practice the strategy with materials that are at or slightly above her instructional level. Help the student learn to modify the strategy based the task demands. Check periodically to ensure that the student is using the strategy.

12. Help the student learn to summarize information. Teach her how to delete unimportant information, delete repetitive information, and identify a topic sentence or the main idea for each paragraph. Provide the student with feedback about the quality of her summaries.

13. Encourage the student to enroll in a course that teaches study strategies, efficient methods for studying, time management, note taking, and strategies for improving organization.

14. Whenever it is possible, use a game format for learning (e.g., reviewing for a test by playing Jeopardy with the target information). The student will find it easier to attend to the information and hold it in mind long enough to process it more effectively.

15. Play the Twenty Questions game with the student to activate background knowledge or review/reinforce previously studied material. The “responder” thinks of a person, place, thing, or event and says, “I am thinking of…,” adding a clue to give the “questioner” a place to start. Examples include: a famous explorer, a period in history, a discovery that changed medical thinking, an animal that lived 200 million years ago and is still living. The questioner may only ask “yes-no” questions and must guess the answer within 20 questions. Exchange roles with the student in thinking of a topic and asking questions. Use your turn as responder to model how to move from broader (category) questions to more detailed ones. If necessary, teach the student how to use this strategy. Playing this in a small group may enhance the quality of questions asked and information shared.

HOMEWORK/TIME MANAGEMENT/ORGANIZATION

Related Sections: Attentional Disorders [Class Placement and Class Schedules, Increasing Attention and Time on Task, Task Completion]; Behavior Management and Interventions [Behavioral Interventions]

Contents: Homework/Time Management/Organization
  General
  Communicating with Parents
  Making Homework Meaningful
  Modifying Homework Assignments
  Organizing Assignments and Materials
  Long-Term Assignments/Tests
  Completing Assignments
  Turning in Assignments
  Indirect Teacher Support of Student Organization

General

1. Remember that students with learning problems experience significantly more difficulties completing homework than do their peers. These children are more likely to forget their assignments, lose their homework, and make careless mistakes. The problems may be caused by the fact that the child is easily distracted, overly dependent on others for assistance, or poorly organized. Increased discipline or withdrawal of privileges are not the ways to address incomplete schoolwork. Attempt to determine a successful homework plan that meets the needs of the child and his or her family.

2. Provide the student with after-school tutoring so that he can get extra help with homework.

3. Stress the importance of nightly review of class notes. This will help the student prepare for tests and also have a chance to fill in missing information or ask questions the next day about confusing information.

Assigning Homework

1. When you make assignments, provide the student with clear instructions. State the purpose of the assignment, the date it is due, the format required, materials that are necessary and the criteria for good performance.

2. Establish a routine for assigning homework. Always assign it at the same time (beginning or end of class), have it written or write it on the board, have everyone write it down in an assignment book, and circulate through the room to ensure that the student (and others who may need monitoring) has written it.
3. Establish a routine for assigning homework. At the beginning of the period, write homework assignments on the board in a specified place. Explain the assignment, ask for questions, direct the students to write it in their assignment book, and give sufficient time for them to do so before starting classwork or talking about any other subject.

4. Before the student leaves class, check is assignment book to make sure that he has taken down the assignment correctly, legibly, and completely—and in such a way that his parents will be able to understand what is required.

**Communicating with Parents**


2. Ask the student’s parents whether they are satisfied with the type and amount of homework their child receives, how much time the child is spending, how much assistance is needed, what kinds of problems are encountered, and what suggestions they could offer to improve the homework policies for their son.

3. Ensure that the student and his parents understand the [class, school] homework policy.

4. Keep the parents informed about the student’s homework assignments, as well as problems with homework completion. Focus the communication on problem solving and creating a realistic homework plan for the student.

5. Set up a system by which the teacher and parents can communicate on a daily basis. This may include the use of e-mail, faxes, telephone, the assignment book, or a separate notebook sent between school and home daily. Issues to communicate include missed or incomplete assignments, lost materials, and difficulty with certain assignments. Behavior and emotional stability are best communicated in such a way as to prevent the child from reading the message.

6. To ensure that the student and his parents can always discover what the homework assignment is, establish telephone homework hotlines (updated daily), send homework assignments through e-mail, or post assignments on a web-site.

**Making Homework Meaningful**

1. Before assigning the student homework, ask yourself if the purpose of a homework assignment is to develop skill or knowledge. If knowledge is emphasized, do not allow weaknesses in reading or writing to interfere with activities. For example, make sure that the child can read the history homework or provide the reading on tape.
2. To increase interest in homework completion, select assignments to reinforce what has been learned, alternate math and reading homework on different nights, keep repetition to a minimum, and encourage the student to begin homework in class to ensure that he understands the process.

3. Review and provide feedback to the student on all homework assignments. Include positive along with corrective comments.

4. Ensure that all homework provides practice and review of material that was covered in class and that the student has the skills to complete the work with minimal parental involvement.

5. Assign work that is interesting and relevant to the child’s age level. Provide choice, when possible. Help the student understand how his school work relates to his own skills and experiences.

6. Match the student’s homework assignments to the goals and objectives in his individual education plan (IEP).

7. Ensure that all homework assignments are at the student's independent level of performance. The student should understand what to do and have the skills necessary to perform the task.

8. Use homework to provide independent practice and reinforcement of skills that the student has been taught, understands, and does correctly. Keep the assignments short.

9. Use homework to provide practice in application of skills or knowledge in which the student has demonstrated basic competence.

10. Do not penalize the student for errors made on homework. Instead, confer with him regarding the errors to attempt to determine why they were made. Use this information to design appropriate instruction and/or to revise the homework assignments.

11. If possible, assign homework near the beginning of the class period and explain to the student how to complete it. Give the student some time to start the homework so that you can check for understanding before he leaves class.

12. Do not use homework assignments as punishment or failure to complete assignments as a basis for denying participation in school activities, such as field trips. When assignments become part of a behavior management system, the student’s attitude toward these assignments becomes negative.

13. Do not make homework part of the class behavior management system. This will reduce motivation and encourage the student to develop a negative attitude toward homework assignments.

Modifying Homework Assignments

1. Because the student [has trouble sustaining attention, reads slowly], modify the amount of work that he is required to do at home.

2. Based upon the present circumstances, do not assign the student homework. Instead, provide a time for all homework assignments to be completed and handed in during or after school.

3. Attempt to reduce the amount of homework for the student without changing the purpose of homework. For example, have the student complete only the odd-numbered problems on the page.

4. Modify the amount of homework so that the student can spend increased time in positive non-academic pursuits, such as time with family, sports, music lessons, or socializing with friends.

5. Help the student obtain the phone numbers of at least two students in each of his classes so that he has someone to call after school if questions arise regarding a homework assignment.

6. Reduce the amount of work the student is required to do during independent in-class assignments so that he is more likely to complete his work in school. When figuring the grade for in-class or homework assignments, the reduced amount assigned is considered as 100%. Do not send unfinished class work home for homework.

7. Reduce the amount of work in each area assigned for homework so that the student can complete his assignment in approximately the same amount of time other students are expected to spend. Examples of modified assignments are: solving the odd-numbered math problems instead of all the items, studying 10 spelling words instead of 20, and writing a half-page report instead of a whole page.

8. Due to the student’s attentional problems, he is less efficient than his peers with comparable academic ability and takes considerably more time to complete his assignments. Provide the student with some flexibility in assignment deadlines. Give him some passes at the beginning of the semester that will allow him one or two days, or an extra weekend, to complete and turn in an assignment and some “The dog ate my homework” passes that allow him to skip an assignment altogether, without penalty.

9. Instead of assigning a certain number of pages to read or a certain number of problems, assign the amount of time that the student should work on the homework (e.g., 15 minutes). Have then parent sign the homework when the student has worked for the specified time.

10. For each assignment, have the student record the amount of time it took him to complete the assignment. Have the parent sign next to the recorded time. This will allow you to monitor the quantity of homework assigned to the student.

11. Provide the student with a certain number of excused homework assignments.

12. Allow the parents to help decide which homework assignments should be reduced or modified. Accept their requests for extended due dates.

13. When assigning homework that does not have obvious academic application, such as coloring a picture, doing word searches, or making cards, make the assignment optional for the student. His [general work pace, inefficient attention, struggle with basic skills, academic tutoring] will continuously require more time than other students will have to put in.

14. Student’s teachers should hand back all of his assignments with specific comments about what he did well and what he needs to improve. Comments such as “Nice job” are too general to help him improve his skills.

**Organizing Assignments and Materials**

1. Teach the student specific study skills to help him approach homework tasks more efficiently and effectively.

2. Have a tutor, resource teacher, or academic coach teach the student how to (a) organize homework and assignments, (b) complete the work, and (c) turn in the work on time.

3. Help the student develop a notebook for organizing class notes and assignments. Use a binder notebook that is divided into several sections and has pockets that may be used for completed assignments.

4. Provide the student with a separate folder that he may use to transport homework to and from school. Have him place new assignments on one side of the folder and completed assignments on the other side to be handed in on the next day. [See Strategies: Organization of Materials and Assignments.]

5. Provide the student with an assignment book in which to write his homework for each class. Check it for legibility and accuracy and sign it. If there is no homework, have the student write "none" and have it signed. At homework time, have the parent check their child's assignment book, help him prioritize the assignments, check the completed homework, and sign his book for each completed assignment.

6. Before the student goes home, check his assignment book to ensure that all homework assignments are legible, accurate, and complete.

7. Ensure that the student has an assignment book that he brings home from school every day. Have the teacher or a responsible peer check his assignment book to ensure that he has the needed materials.

8. Encourage the student to write down all homework assignments as they are given. If he is confused about an assignment, have him meet with the teacher after class or during office hours.
9. Help the student set up an assignment notebook to organize assigned tasks and materials. [See Strategies: Organization of Materials and Assignments.]

10. Have the student read a book entitled *Becoming a Master Student* (Ellis, 2000) that provides numerous study strategies, planning techniques, and time management strategies.

11. Do not penalize the student for errors made on homework. Instead, confer with him regarding the errors to attempt to determine why they were made. Use this information to design appropriate instruction and/or to revise the homework assignments.

12. Because the student requires more assistance, structure, and supervision than most [ninth-graders] of comparable ability to get started on assignments and to carry them to completion once begun, program into his schedule a time at the beginning and the end of each week with [each of his teachers; one designated teacher; his counselor] to develop a written schedule for working on assignments.

### Long-Term Assignments/Tests

1. Do not assign more than one long-term project at a time. The student needs support to manage the organization of just one such project.

2. Teach the student how to plan for long-term assignments. For example, he could establish intermediate, sequential deadlines on each assignment within a unit of work and place each completed piece in a special folder on the "due date." The next-to-last date would be the due date for the last assignment and the final date would be when the entire contract is due. The intervening time would be used for final proofreading and editing. Alternatively, record progressive due dates on the assignments within the contract and have the student hand in each assignment as he completes it.

3. For long-term assignments, have the student break the assignments into steps, schedule a deadline for each step, and schedule time in his assignment calendar for him to actually work on that step. Have the student hand in each step of the assignment before going on. If needed, tape a month-long calendar on the back of the student’s homework folder so that he may keep track of the steps of the project.

4. Notify the student’s parents as far in advance as possible of any major project that the student will need to work on at home. Examples include research reports, book reports, map drawings, timelines, science fair projects, and upcoming tests. Provide written instructions to the parents that include all of the requirements for the project and the grading criteria.

5. Whenever the parent is notified of a long-term project, encourage the parent or a tutor to help the student break it into stages and write deadlines for the completion of each stage on a large wall calendar. Set aside a certain amount of time nightly or weekly to work on the project.
6. Teach the student specific organizational skills to use with homework. These may include: (a) learning how to keep an assignment book, (b) learning how to task-analyze assignments, (c) allocating appropriate amounts of time to complete assignments, (d) identifying and locating required materials and information, and (e) planning the steps leading to completion of extended assignments, such as term papers.

7. Teach the student to record information concerning upcoming tests on a special Test Information page immediately following his regular assignment calendar sheet. Or, the student may designate a special section in the assignment book for test information.

8. Teach the student how to record information regarding tests as follows: (a) the date of the test (on the Test Information page and in his regular calendar), (b) the chapters to be covered, (c) the dates of lecture notes to be included, (d) additional information such as field trips or movies, (e) the type of questions to be asked (e.g., essay, multiple-choice), and (f) the point value of the test. Have the student note any information that the teacher states will not be on the test.

9. Teach the student to ask his teachers periodically about upcoming test dates. Some teachers announce tests only a few days ahead of time and the student needs additional time to prepare for tests.

10. Teach the student to include on his assignment book or calendar specific days and times to study for an upcoming tests. Have him note what information to study in each session and the method he is going to use.

11. Maintain and post on the wall a master list of in-class assignments, homework assignments, and tests. This will help the student self-monitor what assignments are currently due and which have not yet been completed.

Completing Assignments

1. Review homework assignments and take-home tests to ensure that the student has completed all sections and items. Return any incomplete assignments/tests to the student for completion, without penalty.

2. Provide the student with homework excuse slips when he completes a certain number of assignments.

3. Develop a school schedule for the student in which one class (e.g., elective, foreign language) is replaced with a study hall or a second study hall to allow for tutorial support and in-school homework time. This alleviates the problem of the student doing homework after school when he is cognitively exhausted and is without the benefit of medication.
4. Have the student graph the number of completed homework assignments for the week or the month. Have him make three columns: homework completed (color a green square); homework late or not all the way done (color a yellow square); homework not started (color a red square). Provide a reward when the student achieves a predetermined number of green squares.

5. If the student fails to complete homework assignments, talk to him about why the assignment was not completed and assist him in developing a system to make certain assignments are completed. Consider specific adaptations in assignments and whether too many assignments are being made.

6. Request that the student's parents help him create a clean, quiet, organized space for nightly homework.

7. Request that the student's parents set aside a regular period of time each day for homework and that one parent be available during that time to provide help, as needed.

8. Before the student begins each night's homework, ensure that he understands what he is required to do and then encourage him to complete the homework independently.

9. Before beginning nightly homework, help the student review all assignments, estimate the time each will take, prioritize them, and then list them in order on an index card. As the student finishes an assignment, have him cross it off the list.

10. Encourage or help the student to remove unnecessary papers from his backpack or notebook periodically. Help the student learn how to keep the notebook organized.

11. Set a specific amount of time for the student to work on homework and include short breaks. Have the parent sign the paper when the student has completed the pre-established amount of time.

12. Encourage the student to estimate how long a task will take and the time needed to complete the task. Trying to meet his estimated time will help the student sustain attention and increase his accuracy in estimating the necessary time.

13. To involve the student in self-monitoring homework completion and accuracy, have him correct and evaluate his own assignments.

**Turning In Assignments**

1. As the student often completes his homework and then forgets to turn it in, remind the student daily to turn in his homework and specify that he is to do it right then. Make sure he does so.

2. Regardless of the classroom routine for turning in homework, have the student hand his directly to the teacher. The teacher is then aware of whether or not he has done so and can remind him if necessary.
Indirect Teacher Support of Student Organization

1. Maintain a consistent schedule. Have daily activities planned in a consistent, and thus, predictable sequence. A consistent schedule facilitates classroom routines, daily reinforcement of skills and information, development of student independence in getting ready for and starting activities, students feeling in control and competent, and students ability to discuss their day and remember what they did.

2. Keep the physical environment organized. Maintain the room with the appearance of orderliness and tidiness. Have materials categorized and placed by function, frequency of need, and who needs to get them. Have materials put away when not in use.

3. While explaining activities and tasks, tell students the purpose of the activity or the objective of the lesson, and what they are supposed to know or be able to do when it is completed.

4. In planning lessons: (a) Know your specific teaching objective. What are the students supposed to be able to do when they complete the activity? (b) Plan how you are going to present the material or lesson; (c) Plan the steps through which you will take the students to achieve your teaching objective; (d) Have the materials ready and immediately accessible; (e) Plan what the students will do on their own based on what they have learned.

5. Explain your expectations for behavior during transitions between activities. Teach transition behavior the same as you would any other skill. Provide practice.
TESTING/TEST-TAKING

Contents: Testing/Test Taking
- Note to the Reader
- Test Instructions
- Test Format Modifications
- Strategies
- Extended Time on Standardized Tests
- Test Environment

Note to the Reader: Accommodations are based on the student’s daily instructional needs, not used only on tests or assessments. Each accommodation should be related to the individual student’s needs and reduce or minimize the impact of the student’s disability on accessing the general curriculum and demonstrating knowledge and skills. Accommodations must be reasonable as well as documented on the current 504 Plan or the IEP. Use of normative scoring is appropriate for most testing accommodations, such as extended time.

Modifications are designed to support and enhance learning so that the student may progress academically. Modifications may include out-of-level testing and nonstandardized procedures. In many cases, these modifications will preclude the use of normative scoring. As with accommodations, modifications must be supported by diagnostic evaluation and documented on the IEP.

Test Instructions

1. When administering [classroom, standardized tests], [select any that are appropriate]
   - speak directly to the student; make eye contact.
   - ask the student to repeat or paraphrase the instructions.
   - read the instructions to the student.
   - paraphrase the instructions for the student using simpler language. Alternatively, give the instructions in smaller increments.
   - highlight the key words or elements in the instructions so that the student is more likely to attend to them.
   - draw a border around the instructions to separate them from the rest of the printed information.
   - use oral cues or prompts to remind the student, at key points, what he is supposed to do.
   - monitor the student’s work periodically throughout the testing to ensure that he has not forgotten the instructions and is doing the test correctly.
   - Encourage the student to ask for clarification of the instructions before starting the test and during the test, as needed.

2. After giving the instructions to the group, reread the instructions individually to the student, page by page or section by section.
Test Format Modifications

1. Permit the student to take open-book exams.

2. Reduce the number of questions that the student will be required to answer on a test.

3. Instead of having one comprehensive test at the end of a chapter, provide the student with short, daily quizzes to monitor progress.

4. Sequence the questions on the exam from easy to difficult. Either assign the student a certain number of questions to complete or just the questions at his present performance level.

5. Review exams and identify the questions appropriate for the student. On the exams, circle each question you would like him to complete. Inform the student to start with the circled questions and then to complete any other questions if he has enough time.

6. Because of difficulties with writing, when assessing the student's knowledge of content areas, keep writing requirements to a minimum. On tests, provide him with multiple choice, matching, true-false, or sentence completion questions, rather than essay questions.

7. In content area classes, allow the student to take oral examinations so that you can accurately assess what he has learned rather than what he is able to read or write.

8. In content area classes, have the student take the written test along with the other students. Tape record the test and provide him with earphones so that he will not have difficulty understanding the questions. Schedule a time to meet with him after the test so that he can respond to the questions orally. Compare his written and oral answers and give credit for accurate content contained in both.

9. On math tests with word problems, tape record the word problems for the student. Say the number of the item, pause (giving the student time to pause the tape recorder while he finds the problem), read the problem slowly, pause, and read it again. The pauses allow the student time to find the problem and when he needs more time, to pause the tape recorder without losing information.

10. On timed examinations, only review and score the items that the student was able to complete.

11. Because of his difficulties in maintaining his place while reading, provide the student with large print format on all test materials. Allow the student to mark responses directly on the test rather than using an answer sheet or bubble key.

12. Provide study questions for exams that demonstrate both the test content, as well as the type of test format. Provide several illustrations of what constitutes both an acceptable and a good response.

13. Encourage the student to find out from instructors prior to examinations what format will be used (e.g., short answer, essay, multiple choice). Ask the instructors if practice exams or sample exams are available for additional practice.

14. Teach the student how to adjust his studying for the kind of test that will be given. Use practice tests as a means for practicing the type of test format.

15. Test formats have different implications for studying. Ensure that the student knows the types of questions that will be on the exam. For an essay exam, the student needs to be prepared to write about general principles and concepts. For a multiple choice exam, the student needs to be able to identify, rather than produce information (Scruggs & Mastropieri, 1992).

16. Prior to exams, provide the student with practice tests that have a similar format and question type. Exposure to the test format will reduce test related anxiety and improve performance.

17. Teach the student the following pointers for answering multiple-choice questions: (a) Make sure you know the meaning for “All of the above” and “None of the above,” (b) Read the question stem, (c) Underline any key words (e.g., not, unless, except, incorrect, false, never, always), (d) Read the stem of the question along with each answer choice, (e) Cross out each incorrect answer choice. If more than one choice is left when you are done, read the stem with each of the answer choices remaining. Choose the best, (f) Do not change an answer unless you are sure it is incorrect. Generally, your first answer is correct.

18. Teach the student the following pointers for answering true-false questions: (a) Assume an answer is true unless the statement can be proven false, (b) Be sure that all parts of the statement are correct before marking it true, (c) Watch for negatives such as not or prefixes such as in (e.g., infrequently), since these can completely change the meaning of a statement, (d) Simplify statements that contain a double negative (e.g., “Birds that are not black cannot hunt at night” becomes “Only birds that are black can hunt at night.”), (e) Assume that absolute statements are false, and that qualified statements are true.

19. When answering questions on a bubble response sheet, have the student mark the row he is to write his response on with a small and lightweight mousepad. It can be moved down to the next line easily but is less likely to move accidentally than an index card or paper.

20. When the student takes a test using a bubble response sheet, provide an enlarged copy of the response sheet to make it easier for the student to keep his place.

21. Because the student has difficulty keeping her place and moving her eyes efficiently from one paper to another, do not require the student to use bubble sheets for standardized tests. Instead, permit her to circle her answers directly on the test.

22. To accommodate for her deficiencies in the rapid processing of symbols, all the student to mark her answers in the booklet rather than on the scantron sheet.

23. On all tests, use a format that provides ample white space between lines of print and between other print or graphic information on the page. Increase the spacing between items.

24. On tests, draw a border around the instructions with one color highlighter and separate other clusters of items by different color borders (e.g., questions, graphics).

**Strategies**

1. Teach the student that on all tests he should use his time wisely, read all directions and questions carefully, attempt to answer every question, and ask for clarification any time he is uncertain or does not fully understand a question (Putnam, 1992, p. 20).

2. Teach the student specific test-taking strategies, such as reading over the entire test before starting, outlining the answers to essay questions, and reading all multiple-choice answers with the stem sentence before selecting a response.

3. To help the student represent his knowledge on tests, teach him the following steps: (a) read the test instructions before starting, (b) Ask for clarification of any instructions that you do not understand clearly, (c) Look through the test to get an idea of how much you need to do in the time allowed, (d) Decide how much time you should use to answer each item, (e) Answer easy or known items first. Then go back to the hard ones, (f) Answer all items unless there is a penalty for guessing.

4. Teach the student how to eliminate answers on multiple choice tests, and then to select one of the remaining items.

5. Teach the student to preview a test before starting to write and to circle any items with which he will have difficulty. Then the student should take the test, answering all of the items for which he knows the answer. If the student skips a question, he should write its number down after the last question to remind himself to go back to answer it.

6. Teach the student how to read test questions carefully. Have him underline the verb that describes what he is to do and then follow the directions exactly.

7. Teach the student how to employ prewriting strategies, such as brainstorming, writing down thoughts, and then organizing the key ideas before answering an essay question.

8. Teach the student how to estimate the amount of time he will need to complete specific questions on exams composed of several short essay questions.

9. For tests with lengthy reading passages, teach the student how to skim the information briefly and then to proceed directly to the questions.

10. On multiple choice tests, teach the student to read the stem and then to attempt to think of the correct answer before reading the choices, then consider all answer choices, use elimination strategies, consider specific determiners (e.g., *always* or *never* which are often false), and consider which question stem bears the most logical relationship with the answer (Scruggs & Mastropieri, 1992).

11. Teach the student to prepare for tests so that his stress and anxiety will be reduced.

12. Have the student practice the SNOW strategy (Scruggs & Mastropieri, 1992) to answer all essay questions. Study the question, Note important details, Organize the information, and Write directly to the point.

13. Teach the student the PIRATES Test Taking Strategy (Hughes & Schumaker, 1991) for answering objective tests [See Strategies: PIRATES Test-Taking Strategy.]

14. For short answer questions, encourage the student to: read each question carefully, be brief but complete, ensure that the response answers the question asked, and use information from the rest of the test to help confirm answers.

15. To answer essay questions, encourage the student to: read the directions carefully, read each question carefully, outline a response, get to the point quickly, and respond to all parts of the question.

16. Prior to taking essay exams, encourage the student to anticipate the questions and to write out answers for these questions.

17. Encourage the student to ask instructors for clarification when he does understand what a question means.

18. Help the student learn to read test directions carefully. Have him underline the verb that tells what you are supposed to do and then follow the directions precisely.

19. Teach the student how to turn essay questions into the topic or main sentence for the essay. By rephrasing the question into a statement, by rereading the topic sentence, the student will be able to ensure that he is maintaining the topic.

20. Teach the student the following strategies to use when she is required to use separate answer sheets or bubble sheets: (a) fold test booklet so that only one page is showing, (b) ensure that the subtest matches the numbers on the answer sheet, (c) check the page number each time the page is turned, (d) note whether the answer sheet has one or two sides, and (e) mark answer choices clearly (Scruggs & Mastropieri, 1992).

21. Teach the student one or two relaxation techniques that he can use during tests to alleviate his anxiety.

**Extended Time on Standardized Tests**

1. Provide extended time on tests. Because of the student’s difficulty with [sustained and focused attention, speed of information processing, and work production under time constraints], it is critical to differentiate between lack of sufficient knowledge and lack of sufficient work time.

2. Because of his slow reading rate and processing style, the student needs additional time to read, comprehend, and analyze material.
3. Because of his slow reading rate, permit the student to take untimed exams.

4. As the student’s processing speed and reading rate are significantly low, provide extended time on all in-class tests and exams, as well as standardized examinations.

5. The student’s processing speed, short-term memory, and long-term retrieval are all significantly lower than his verbal abilities. The student will require additional time on tests so that he can accurately demonstrate his knowledge and abilities.

6. Given the student’s difficulty with [retrieving and producing information within a time-limited frame], provide the student with a [50%] increase in time allotment on all [standardized, classroom.]

7. Provide the student with untimed administration of all group-administered, standardized tests. Test results under time constraints would not allow the student to demonstrate his current skill and achievement levels.

8. The student possesses superior oral language abilities. His difficulties with [insert areas related to low performance] do not let him demonstrate his potential on tests that have stringent time limits. Provide the student with extended time on examinations so that he can demonstrate his capabilities.

9. Because he requires more time to process linguistic information, administer all standardized tests with extended time. This will allow for a more accurate assessment of the student’s abilities.

10. Given that the student’s weakness is in formulating ideas for written expression, extended time is not necessary for multiple choice or reading comprehension tests, but is recommended for all tests requiring lengthy writing, such as essay tests.

11. Based upon the type of task, the student may need extended time on certain assignments and exams. Decisions and arrangements will need to be made in conjunction with the class instructor.

12. Remove the time constraints from all exams so that the student is able to demonstrate his knowledge.

13. Encourage the student to request untimed or extended time on exams that are designed to assess his knowledge, such as college entrance exams. Have him meet with the school counselor who will provide the appropriate forms and application materials for seeking accommodations.

14. Whenever possible, eliminate time constraints on written work. Additional time will help the student organize, write, and monitor her work without the anxiety of a time limit.

15. Remind the student that extended time is not the same as unlimited time and that he will still be required to pace himself during testing.

16. Discuss with the student the maximum amount of time he can focus optimally in the test situation and break up testing sessions so as not to exceed that length of time.

17. Shorten test sessions and either provide frequent breaks or spread out the sessions over several days.

**Testing Environment**

1. Administer all tests in a separate, quiet environment.

2. Because the student has difficulty concentrating, permit him to take exams in a quiet room without other students present.

3. Allow the student to take his tests in a private setting so that he does not get distracted by noise and frustrated when other students finish more quickly.

4. To enable the student to dictate responses into a tape recorder, administer his test in a room separate from other students.

5. Because the student will have a reader for all testing, provide him with a separate, quiet setting.

6. Administer tests to the student either individually or in a small group setting.

7. Within the testing room, seat the student so as to minimize distractions. This may be a specific area of the room (e.g., away from windows, door, air conditioning unit), a study carrel, close to the administrator, or away from particular students.
ATTENTIONAL DISORDERS

Related Sections: Homework/Time Management/Organization; Behavior Management and Interventions; Knowledge/Content Areas/Study Strategies: Learning and Study Strategies; Memory; Social Skills/Self-Esteem; all achievement sections

Contents: Attentional Disorders

Note to the Reader
Further Evaluation
Service Delivery and Documents
Parent as Advocate, Educating School Staff, Case Managers
Maintaining a Reality Perspective
Class Placement and Class Schedules
Environmental Accommodations
Giving Instructions
Helping the Student Follow Through on Instructions
Maintaining Routines, Departures from Routine
Teaching Approaches and Modifying Task Characteristics
Beginnings and Transitions
Increasing Attention and Time On Task
Task Completion
Improving Academic Performance
Directing/Controlling Activity Level
School-Home Communication
Developing Self-Advocacy in Older Students
Building/Maintaining Self-Confidence and Self-Esteem
Non-Educational Treatment Considerations

Medication Usage
Monitoring Medication Effects
Counseling, Parent Training, Educational/Support Groups
Note to the Reader: In accordance with the Diagnostic and Statistical Manual of Mental Disorders IV (DSM IV), disorders previously referred to as Attention Deficit Disorder with and without hyperactivity will be referred to as Attention Deficit Hyperactivity Disorder (ADHD). Students may fit any of the three types: Impulsive-Hyperactive, Inattentive, or Combined. Students with ADHD typically require behavior management techniques--often the same techniques as those recommended for a broader range of students with behavior disorders unrelated to or comorbid with ADHD (e.g., Oppositional Defiant Disorder, Conduct Disorder, Antisocial Personality Disorder, Depression, Tourette Syndrome). These techniques are found in a separate section: Behavior Management and Interventions. Many of those recommendations are critical to the improved functioning of students with ADHD and were developed for and researched with students with ADHD. Other related sections are listed above. When choosing recommendations from any section for a student with ADHD, it is important to differentiate between a skill deficit (not knowing the skill) and a performance deficit (not using a known skill), and between problem behaviors that are intentional and within the control of the student and those that are secondary to weak self-regulation. As with other sections of Recommendations, an evaluator must use specific information about a student's unique characteristics and needs to determine which recommendations are likely to be most appropriate and effective.

Further Evaluation

1. Because the student has noticeable difficulty staying on task, working carefully on mildly challenging tasks, and sitting reasonably still, consider consulting a [behavioral pediatrician, psychiatrist, psychologist] about the possibility of Attention Deficit Hyperactivity Disorder.

2. Provide a questionnaire/checklist specific to ADHD to the teacher(s), parent(s), and student. An example of one such scale is the Conners’ Rating Scales—Revised and, specifically, the DSM-IV Symptoms scale and the ADHD Index within the CRS—R. Subsequently, interview the respondents individually to follow-up responses of concern. Be aware that the respondents’ interpretation of the questions, and thus their responses, may differ substantially from the evaluator’s.

3. During the next month, monitor the individual's behavior for characteristics of Attention Deficit Hyperactivity Disorder. Conduct several classroom observations to document the percentage of time he is on or off task, have teachers complete standardized questionnaires, and establish a behavioral program addressing the most problematic behaviors. If a structured behavior management program does not produce the desired changes, suggest that his parents schedule an appointment with [their pediatrician, a behavioral pediatrician, a psychiatrist, a psychologist] who has expertise in ADHD.

4. Meet with the student's parents to discuss further concerns about Attention Deficit Hyperactivity Disorder. Refer them to their pediatrician [or a behavioral pediatrician, a psychiatrist, a psychologist with expertise in ADHD] to investigate this condition, to rule out other behavioral or medical disorders that may present as ADHD, to educate the parents and child, and, if a diagnosis is made, to establish a treatment plan.
5. The student's behaviors suggest a need for a [psychological, psychiatric] evaluation to diagnose or rule out a psychological or behavioral disorder and, if appropriate, to suggest treatment.

6. If the student's parents are reluctant to pursue the possibility of an ADHD diagnosis with their physician, have the school assessment team conduct a comprehensive evaluation and, if findings warrant, classify the student, for educational purposes, as having ADHD.

7. After the student has been stabilized on medication, re-evaluate his cognitive and academic performance.

**Service Delivery and Documents**

1. Due to the deleterious effect of his ADHD on his ability to benefit from the instruction offered in the classroom, his ability to demonstrate his knowledge in classroom productions, and his ability to develop age-appropriate social relationships, provide the student with resource services and accommodations in accordance with the provisions of Section 504 and the Individuals with Disabilities Education Act (IDEA: Other Health Impaired).

2. As the student has been diagnosed with ADHD as well as [learning disabilities], write behavioral objectives, modifications, and accommodations addressing his ADHD-related [educational, organizational, and social] needs into his Individualized Educational Plan along with those for his [learning disabilities].

3. As the student’s ADHD symptoms disrupt his learning, as well as the learning of others, to a significant degree, assemble a team to write a Functional Behavioral Assessment and Behavioral Intervention Plan.

**Parent as Advocate, Educating School Staff, Case Managers**

1. Seek a multi-modal treatment approach for the student that includes parent training in relating to and managing the behavior of a child/adolescent with ADHD, a systematic behavioral intervention that is implemented consistently, and medication, the effects of which are closely monitored by the school staff with frequent feedback to the parents and the prescribing physician.

2. Meet with the school [principal, appropriate agent] to request initiation of procedures to evaluate [or establish] the need for an accommodation plan (under Section 504 of the Rehabilitation Act of 1973) or an Individualized Education Plan (under the Individuals with Disabilities Education Act) to facilitate the student's success in the school setting. Follow up with a written request.

3. Before the beginning of the school year, meet with the student’s teacher(s) to explain Attention Deficit Hyperactivity Disorder [or other conditions/disorders], how this condition is manifested in the student’s behavior, and the situations in which the problem behaviors are most likely to occur. Discuss with the general education teacher(s) his or her key role as a member of the treatment team and solicit cooperation in working with the [psychologist, counselor, pediatrician] in establishing accommodations and interventions as needed.

4. Help the student’s teacher learn more about Attention Deficit Hyperactivity Disorder by providing reading material, videotapes, suggestions as to helpful technological devices, and a list of informational websites.

5. When considering the student's negative classroom behaviors, attempt to differentiate between a skill deficit (not knowing the skill) and a performance deficit (not using a known skill), and between problem behaviors that are intentional and within the control of the student and those that are secondary to weak self-regulation. Do not punish the student for behaviors that are symptoms of the disability (e.g., poor self regulation, impulsive actions, lack of organization, poor listening) until you have established a behavioral program that delineates and supports expected behavior and clearly spells out the consequences for infractions of the rules.

6. All staff working with the student need to be educated about ADHD and how this disorder affects the student's behavior and performance.

7. Shortly before the end of the current school year, schedule a meeting with the school principal and this year's teacher and/or counselor to discuss the instructional style and behavior management system to which the student responds best. Use that information to decide on next year's class placement.

8. At least [four times a year], request a meeting with the teachers in which they can show you the materials they are using with the student, how they are being used, how the student is progressing, the skills with which he is having particular difficulty, and how you can help.

9. Educate the school bus driver (e.g., small pamphlet, lend a videotape) about ADHD in general, the problematic behaviors the student is likely to display on the bus, and ways to prevent or handle them.

10. Assign the student to a case manager [or designate the student's counselor as case manager] to coordinate the multiple services the student is receiving, to ensure that the requirements of the accommodation plan [or the accommodations listed on the IEP] are being met, and to act as a facilitator between the school staff and the student, his parents, physician, and his outside counselor.

11. Help ensure that the student is receiving optimal benefit from his medication by notifying the case manager immediately if the student starts demonstrating hyperactive, impulsive, or inattentive behavior in excess of that expected for other students of his chronological age.

Maintaining A Reality Perspective

1. Ensure that the parents and teachers understand that the behaviors the student exhibits relative to ADHD are neither caused by poor parenting nor lack of effort and caring on the student’s part but by the student’s neurological makeup.

2. Keep a perspective about the nature of a chronic disability. Remember that the student did not choose this condition and probably won’t grow out of it. ADHD is managed, not cured.

3. When setting up a behavioral intervention for a child with ADHD, ensure that the adults involved understand that external support for maintaining the target behaviors (e.g., attention to task, not bothering others) may be ongoing. For most children with ADHD, behavioral changes are not maintained after the support has been faded.

4. When establishing accommodations and modifications in the school setting, adjust expectations and remain focused on the goal. For example, because of his disability, the student may be having difficulty remembering to write down his assignments and, consequently, does not complete his homework. Decide which goal is most immediate and achievable. If it is completing homework so he can participate in class and keep his grades up, he must have help in writing down his assignments. Without support in the latter, he will fail in both.

5. Do not personalize the student's problems or see the negative behaviors as a lack of respect for you and your authority. Recognize that the student is not in a power struggle with you; he is "stuck" within his disability and is unable to take a different perspective at the time.

Class Placement and Class Schedules

1. Schedule the classes most likely to be difficult for the student in the morning and electives in the afternoon.

2. Develop a school schedule for the student in which one class (e.g., elective, foreign language) is replaced with a study hall or a second study hall to allow for tutorial support and in-school homework time. This alleviates the problem of the student doing homework after school when he is cognitively exhausted and is without the benefit of medication.

3. Students with ADHD generally do well with calm and well-organized teachers who use daily routines and positive, consistent behavior management techniques, who are comfortable accommodating individual needs, who can correct without being critical, and are knowledgeable or willing to learn about the behavioral characteristics associated with ADHD [or other behavioral disorders.]

4. The student requires a class placement incorporating the following components:
   - a highly organized teacher with a structured and systematic teaching style and calm, respectful manner of interacting with students;
   - a behavioral program with clear rules, frequent and immediate positive reinforcement for target behaviors, and immediate consequences for specified negative behaviors;
Recommendations: Attentional Disorders

- a consistent daily schedule so that areas of academic instruction, recess, and routines (e.g., passing out daily work, assigning homework) are done in the same manner and order daily;
- a morning review of each day's schedule (with the student given a copy of his schedule for that day);
- a minimum of classroom noise and confusion (visual and auditory);
- a system in which students are aware that a transition is coming, when the current activity will end, what will happen next, and what they are expected to do to be ready; and
- an emphasis on interactive and participatory instructional activities in which students have little or no wait time.

Environmental Accommodations

1. Place the student in as small a class as possible.

2. Keep classroom noise to a minimum. The Classroom Noise Monitor monitors the noise level of the classroom and at a preset level sounds a buzzer and displays a red light.

3. Seat the student away from possible distractions, such as the air conditioner, the window, or a talkative the student.

4. Provide a visually quiet, non-distracting place in the classroom where the student can go when he needs or wants to work in a more isolated environment.

5. Have a portable study carrel available for the student to either put on his desk or have a permanent study carrel available, separated from most of classroom activities. Allow the student to move to that desk when he feels that separating himself would help him to focus his attention.

6. Seat the student close to the teacher so that she may help him to remain on task or to return to task. The proximity of the teacher will help the student stay involved in teacher-directed and interactive tasks and make it easier for the teacher to make frequent contact and provide feedback during independent work.

7. Circulate through the classroom, in a random path, between the tiers or pods of desks, during all types of activities. This facilitates more frequent contact with the student while at the same time increasing the frequency of your physical proximity to other students. Moreover, teacher movement helps students remain on task by heightening their awareness that you are likely to be at any student's desk next.

8. Arrange desks in a multi-tiered horseshoe pattern or pods of 4 desks to provide easy access to each desk. The figure below illustrates these seating arrangements.

9. Schedule more cognitively demanding classes in the morning, leaving electives, more active classes, or classes that hold special interest for the student in the afternoon.

10. To preclude pushing and touching, avoid situations in which students are in close proximity (e.g., lining up, seats crowded around a table).

**Giving Instructions**

1. Encourage the student to ask for clarification and repetition of instructions.

2. Make sure you have eye contact with the student before speaking to him or giving oral instructions.

3. When giving instructions for an activity, provide enough time for the student to accomplish each step before going on. For example, wait until the student has found the correct page in a text before explaining the task.

4. Make oral instructions clear and concise. Simplify complex instructions and avoid multiple commands.

5. Explain all the instructions clearly before allowing the student to start any assignment.
   Methods for helping to clarify the instructions for the student and the group include: having the student or another student repeat the instructions to the group; modeling the activity before having students start; or pretending to model the activity and asking the students to try and catch you in mistakes. Make mistakes deliberately, and, when caught, ask, “What did I do wrong? What was I supposed to do?”

6. Before speaking to the student, come within three feet of him and say, "____, look at me." Once he has made eye contact, continue with what you wanted to say. Do not do this in such a way or in situations (e.g., large group interactions or lecture) in which attention will be drawn to the student.

7. Always write homework assignments on the board or on a handout for the student to take home.

8. For whole group instructions, the following sequence is helpful:
   a. Decide on a signal to let students know you want their attention. Use the same signal consistently. Examples are ringing a bell, tapping a triangle, turning the lights off and on, turning on a music tape, and saying, "Attention please." Another way of getting students’ attention is to tell them to make some physical movement (e.g., “Put your hands on top of your heads”). The students who are not paying attention notice the others doing this and look to see what is happening. Signals other than voice are easier for students to differentiate from background noise.
b. Do not speak until all students are quiet and looking at your face. (Be aware that in some cultures, making eye contact with an elder or authority figure is considered rude.)

c. Establish helping behaviors to guide students in helping each other to turn their attention to you. [See Strategies: Behavioral Interventions for the Whole Class.]

d. Give instructions briefly, clearly, and in the same sequence as they are to be followed.

e. Write instructions on the board as backup or for students who process information more slowly or have poor memory.

f. If a transition will follow the instructions, teach students that nobody moves until all instructions have been given and the teacher gives the transition signal. [See Strategies: Transitions Between Activities.]

### Helping the Student Follow Through on Instructions

1. To counteract the student's tendency to forget to follow the second and third instruction within a set on worksheets, have him highlight each instruction in a different color. Each time he completes one, he checks it off.

2. Talk the student through a set of multiple instructions so that he can break the task down into do-able steps. Help him write down the steps on an index card, or do it for him, so he has a visual reminder.

3. With the student's prior permission, set up a buddy system by selecting a student who will repeat or explain instructions to the target student at his request.

4. To offset the student’s difficulty holding multiple instructions in mind, always write instructions on the board. If possible, do so before giving and explaining them orally.

### Maintaining Routines, Departures from Routine

1. Keep the daily schedule consistent. Routine sets up a structure in which the student can develop a sense of inner organization and control rather than feeling as if the day's activities and schedule happen arbitrarily.

2. Within the classroom routine, vary types of tasks, shorten work periods, and provide frequent reinforcers for staying on task or working carefully.

3. As children with ADHD often respond poorly to changes in routine, warn the student ahead of time, privately if possible, about any upcoming change and how it will affect him.
4. When planning situations that will depart from the normal routine (e.g., field trips, assemblies, parties), think ahead to the problems the student may have in this situation as well as preventive techniques to avoid them. For example, on a lengthy bus ride, you may ask the student to act as your helper and sit next to you. On a trip through the planetarium, you could pair him with a well-behaved student and have them lead the line. Provide frequent positive feedback for good behavior.

**Teaching Approaches and Modifying Task Characteristics**

1. Shorten classroom activities and provide frequent change. This may be done while maintaining the focus on the same academic topic.

2. Incorporate instructional techniques that allow for hands-on work or activities that allow for experiential learning.

3. Do not assign more than one long-term project at a time. The student needs support to manage the organization of just one such project.

4. Be careful to keep material and tasks at the student's instructional level or, depending on the task, his independent level. Materials that are too easy encourage boredom, those that are too hard, produce frustration. Either increases the likelihood of acting out behaviors or giving up.

5. Allow the student to work at his own pace rather than at a pace set by another person. Time pressure adds a stressor that interferes with reflective thinking and problem solving.

6. During instructional time, rather than using the chalkboard or whiteboard, use an overhead projector. This allows you to face the class while writing, maintain interaction more effectively, as well as demonstrate certain skills (e.g., math) with materials made for overhead instruction.

7. On easy or repetitive tasks, increase stimulation through the addition of shapes, colors, and textures.

8. Use as many games, hands-on or interactive activities, and interesting, colorful materials as possible to sustain the student's attention and make learning fun.

9. When planning academic skill and concept instruction, try to incorporate activities that show their functional and pragmatic use - how they are necessary for life outside of school.

10. Use interactive teaching approaches. The student may find it easier to attend to task when involved in cooperative learning groups, guided student discussions, and activities with a high level of teacher-student interaction.

11. The student is more likely to benefit from instructional approaches that promote active student involvement and emphasize understanding of ideas and concepts, with less emphasis on rote memory and retrieval of facts. Encourage active discussion and debate of ideas and their real-life implications and applications.

12. While lecturing, help the student maintain focus or return to focus by incorporating verbal cues to alert him that something important is coming. This may be done by changing your voice inflection, or stating a warning such as, “This next information will be on the test,” “Listen. This is important,” or “OK. Now we are done with ….. and are changing topics. The next topic is….”

13. Prior to a lecture, write an outline on the board and review it with the class. Not only does this provide a vital framework for the information that will be presented, it also allows the student to reorient himself if his attention wanders during the lecture.

14. Wherever possible, contextualize new information by relating it to real-life examples or applications. Also, teaching scientific, literary, or historical events with stories (emphasizing the human challenges, conflicts, decision points, and drama) will increase the student’s interest and attention, thereby facilitating his retention of new information.

15. In cooperative learning groups, make sure that each student has a well-defined role or task and that the student knows what is expected of him.

16. Use a carefully established system of peer tutoring to increase attention to specific skill study as well as to self-esteem. Peer tutoring, if set up correctly, can be effective and highly motivating as a supplement to teacher instruction. The Tough Kid Book: Practical Classroom Management Strategies (Rhode, Jenson & Reavis, 1995) provides a good explanation of how to set up and use an effective peer tutoring system. Available from Sopris West, 4093 Specialty Place, Longmont, CO 80504, (303) 651-2829, http://www.sopriswest.com.

17. Alternate teaching approaches. Alternate sessions of paper-pencil seatwork with more hands-on or interactive tasks, as well as tasks that require students to be out of their seats. Also, alternate difficult tasks with those with which the student is more competent.

18. Observe the student’s attention span during a variety of teaching contexts and activities (e.g., working independently, cooperating in group activities, writing, doing math worksheets). Use your observations about contexts/activities in which he has most success to help you modify contexts/activities in which he has less success.

19. To increase and sustain interest, incorporate technology such as videotapes, camcorders, tape recorders, and stopwatches into skill practice.

Beginnings And Transitions

1. Help the student start each day in an organized fashion. For example, if a student typically needs to be reminded to turn in his homework and put his backpack away, you might greet him by saying, "Good morning, _____. Homework and backpack."
2. When the student enters the classroom (middle or high school), hand him a "Rules for Readiness" card or have it on his desk. The card should have written on it the few things the student has to do to be ready to begin class (e.g., 1. Get book from shelf; 2. Get notebook, pencil, & compass from backpack; 3. Sit down & look at teacher).

3. Keep informal transitions between activities to a minimum. Provide extra structure during transitions and positive reinforcement if the student is ready for the next activity on time. [See Strategies: Transitions Between Activities.]

4. Help the student transition from one activity to another by giving instructions in the following manner: (a) Require all students to stay seated and quiet until you have given all instructions and have said, "Go ahead;" (b) give all instructions in the same order as they are to follow them; and (c) limit the number of instructions.

**Increasing Attention and Time On Task**

1. Require the student to keep unnecessary objects off his desk.

2. Within the classroom seating arrangement, surround the student with model students who will not distract him and who will respond to any attempts at socializing only at appropriate times.

3. With the student's prior permission, set up a buddy system whereby the student's neighbor agrees to give him an unobtrusive signal when his attention wanders.

4. When the classroom or environmental noise level is particularly distracting, or at any time it might be helpful, allow the student to listen to quiet music or white noise (e.g., water sounds, Native American flute music, classical guitar) with a headset.

5. Incorporate movement into instructional activities. For example, before presenting information on a new topic, activate students' prior knowledge by asking questions requiring agree/disagree responses. Instead of having them write agree or disagree, have them show thumbs up or down or hold up a card with their response on it. Other responses may include pointing, clapping, standing up, or (starting from a sitting position), sitting down.

6. Ask parents to provide materials that the student enjoys using - special type of pen (e.g., roller point) with preferred color ink (green, black, purple); pastel colored, lined paper rather than white; high lighters in preferred colors).

7. Increase the student's attention span in challenging tasks by providing rewards for gradually increasing the amount of time he works in a focused and reflective manner.

8. Praise the student for good attention while he is on task, or drop a note on his desk saying, "Good attention to work," or something similar.

9. Each morning, write the day's schedule of activities on the board and review it with students. Cross off activities as you complete them, making sure students see you do so. The student may need his own copy to keep on his desk.

10. Divide the student's in-class assignments into smaller, more manageable chunks. Give him one chunk at a time with instructions to hand each in as it is completed and pick up the next. Each time the student hands in a portion of the work, provide reinforcement for completed work and for time on task. Examples for dividing the work are: cut apart the major sections of a worksheet and give the student one section at a time to complete, place a piece of "sticky" paper over the bottom half of a worksheet; put a sticker on the bottom of every two pages of a story.

11. Work periods with pre-established time limits prevent the student from feeling overwhelmed by difficult or seemingly lengthy tasks. Set a limit on the amount of time the student will work on the task. When the time is up, you can accept the amount of work completed or give him a short break followed by another preset work period. Place the timer where he can see it (but not touch it) so he can monitor his time and see his work period continuously decreasing.

12. The use of technology such as videotapes, audiotapes, computer software/images, and computer speech programs that can read the on-screen print to the student will enhance the student's engagement in academic tasks.

13. Teach the student to use a beeper tape to remind him to stay on task. This tape provides a sound at varying time intervals, cuing the student to ask himself, "Am I on task?" If he is, he places a check on a chart. If not, he resumes work. Build in positive reinforcement for increasing the number of checks he accumulates within a work session. You might set a lower number of checks necessary for a reward in tasks in which his attention is significantly challenged (e.g. writing a paper) and raise the limit in tasks in which his attention is not so challenged (e.g., watching a video).

14. Use a beeper tape program to guide the student to gradually increase his time on task. Before starting the program, observe the length of time that the student generally remains on task. Start the program with a tape on which the tones are sounded at slightly longer intervals. For example, if the student generally stays on task for 3 minutes, start with a beeper tones at 3½ or 4 minutes. Set a definite period in which to use the tape so that you can establish the maximum number of points he can earn. Explain to the student that each time the beep sounds, if he is on task, you will award him a point. The student must be on task at the time the beep sounds. Intermittent reinforcement, such as is incorporated into this system, is effective in increasing behavior. At the end of the period for which you are using the tape, if he has earned 85% of his points, he will earn a reward. Each time the student earns a point, verbally praise his attention to task. This sets the stage for fading out the beeper tapes and points, while maintaining a response to verbal praise. When the student earns a reward 3 days in a row, use a tape with slightly longer intervals between beeps up to 15 minutes. If the student does earn a reward after three days with a particular tape, consider whether or not the student understands what behavior is expected, change the reward to something more motivating, decrease the percentage of points required to earn a reward, or drop back to a tape with shorter intervals.
15. Incorporate computer-assisted instruction into the student's academic schoolwork. Look for software programs that (a) the student will find interesting and stimulating; (b) provide frequent and immediate feedback; (c) allow the teacher to adapt the program and rate of task presentation to the student's needs, (d) allow the teacher to adapt the length of each lesson to the student's attention span; and (e) allow the teacher to control the frequency and type of reinforcement provided.

16. To enhance the usefulness of computer-aided instruction, specify the educational objective ahead of time, employ tasks that are integral components of the classroom skill instruction, supervise the student's use of the program, monitor his work to provide supportive instruction as necessary, and provide on-going assessment of skill development.

17. Provide the student with a device such as the WatchMinder, a watch that signals the wearer to do certain activities at preset times (e.g., GO BATHRM, MEDS, COPY HMWK, DO CHORES) throughout the day. As a training device, the WatchMinder may also be programmed to vibrate at regular intervals to signal the student to do certain behaviors such as ask himself if he is actively working. Available from PMB #278, 5405 Alton Pkwy #5A, Irvine, CA 92604, (800) 961-0023, http://www.watchminder.com


19. Set up a system whereby the student and other students chart/graph their performances in a certain area of classroom functioning (e.g., number of math problems done in 5 minutes, number of consecutive minutes on task) and post them on the wall. For effectiveness, the data recorded must be related to meaningful behaviors or skills, be recent, and be posted immediately.

Task Completion

1. Help the student obtain the phone numbers of at least two students in each of his classes so that he has someone to call after school if questions arise regarding a homework assignment.

2. Reduce the amount of work the student is required to do during independent assignments so that he is more likely to complete his work in school. When figuring the grade, the reduced amount assigned is considered as 100%. Do not send unfinished class work home for homework.
3. Reduce the amount of work in each area assigned for homework so that the student can complete his assignment in approximately the same amount of time other students are expected to spend. Examples of modified assignments are: solving the odd-numbered math problems instead of all the items, studying 10 spelling words instead of 20, and writing a half-page report instead of a whole page.

4. Review tests and assignments to ensure that the student has completed all sections and items. Return any incomplete assignments/tests to the student for completion, without penalty.

5. As student’s difficulty with sustained attention interferes with his efficiency, allow him extended time to complete tests and in-class assignments. Inform him ahead of time that this will be allowed so as to reduce anxiety while he is working on the test or assignment.

6. Teach the student goal-setting strategies and ways to use visualization to enhance success (before he starts a task, creating a mental image of how he will carry out and complete it).

7. Due to the student’s attentional problems, he is less efficient than his peers with comparable academic ability and takes considerably more time to complete his assignments. Provide the student with some flexibility in assignment deadlines. Give him some passes at the beginning of the semester that will allow him one or two days, or an extra weekend, to complete and turn in an assignment and some “The dog ate my homework” passes that allow him to skip an assignment altogether, without penalty.

**Improving Academic Performance**

1. Prior to giving complex verbal instructions, write them on the board. This will avoid the need for repetition as the student needs to see the organizational structure to grasp it.

2. After giving instructions for certain activities (e.g., lining up, taking turns in presenting oral reports, handing in papers, getting materials for a project), have one or two students model the correct way to do this. Seeing it done correctly will make it more likely that the student will do it correctly. When possible, have the student participate in modeling, providing guidance as needed.

3. To avoid confusion and enhance accuracy of work, make sure that worksheets have plenty of space between items and that different activities are clearly delineated as such.

4. Use color to highlight any areas of academic tasks that the student appears to be overlooking (e.g., teacher highlights the bolded words in a text or the vowel digraphs in a page of text, or draws a colored box around instructions; the student highlights math operation signs, one color for each sign, before doing a page of problems).

5. Because of the student’s difficulty with sustained and divided attention, he is unable to listen and take notes simultaneously. Free him from taking notes during classroom lectures and discussions by providing him with a copy of another student's notes (make provisions for use of a copy machine or use NCR paper) or teacher lecture notes, if available.
6. Tape, or allow the student to tape, lectures and classroom discussions, so that he can listen to them in shorter time blocks and play back parts that he may have missed in the classroom.

7. When presenting notes on the board for copying, enhance the organization of the written information by using different colors, numbers, and clear separations between sections. When discussing certain ideas based on the printed information, use colored markers to highlight or circle the phrases you are addressing.

8. When presenting information, use language that cues students as to its organization or importance. This includes sequencing terms such as first, next, last, and direct statements such as, "This is important," "Listen," or "This will be on the test."

9. When presenting information, use accompanying visual images such as pictures, graphics (e.g., webs, charts, graphs) and videotapes. Enhancing auditory information may be as simple as drawing a sketch on the board or standing easel to illustrate concepts such as contrasts, similarities, levels of importance, and cause-effect. Use numbers and/or color to differentiate sections of information.

10. Teach the student organizational skills, such as time management and materials management, directly and explicitly, with modeling, guided practice and reinforcement, and independent practice and monitoring.

11. Computer programs that help the student organize information for papers and research will not only aid in organization but will enhance his interest in the project, his willingness to work on it, and will promote better writing. One such program is Microsoft Encarta Research Organizer, part of the Microsoft Encarta Reference Suite. Available from Microsoft Corporation, Redmond, WA, (800) 426-9400, http://www.microsoft.com.

12. Use interactive software as much as possible to enhance the student's interest in working with certain information. An example is the Microsoft Encarta Reference Suite which includes a globe that allows the user to magnify any area, see different types of geographical boundaries (e.g., political, climate), mark geographic points, and filter out cities by population levels. The encyclopedia articles have associated pictures, sounds, videos, and links to websites. An option allows the user to hear the articles read aloud. This program is also linked to reference materials (e.g., thesaurus, dictionary, quotations) and a program to aid in organizing research. Available from Microsoft Corporation, Redmond, WA, (800) 426-9400, http://www.microsoft.com.

13. At the end of the year, request that the student be given the textbooks that will be used in his classes the following year and a reading list for any class that will require outside reading. The student will be able to handle the requirements of school with far less stress if he can become familiar with the materials ahead of time and get some of the reading accomplished during the school break.

14. To help the student store and retrieve new information efficiently, provide explicit instruction specifically in planning, organization, time-management, and mnemonic strategies.

Directing/Controlling Activity Level

1. Find ways for the student to take frequent breaks from seatwork or if needed, from the classroom. For example, give him an errand to do, have him hand out materials, or send a note to another teacher in a sealed envelope. The note can simply say, "The student needed a break from the classroom. Please just thank him and send him back to class."

2. Provide occasional breaks in the work schedule for exercise (e.g., using light weights for 2 minutes when work is completed, jump on small trampolines, stretch Therabands). The student may do exercises individually when he completes a task, taking turns with equipment, or the teacher may direct a whole class exercise break.

3. Allow the student to move in and around his seat as long as he is not disruptive to others.

4. Provide the student with a "fidget toy," such as a Koosh ball, a balloon filled with flour, or a string of paperclips to keep his hands busy in a non-disruptive manner when a task does not require the use of his hands. Make sure the student understands the rule that if the toy becomes a distraction in itself, you will take it back.

5. Provide the student with a chair that allows his feet to be planted firmly on the floor (900 angle at hips and knees) and a desk that comes to 2 inches below the student's elbow when he is sitting on the chair. A body that feels unstable (e.g., feet swinging above the floor, writing surface too high or too low) may increase the tendency to fidget and lose focus.

6. When the student's activity becomes distracting, redirect it. For example, remind him to tap his pencil on his arm or leg rather than on his desk or other object that produces noise.

7. Some students find that extra sensory stimulation helps them to sit more comfortably for brief periods of time and in doing so, allows them to attend more effectively to their work. Examples include wearing a weighted vest or lap pad, sucking on hard candy or salditos, or chewing gum. This method, called “sensory diet,” is a supplement to treatment, not a treatment in itself.

8. To help the student remember to wait until he is recognized to respond to a question, immediately after asking the class a question, look at him and use a previously agreed-upon gesture to remind him to wait.
**School-Home Communication**

Set up a system by which the teacher and parents can communicate on a daily basis. This may include the use of e-mail, faxes, telephone, the assignment book, or a separate notebook sent between school and home. Issues to communicate include missed or incomplete assignments, lost materials, and difficulty with certain assignments. Behavior and emotional stability are best communicated in such a way as to prevent the child from reading the message.

**Developing Self-Advocacy in Older Students**

1. Learn as much about [ADHD] as possible from reliable sources and consider how it affects you. [Attach a list of resources that the student may borrow and where he can obtain the materials, preferably from a teacher, the school counselor, or the school library. Students with ADHD are more likely to watch a videotape than read a book.]

2. Schedule private meetings with your academic teachers once every __ weeks to check on your academic status and to discuss any accommodations you might need at that time. This arrangement will help you stay on top of your course work as well as demonstrate to your teacher that you are motivated.

3. Request a meeting with any teacher who assigns multiple, simultaneous assignments or who has them listed on the course syllabus. Explain your difficulty with this type of assignment and suggest an alternative arrangement to complete them sequentially.

4. When given the grading criteria for a class, figure out exactly how many and what type of assignments you can miss and still come out with a [B] average. Put a chart containing this information where you can see it easily as a reminder.

**Building/Maintaining Self-Confidence and Self-Esteem**

1. Put special effort into establishing a personal relationship with the student. Complying with classroom expectations such as paying attention, cooperation, and putting his best effort into his work will be much easier for him if he knows that you like and respect him.

2. Build rapport with the student. Greet him by name when he enters the classroom and in the halls. Ask how he is and listen to his answer. Ask his opinion when the opportunity arises.

3. Do not have students grade each other’s papers. This practice makes public knowledge of the student's academic difficulties as well as the fact that his assignments are modified. Many students who need modifications will refuse them in such circumstances. Moreover, the student graders may make errors that remain undiscovered and the teacher does not become aware of the skills and concepts with which the student is having difficulty.

4. When the student fails at a task or interaction, structure an opportunity for him to try again and succeed. This will prevent him from developing a sense of helplessness and lack of interest and motivation toward school and learning.
5. Send periodic notes home with the student praising specific behaviors related to effort, attention, and social interactions.

**Non-Educational Treatment Considerations**

**Medication Usage**

1. Explain to the student the reason medication has been prescribed, what effect it is expected to have (e.g., allow him to pay attention if he tries), what it cannot do (e.g., make him pay attention if he does not try), and the possible side effects. Involve him as much as possible in the decision to take the medication and in monitoring and discussing how it is working.

2. Be sensitive and respectful of the student's privacy in taking medication. Provide scheduling information that will help the physician to set dosage times during natural breaks in the day or create a reason for the student to be out of the room at the time he must get his medication. Remind him privately, by voice or signal.

3. Remind the student privately when it is time to take his medication.

4. If the student is on medication, ask the parents or physician what behavioral changes to expect, at what time(s) during the day the student should exhibit optimal behavioral control, how long the effects of the medication should last, and side effects to look for. If the student is still displaying off-task behavior, impulsivity, hyperactivity, or disruptive behavior - or if you notice side effects - notify his parents or the physician.

5. Schedule a conference for (date) to include the student’s parents, the teacher(s), and the school psychologist or counselor. If, at that time, the student has not made considerable progress in the behavioral manifestations of ADHD, consider the use of medication to allow him to benefit from the other interventions that have been established.

6. Due to the inconsistency of the student’s behavior in the classroom, combined with his apparent continued impulsivity and lack of attention, the parents should discuss the adequacy of the dosage of the student's current medication with his doctor.

7. Discuss with the student’s pediatrician the need for the student to continue taking medication during non-school hours, such as afternoons, weekends, and vacations. This recommendation is made to allow the student to control his own behavior, learn from modeled behavior, and minimize possible negative feedback he may receive from staff and other children in the summer program. As others may not understand ADHD, they may not be tolerant of the student's inattention, social insensitivity, over-activity, and impulsivity.

8. It is the responsibility of the school staff to make sure that the student receives his medication on time and in the proper dosage, as prescribed by his doctor.
9. Notify the case manager immediately if the student starts demonstrating hyperactive, impulsive, or inattentive behavior in excess of that expected for other students of his chronological age. These behaviors indicate the need for a review of medication.

10. Make sure that the student has a steady level of medication throughout the day, to include homework time, after school or extra-curricular sports, and social time with friends. Using feedback from the teachers, request your doctor's help in establishing the optimal medication, medication schedule, and dosage.

Monitoring Medication Effects

1. Before the student starts a trial of medication, initiate teacher/staff completion of a rating chart comprised of a few behaviors which are problems in the classroom and which are likely to respond to medication (e.g., pays attention while teacher is talking, socializes only when appropriate, ignores mild distractions, work shows appropriate level of thought, stays in seat without excessive fidgeting), a question about time of the day when medication benefits appear to have worn off, and comments. Have the teacher and other school staff continue to chart behaviors, sharing results with the student's parents and physician, until the optimal dosage and dosage times are established. [See Strategies: Behavior Rating Chart.]

2. If the student is on medication, observe him carefully throughout the day to determine the time of day that the beneficial effects of the medication appear to be wearing off. Help the parent or physician work out the amount of time that the medication is effective and the efficacy of different dosages.

3. Since the student is unsure how much he benefits from his medication, ask Dr. _____ about the advisability of taking a planned drug holiday. Plan it for a week during the __ quarter of school after the student has become used to the routine of the new [school year, quarter.] Each of his major teachers should complete a simple questionnaire documenting a few medication-related characteristics (e.g., pays attention during lecture and instructions, completes work in class, stays on task during in-class assignments) for one week before, during, and after the drug holiday. Inform the teachers that the student will be without medication for some time during the 3-week period but do not tell them which week. [At the end of the school day, the student may rate himself on his own chart so that he has a record of his own perceptions as to the effectiveness of medication and can participate in the discussion.]

Counseling, Parent Training, Educational/Support Groups

1. Parents of children with ADHD often benefit from training in parenting skills specific to the needs of the child. Encourage the student's parents to seek further education about ADHD and parenting training from a mental health professional who specializes in this area.
2. Many families of children with ADHD find family counseling helpful. Often, the goals of counseling are to help set up a consistent behavior management system in the home, help the child deal with the sense of failure and frustration that often accompanies this condition, and help siblings cope with the child's behavioral differences and need for special attention. Also, counseling can provide support and education for the parents in a frustrating and puzzling situation, while helping them to develop realistic expectations for their child.

3. Provide counseling to ensure that the student understands the nature of ADHD, how it affects him, and the reason for medication. Counseling also provides an opportunity for the student to discuss his feelings about having this condition, ask questions as they arise, and learn how to handle problem situations.

4. For information about joining a support group for parents of children with ADHD, contact: CHADD, 8181 Professional Place, Suite 201, Landover, MD, 20785; Phone: 800-233-4050, Website: http://www.chadd.org/findchap.htm.

5. The student may benefit from a group for children/adolescents with ADHD led by a mental health professional or teacher with expertise in this area. The focus should be on education about ADHD, importance of the child's participation in the treatment, social relationships, and effective problem solving.

6. Involve the student in an education and support group of children/adolescents in his age range to facilitate his understanding of ADHD and how it affects him, to teach him how to advocate for himself and set up situations for success, and to help him recognize that he is not unique in having this condition.
BEHAVIOR MANAGEMENT AND INTERVENTION

Related Sections: Test Session Observations Checklist; Attentional Disorders; Social Skills/Self-Esteem

Contents: Behavior Management and Intervention

Further Evaluation

Behavior Management

Proactive Strategies for Avoiding Classroom Problems

Classroom Rules

Monitoring Behavior

Reinforcing Behavior (apart from a behavioral intervention)

Correction and Redirection

Behavioral Interventions

Setting Up a Behavioral Intervention

Parenting Skills Training

Negative Interventions and Consequences

Positive Reinforcers

Increasing Compliance to Requests and Directives

Recess and Physical Education: Preventing Behavior Problems

Calm-Down Time

Relaxing Recess

Emotional Disorders

Further Evaluation

1. Due to the [disruptive] nature of the student’s behavioral problems, conduct a Functional Behavioral Assessment and develop a Behavioral Intervention Plan.

2. Interview the general education teacher(s) and/or parents to obtain more information about behaviors affecting school performance.

3. Consult with staff who work with the student throughout the school day to find out what types of behaviors interfere with the student’s school performance and/or social interactions. Make a referral to the school psychologist or counselor to further evaluate these behaviors.

4. Interview the student’s parents regarding his behavior at home and in non-school situations. Compare this with his behaviors in school to establish whether or the behaviors are situational in nature and whether they require further evaluation.

5. Perform several systematic classroom observations, taking on-task and off-task interval data, to determine the extent to which the student’s behavior interferes with his learning and the learning of others. Note off-task behaviors.
6. Conduct several classroom observations. Select classes/subjects that the student enjoys and ones in which the student has difficulty. Record the student’s positive and negative behaviors, the teachers’ responses, and consequences for both types of behaviors. Note the teacher’s instructional style and classroom management system, as well as the subject and the time of day. Analyze the data to see which factors appear most highly related to the student’s behavior.

7. Have the teacher(s), parent(s), and the student [depending on age] complete a comprehensive behavioral questionnaire such as the Behavior Assessment System for Children, Conners’ Rating Scales—Revised (CRS—R), or the Achenbach Child Behavior Checklist. (If one of the diagnostic considerations is ADHD, include a questionnaire/checklist specific to ADHD, such as the items comprising the DSM-IV Symptoms scale or the ADHD Index from the CRS—R.) Subsequently, interview the student to follow-up responses of concern. Be aware that the teacher’s, parent’s, and student’s interpretation of the questions, and thus their responses, may differ substantially from the author’s intent.

8. Interview the student in a comfortable setting to explore how he perceives the behaviors others have noted as problematic and the factors he sees as contributing to those behaviors.

9. Discuss with the parents the need to make an appointment with a licensed, clinical child psychologist [psychiatrist, pediatric neurologist] to further investigate the behaviors of concern and/or to recommend treatment.

**Behavior Management**

**Proactive Strategies for Avoiding Classroom Problems**

1. Develop a behavioral program for the student that is proactive in helping him to attend to task and refrain from bothering other students, rather than reactive to the problematic behaviors.

2. Before starting any activity, remind the students of the critical behaviors needed for participating in the activity. Make eye contact with the student.

3. As the student often gets into trouble during periods of waiting, plan lessons and structure activities to minimize or eliminate waiting time.

4. Teach the student and the rest of the class the expected behaviors for transitions between activities and maintain a consistent structure for transitions. Always give a 2-minute warning before ending an activity or assignment. [See Strategies: Transitions Between Activities.]

5. As often as possible, provide a special motivation for the student to [any target positive behavior such as completing assignments, coming to class on time, achieving 75% correct out of items completed.] The motivator may be any activity or privilege that the student truly enjoys (e.g., 10 minutes use of the computer, errand for teacher, reduction in a homework assignment, note home to the parent).

Classroom Rules

1. Limit classroom rules to four or five, make sure they clearly specify the behaviors expected in the classroom, that the behaviors are observable and measurable, and list the positive and negative consequences for following or breaking each rule (the consequences may vary by rule). Include a rule that directs the students to comply with your requests and directives. [See Strategies: Classroom Rules: Guidelines.]

2. When teaching classroom rules to your students, explain the reason for each rule, give examples and non-examples of each rule, and describe the specific consequence for breaking it. Create skits that allow the students to identify the rule in question, to role-play its use, and to role-play the consequence.

3. Give students daily or weekly assignments to remember and recite one of the classroom rules on request. If there are four rules choose four students for the week and choose four different students the next week. Assign the student the rule he breaks most often.

4. Before activities in which the student typically has behavioral difficulties, meet with him privately and review the rules for that particular activity (e.g., recess, school bus, field trip). Then have the student restate the rules.

Monitoring Behavior

1. Have the teacher complete a behavior-rating chart at specified intervals to monitor the student's response to medical or behavioral interventions. The chart should list the following behaviors of concern: [Specify behaviors, such as pays attention during teacher instructions, attends to assignment until completion, refrains from socializing except at appropriate times, sits in chair without excessive fidgeting.] State behavioral items positively to facilitate consistency in rating. Each day (segment of day, period) the teacher assigns one to five points for each behavioral item. Send a copy of the behavior chart home on a daily or weekly basis. If the parents so desire, you (or they) may send charts on a regular basis directly to the physician. [See Strategies: Behavior Rating Chart.]

2. In any home-school communication, consider using e-mail rather than sending a note, point paper or behavior chart home with the student. E-mail avoids the possibility of the student losing the paper or forgetting to give it to his parent. Before doing this, set up an agreement that teacher and parents will check their e-mail daily. One advantage of this arrangement is the ability to share, save, and print out communications for record-keeping purposes.

3. The student’s parents should speak with the teacher(s) at least once every 2 weeks and ask specifically about the student’s academic progress and behaviors of concern (e.g., activity level, ability to stay on task, level of fatigue, impulsivity, social interactions, the quality and completeness of his work, academic progress).
Reinforcing Behavior (apart from a behavioral intervention)

1. Make all praise specific and legitimate. Clearly state the behavior to be reinforced and only praise behaviors that matter (e.g., “Good job” may be legitimate but is not specific. “You’re the best pencil sharpener in the class” is specific but not legitimate).

2. Praise specific behaviors in the student that you want to encourage. For example, stop by his desk and say quietly, "You're concentrating well on this assignment," or, after the activity, say to the class, "Many of you really stayed focused on this assignment," with a smile at the student so he knows he is included. This technique will help make him aware of the behavior and encourage him to continue it and repeat it at a later time.

3. Give at least three positive comments for each correction or criticism.

4. Keep a pad of paper and pen handy. When the student displays a behavior you want to encourage, immediately write a brief note to his parents, show him what it says, and have him put it in his homework folder to bring home. This procedure is most effective when done intermittently.

5. Make it a point to call the student’s parents periodically to tell them something positive that he did that day. To ensure that the tone of the conversation remains positive, make the call brief and do it on a day when you do not have to report any problem behaviors.

6. Watch the student carefully during the day for times he demonstrates the target behavior. Immediately describe and praise his use of the behavior. Be specific (e.g., “You told Hank you were angry with him, you explained why, and you stayed calm. That was mature behavior”).

7. Enlist the aid of other students to provide approval when the student exhibits the targeted behavior. So as not to single out the student, all students in a group could choose behaviors they would like to improve. Train all students to verbally reinforce the chosen behavior in others and to ignore negative instances of the behavior.

8. Set up a group reward program to encourage the student to increase a specific behavior that he knows how to perform but forgets or, perhaps, refuses. Setting up a group contingency avoids singling out the student. Explain to the class that each time any student (or all students) in the class exhibit the target behavior (e.g., raises hand and waits to be called on, complies immediately with the teacher’s request, hands in homework), you will mark their progress toward the goal. (It may be necessary to teach the students how to do this.) Set up a system by which students can monitor their progress visually (e.g., coloring in floors on a picture of a skyscraper or dropping marbles in a jar with a “finish line” drawn near the top). As soon as the markers reach the finish line, the class is given a pre-established reward, such as a popcorn party with a video or a night (or more) off from homework. This program works only if students remind, encourage, and praise each other regarding demonstration of the behavior.
Correction and Redirection

1. Correct the student’s negative behavior by reinforcing positive behavior in another student. For example, when the student is looking around, say, “I see that Ginger and Kai are concentrating on their work.”

2. State corrections and redirections in a positive, non-humiliating manner. State what you would like the student to do rather than what you want him to stop doing (e.g., “Mike, we’re returning to our desks now to take out our social studies books”).

3. When correcting a behavior or redirecting the student to task, remain calm. If the student perceives anger or disapproval, he will react with an emotional response and be unable to process the content of your statement.

4. Whenever possible, use humor to correct or redirect a specific behavior.

5. When reprimands for inappropriate behavior are necessary, give them immediately, concisely, and to the extent possible, privately. Stand near the student and obtain eye contact. Be calm and firm.

6. For both praise and reprimands, keep statements brief and specific to the behavior.

7. In cooperation with the student, make up and use a private signal, such as a hand signal or touch on the shoulder, as a reminder to return to task. This allows you to redirect him without interrupting teaching. Alternatively, alert him by saying his name, and asking him a question you know he can answer.

8. Do not allow or become engaged in lengthy verbal discussions regarding inappropriate or disruptive behavior. Redirect or give consequences calmly, firmly, and immediately.

9. Help the student recognize how his actions affect others. Immediately after a negative behavior, discuss with him how others may interpret his behavior, the reason for your concern, and a solution. Guide the student to devise a solution. Example:

   I know you were just playing but the rule is, “Keep your hands to yourself.” That means no pushing, hitting, or grabbing. Other students don’t realize that you’re playing when you push them and they will probably get angry. Or, they may bump into something or fall down and get hurt. How can you remind yourself about not pushing when we come in from recess this afternoon?”

Behavioral Interventions

Setting Up a Behavioral Intervention

1. Before instituting an intervention to reduce noncompliant behavior (i.e., responding to a teacher request or directive by refusing, negotiating, arguing, or otherwise avoiding the task), obtain baseline data regarding the number of times the student demonstrates this behavior in a specified period of time.

2. Set up a behavioral program based on a token reinforcement system. Based on the information provided by [the teacher, the parents] and the results of this evaluation, consider _____ as the first behavior to target. [See Strategies: Token Economy Systems.]

3. Set up a school-home cooperative behavioral program based on a token reinforcement system. In this system, the student is awarded points at school for demonstrating specific behavior; a note, point paper or behavior chart is sent home daily; and rewards or mild negative consequences are provided at home. A home-based reinforcement system widens the scope of possible rewards to activities (e.g., baking cookies, playing a video game, borrowing the car) and tangible items (e.g., trading cards, accessories for a bike, money toward car insurance). As well, it can make available more meaningful consequences for the student (e.g., missing a favorite TV show, not earning a videogame for the day). A home-school program must be planned and carried out with the same consistency and attention to rules as an in-class program. Regular communication between the teacher and parents is critical. [See Strategies: Token Economy Systems.]

4. Increase the student’s ability to maintain behavioral control by using a self-management intervention program. In this program, the student learns not only how to monitor specific behaviors but also how to evaluate and reinforce his own performance. [See Strategies: Self-Management Strategy for Improving Adolescent Behavior.]

5. Establish a program of rewarding behaviors that are incompatible with the problem behavior. For example, if the student tends to have temper outbursts when frustrated by an assignment, set up a program in which he is rewarded each time he maintains control and asks for help.

Parenting Skills Training

1. Explain to the parents the benefits of taking a class in parenting children with difficult behaviors. Help the parents find a class offered in the community and, if possible, provide them with informational materials.

2. Children with [ADHD, Tourette Syndrome, Oppositional Defiant Disorder] require a different type of parenting and behavior management than do children without such syndromes. The student’s parents are encouraged to take a class in behavior management strategies for children with difficult behaviors. The introduction and consistent follow-through of a program that clearly ties privileges to meeting responsibilities and obligations will ease the current dynamics within the family. [Provide the names of agencies at which such training is available.]

Negative Interventions and Consequences

1. To reduce the student’s tendency to [refuse class assignments, use disrespectful language, blame others], use a system of response-cost. The student starts out the day or period with a specified number of tokens (e.g., chips, checks) or primary reinforcers (e.g., M&Ms, nickels); then, each time he demonstrates the (negative) targeted behavior, he loses one. At the end of the time period, he is allowed to keep the primary reinforcers he has left or trade in his remaining tokens for a primary reinforcer. [See Strategies: Response-Cost.]

2. Develop a behavioral intervention program that combines positive reinforcement with a response-cost component. [See Strategies: Response-Cost.]

3. When using response-cost, as the negative behaviors diminish, make sure the student recognizes the positive aspect(s) of his behavior and develops an internal locus of control. For example, if you are trying to reduce the number of times he refuses in-class assignments, document the increases in the number of assignments completed, number of times he has accepted classwork agreeably, or list his improved grades. Emphasize that he is responsible for the positive results and that the response-cost system is only a reminder to help him maintain control.

4. Use time out in increasing levels of exclusion. Remember that time out only works when a student is being removed from an environment that he feels is positive and in which he wants to remain. Set the duration of the time out just long enough to have an impact on the student, depending on his age and the level of exclusion. The level of exclusion, but not the duration, is related to the severity of the problem. Levels of exclusion include: (a) Keep the student at his desk but remove work materials and ignore behaviors, (b) Move the student to a chair situated away from the group but allow the student to watch, (c) Place the student in a class a grade or two higher (placement in a lower grade is humiliating) with an academic assignment to do, or (d) Place the student in a time-out room with supervision, devoid of objects he could damage. Plan procedures for exclusionary time out ahead of time with the staff working with the student, the parents, and the school counselor or private mental health professional. Explain the system to the student and answer any questions before initiating it.

5. Whenever the student earns less than [choose a number] time outs [or any other negative consequence] in [period of time], reward him with a tangible reinforcer or privilege.

6. Identify the behaviors that the student typically displays before [a temper outburst, an argument, aggressive behavior.] Plan a course of action or consequence to intervene at the first level of behavior to diffuse the situation.

7. As the student displays behaviors that are unsafe for him and/or other students, he must be provided with a one-to-one aide in the classroom and/or all situations in which structure and supervision are relaxed (e.g., passing time, lunch, going to or from other classrooms, the bathroom, the bus).

Positive Reinforcers

1. Do not make rewards time-dependent (e.g., a previously scheduled field trip). The student must have the ability to earn the reward. The unknown element should be when, not if, he will receive the reward.

2. Effective positive reinforcers are the keys to a successful behavioral intervention. Check with the student to ensure that the selected reinforcers are highly motivating. Ask the student what he would like to earn, provide a list of possible reinforcers from which he may choose, or provide a menu of reinforcers with different “items” at varying “prices.” To set up a menu, give the student a list of possible reinforcers (make sure that all of the items on the list can be made available) and ask him to prioritize the items in order of preference and to add to the items on the list. The teacher may veto added items. Items that are higher in monetary value or in preference may be given higher “prices” on the menu. [See Strategies: Positive Reinforcers.]

3. Use novel delivery systems for reinforcement of targeted behaviors such as chart moves, spinners, mystery motivators, grab bags, and lottery tickets.

Increasing Compliance to Requests and Directives

1. Tell, do not ask, the student what you want him to do. Use precision requests and do not repeat yourself. [See Strategies: Precision Requests.]

2. Enhance the efficacy of precision requests by using the “Sure I Will” program. [See Strategies: “Sure I Will” Program: Increasing Compliance.]

3. Make only one request at a time. Wait until the student has completed what you have asked before making the next request.

4. Stand within 3 feet of the student and obtain eye contact before giving him a request or directive. Speak in a quiet voice.

5. Make a request or give a directive no more than twice. If the student does not comply the second time, immediately institute a preplanned consequence. When this has been completed, make the request or directive again. Have an established set of backup consequences increasing in severity for repeated noncompliance. [See Strategies: Precision Requests.]

6. When making a request of or a directive to the student, be specific in describing what you want him to do. State important details.

7. Socially (nonverbally) acknowledge the student’s compliance with requests (e.g., verbally, smile, wink, and pat on shoulder).

8. Let the student know you like him. Students are much more willing and able to perform and produce in situations in which they feel valued and feel they are treated fairly.
Recess and Physical Education: Preventing Behavior Problems

1. Make the rules for recess (or Physical Education) clear. The general education teacher should review them with the class once a week or more frequently depending on the need. If the student requires more reinforcement, meet with him privately before the first recess of the day. Make it clear that the purpose of adhering to rules is so that he may have a more enjoyable time on the playground. If the student has behaved appropriately, as he comes in from recess, praise him for the specific positive behaviors.

2. Reinforce positive behaviors frequently. Look for them. Each time the student has a successful experience on the playground, comment upon the positive behaviors he is displaying. Such comments might be, “Passing the ball to Jimmy to take that shot was good teamwork. I’ll bet it made him feel good.” Keeping your temper when Amanda yelled at you took self-control. I hope she learned from you.” On occasion, send home a positive note to the student’s parents, such as “Missy played kickball with her classmates, followed all of the rules, and had a good time.”

3. Give the student the opportunity to be a monitor-aide by providing him with special duties. Possibilities are helping to go and get sports equipment from storage, spot possible problems, or blow the whistle to end recess. Select activities that will serve to shorten any unstructured time the student has on the playground.

4. In games, place the student in a position that will force constant physical and mental involvement, such as playing catcher during a softball game.

Calm-Down Time

Discuss calm-down time out with the student. Ensure that he understands that this time is not a punishment but an opportunity to regain control away from the middle of the problem, without consequences. If a student loses control on the playground, ask him to come and stand by the teacher or monitor. After a preset interval (e.g., 2 minutes), if the student feels calm, he may choose to return to play or to stay near the monitor. Provide the student with positive reinforcement during the calm-down time for cooperating with the monitor and for regaining self-control, even if he has done this only minimally.

Relaxing Recess

If a student demonstrates violent or particularly dangerous behaviors on the playground a predetermined number of times in a week, assign him to an inside recess. Instead, the student goes to the office, a supervised room (not a classroom in which the class is in session), or, if supervision can be arranged, the library. Have available age-appropriate and pleasurable activities and materials, such as coloring books and crayons with good points, puzzles of varying levels of difficulty, board games (that can be completed within the period), Etch-A-Sketch, interesting books, and clay. Each day during recess, the student will go to this room for “relaxing recess.” When the student is ready to try outside recess again, he stays in “relaxing recess” for most of the period and comes outside for the last 10 minutes. If his behavior is appropriate, his time in outside recess increases by 5 or 10 minutes per recess period until he has earned back the whole recess period. Notify parents ahead of time regarding this plan so that they do not turn it into a negative experience by penalizing the student for having “relaxing recess.” For the student (and others), this might fulfill the intent of recess far more effectively than becoming over-stimulated and out of control on the playground. Parents may be asked to reward their child for increasing time spent on the playground successfully. Alternately, the student may be given the choice to continue “relaxing recess” rather than return to the playground.

Emotional Disorders

1. Put special effort into establishing a personal relationship with the student. If he feels that you like and respect him, he will be able to confide in you any discomfort or problems that affect him during the school day. As well, this rapport will make it easier for the student to comply with classroom expectations such as paying attention, cooperation, and putting his best effort into his work.

2. Seat the student within a group of students with good attention and social behavior so as to maintain his emotional comfort and, concomitantly, his focus on learning.

3. In the case that the student may be questioned regarding disciplinary issues or possible infractions of school rules, ensure that his counselor will be present. If this is not possible, ensure that a counselor who is knowledgeable about [anxiety, bipolar, depressive] disorders will be present.

4. When the student feels the need, allow him to leave class (with/without asking for permission) to go to a pre-established place to calm himself.

5. The [school counselor, case manager] will maintain ongoing communication with the student, his parents, and the outside [counselor, psychiatrist] for the purpose of monitoring his emotional status as to how it may affect his academic functioning, classroom performance, and social interactions.

6. Request that the student’s tutor and [indicate subject] teacher communicate with each other frequently. The teacher can alert the tutor to any problems she has noticed and the tutor can help the student master new concepts and processes. To lower the student’s level of anxiety, the tutor teach a new concept or process before it is presented in the classroom so that the information is not new when the teacher introduces it.

7. Schedule the student for appointments at least weekly with a school counselor, and develop a plan that will give him access to the counselor whenever he is in crisis.

8. The student clearly benefits from his [daily physical therapy activities] to help him maintain emotional and behavioral control throughout the school day. This program should be continued on a daily basis.

9. A neuropsychological evaluation and a pediatric neurological evaluation may provide valuable insight into a more comprehensive view of the student’s psychological, emotional, and cognitive problems, identify specific areas of neurological damage, rule out seizure activity that may be presenting as dissociation, and suggest treatment and remedial options that have not yet been considered.

10. To help with the student’s behavior outside of school, the parents might want to consider seeking consultation from a psychologist or social worker with expertise in behavioral management of children with [mental illness and low cognitive functioning.] Additionally, they might want to contact [any mental health organization providing education and support for families] to obtain support and share experiences with other parents in similar circumstances.

11. The student is at risk for developing learned helplessness, a condition in which a child is not able to function competently in the school setting because she has come to believe that she cannot learn on her own. Support intended to foster independence can sometimes create dependency instead. Rather than have [a private tutor, instructional aid, cross-age tutor] sit with her, provide her with appropriate accommodations that will allow her to function effectively in class without highlighting her learning problems.
SOCIAL SKILLS/SELF-ESTEEM

Test Observations Checklist
Related Sections: Attentional Disorders, Behavior Management and Interventions

Contents: Social Skills/Self-Esteem
   Social Skills
      Further Evaluation
      Instruction/Training
      Promoting and Modeling Social Behavior in the School Setting
   Activities
   Self-Esteem
      General Recommendations
      Development and Appreciation of Strengths
      Understanding Weaknesses/Self Advocacy
   Assignments
   Class Discussions
   Home

Social Skills

Further Evaluation

1. Refer the student for a comprehensive social skills evaluation. This would include (a) a social skills rating scale to assess general skill areas (e.g., cooperation, self-management, aggression, disruption), (b) a more specific social skills rating scale to ascertain and prioritize the particular behaviors of most concern in a variety of settings and by a variety of respondents, (c) social skills interviews with the parents, teachers, and student, and (d) direct observations. The assessment may also include a sociometric rating to ascertain the student’s social standing among her peers.

2. To ascertain whether or not a more in-depth social skills assessment is warranted, have the student’s teachers, parents, and the student complete a social skills rating scale and share the results with the school counselor or psychologist. One well-recommended rating scale is the Social Skills Rating System (Gresham & Elliott, 1990), which provides forms for preschool, elementary, and secondary students and questionnaires for teachers, parents, and the student herself. Available from: American Guidance Services, 4201 Woodland Road, Circle Pines, MN 55014-1796, phone (800) 328-2560, website: http://www.agsnet.com.

3. Refer the student for a social skills training program that will specifically address the social skills she is lacking. A social skills assessment will be necessary to ascertain the target behaviors.

Instruction/Training

1. Students’ preferences regarding help with social problems frequently differ from those chosen by teachers (Pavir & Monda-Amaya, 2001). Accordingly, before taking action to help the student in social interactions, conduct a private conference with the student in which you ask about her social concerns and perceptions of social problems at school. Ask guiding questions to help her generate strategies that might be useful in improving or resolving these situations.

2. As the student has not improved her social functioning just by inclusion in a general education classroom, she requires explicit instruction and intervention in social skills. Continued placement in the general education classroom will provide her with the social context in which to observe and practice the social skills she learns.

3. Provide a program to teach problem-solving in social situations including specific training in (a) identifying and defining the problem, (b) generating a variety of alternative solutions, (c) identifying the most likely outcomes of each alternative, and (d) selecting and implementing the appropriate solution.

4. Teach the student the SLAM strategy (McIntosh, Vaughn, & Bennerson, 1995) for responding to negative feedback or comments from others. The components of the strategy are:
   a. Stop whatever you are doing when someone is trying to give you feedback,
   b. Look the person in the eye when he or she is speaking to you even if you don’t like what he or she is saying,
   c. Ask the person a question to clarify what he or she is saying, and
   d. Make an appropriate response to the person to indicate how you intend to change or what you want him or her to understand about your situation.
   e. This strategy incorporates practice and rehearsal regarding the problems students are experiencing and may be taught in a small group.

5. Use a structured learning curriculum to teach the social behaviors identified as problematic for the student. The components of a structured learning curriculum are modeling, role playing, feedback, and transfer of training.

6. Help the student improve social appropriateness by imagining how other people will react to her words and behavior. Teach the student to consider another person’s possible reaction before she speaks or acts.

7. Teach the student how to maintain eye contact with a person when speaking. Provide structured situations for practice.

8. Teach the student how to notice and interpret facial expressions and body language when she is conversing with people.

9. Provide the student with practice in rehearsing what she will say in a situation before it occurs. For example, if the student wants to join a group of students on the playground, have her think of exactly what she will say, before walking over to the group.
10. Use live demonstrations, films, and videotapes of other students spontaneously using the behaviors targeted for intervention. Use videotapes of the student behaving in ways that illustrate the behavioral problem and, during training, videotapes of the student demonstrating the target behavior.

11. Discuss problematic social situations and brainstorm with the student different ways to resolve the problem. For example, draw a semantic map on the board with the problem in the center. Connect and write each proposed solution in an outside circle. Discuss how different solutions are related to each other and any underlying concepts (e.g., respect).

**Promoting and Modeling Social Behavior in the School Setting**

1. Establish classroom rules for social interactions. Discuss and provide examples of appropriate and inappropriate comments. Make sure that the students understand the importance of respecting others. Post the rules on the wall along with the pre-established consequences.

2. Help prevent social problems from arising by establishing rules regarding respect and acceptance in student interactions within the classroom. Promote this behavior among students by modeling it and by facilitating discussions about respect, acceptance, and individual differences.

3. Each time the teacher witnesses the student making an attempt to cope with a social problem in a positive way, provide verbal reinforcement and encouragement. When appropriate, ask the student what actions appeared to be most effective and what actions were less effective, and the student’s perceptions of the reasons for the differences.

4. Engage the whole class or small groups of students in problem-solving sessions regarding social situations. Encourage the student to participate so that you can ascertain her perspective.

5. Praise the student for behaviors such as helping, sharing, or saying something nice to another person. Through role modeling, teach her how to compliment other people sincerely.

6. Have the student work on a project with a peer who will model positive social interactions.

**Activities**

1. To help the student become more accepted by other students, tailor some classroom activities to fit her specific strengths. Ask the student's parents to provide a list of the student's specific skills, interests, or areas of knowledge. For example, if you are planning a science project, identify an aspect of the topic in which the student has expertise and could present information or lead a group discussion. Help her organize and practice any presentation so it is successful.

2. Create situations that allow the student to have successful social experiences. For example, select a peer who would like to play a game with the student on the playground during recess.
3. Use highly structured cooperative learning groups to help the student participate in positive social interactions. Make sure that all students in the group know their responsibilities and how to accomplish them.

4. Encourage the student to join and participate in a school club or organization in which she is interested.

5. Teach the student or ask the physical education teacher to teach the student the rules and skills of a game. Select a game that the student will be able to participate in during recess or after school.

6. Improve the student's social skills by having her participate in a team sport with a coach who is aware of the student's behaviors and is able to provide a supportive positive learning experience.

7. Use the student's involvement in athletics to train socially acceptable behaviors. If possible, enlist the aid of the physical education teacher. Provide regular feedback to the student about how her behavior and actions in physical education or on a team were received. When negative behaviors occur, brainstorm alternative behaviors with the student.

Self-Esteem

General Recommendations


2. The student’s instructional needs must be addressed immediately to ensure that she does not quit trying and that she progresses academically. With a highly structured teaching situation and with appropriate activities and materials modified to her performance levels, she should make progress, regain self-confidence and self-esteem, and renew her interest in learning.

3. An intensive program of academic intervention must begin soon to reduce the student’s frustration regarding her lack of learning, to increase her self-esteem, and to resolve attitudinal concerns regarding self and school.

4. One of the strongest factors in improving a student’s self-concept and effecting the personal changes secondary to improved self-concept is a strong, positive relationship with a teacher who likes and enjoys the student as a person. Ideas for showing acceptance are:

5. Demonstrate to the student that you like and approve of the student by providing frequent positive reinforcements, such as a smile, a hug, a positive comment on a paper, special privileges, or rewards.

6. Watch for situations where the student is doing something correctly or behaving appropriately. Make a positive comment to the student in front of others regarding the behavior.

7. When providing daily feedback to the student, be sure to make five positive comments to one negative or corrective comment.
8. Assign the student a classroom task that she would enjoy, such as watering the plants or collecting homework assignments. Express gratitude after she has completed the task.
9. Create opportunities to ask the student what she thinks about certain things. Make it apparent that you are sincerely interested in her opinion.

**Development and Appreciation of Strengths**

1. Recognize and comment upon the student's unique talents. When you acknowledge a student's strengths, you provide an opportunity for other students to make positive comments as well.
2. Help the student become better in whatever she already does well. For example, because she is struggling with reading, but not having difficulty in math, be sure to direct attention to increasing skills in both reading and math.
3. Help the student develop her strengths. The student should participate in enrichment programs that will enhance her abilities in [write in appropriate area.] Two examples might be: [(a) an advanced hands-on science program that emphasizes discussion and activity rather than reading and writing or (b) classes or discussion sessions that use questioning strategies designed to encourage and develop critical thinking skills.]
4. Encourage the student’s parents to help her become involved in individual sports rather than team sports. In sports such as swimming or martial arts, she can be physically active, progress at her own pace, and develop self-confidence.
5. Encourage the student to participate in well-supervised, competitive activities, such as team sports, in which she has demonstrated a particular affinity and skill.
6. Capitalize on instructional activities in which the student is successful. For example, have the student participate in a cross-age tutoring program in a structured setting where she teaches a younger student the skills that she has recently mastered.
7. To help build self esteem, provide opportunities for the student to teach something she knows or skills she knows how to perform to another student or small group of students.
8. Help the student develop specialty areas where she can be an expert. Encourage her to study topics of interest in depth. Provide opportunities in the classroom so that she can share her expertise.
9. Place value in the classroom on nonacademic strengths, such as mechanical, musical, or athletic abilities. Provide opportunities for the student to demonstrate her knowledge or abilities to classmates.
10. The student has many strengths that are not highly related to academic performance. Attempt to determine ways to integrate these abilities (e.g., motor skills, artistic skills) into the curriculum.

11. Ask that the physical education teacher or parents help the student develop skill in a one-to-one sport, such as tennis or handball. Provide opportunities for the student to play with others.

**Understanding Weaknesses/Self Advocacy**

1. Teach the student about learning disabilities in general—what they are, how many people have them, their hereditary nature, and their lack of correlation to general intelligence. Explain the student’s specific learning disabilities, discuss the fact that other people have similar differences, and explain how the techniques you or the resource teacher is using strengthen the problem areas. Discuss also the student’s areas of cognitive, academic, and social strengths.

2. Include the student in an learning disabilities education and support group comprised of peers with learning disabilities and facilitated by an adult who has specific expertise in learning disabilities, who can engage the students in discussion-generating activities, and who is skilled in guiding discussions.

3. Explain to the student the reasons that she is struggling on certain tasks in school. Tell her how specific accommodations will help her to be more successful. Encourage her to ask teachers for accommodations, such as extended time on assignments, whenever she feels that they are needed.

4. Discuss with the student how all people are unique and have areas in which they excel and areas in which they struggle. Help the student understand her own individuality so that she is able to make an accurate, noncritical, and honest self-appraisal.

5. Help the student learn to become an advocate for herself. A clear understanding of strengths and limitations will enable her to share information about her instructional needs with others. Help her learn how to explain her areas of difficulties and strengths to someone else, the accommodations and modifications she needs, and how these will help her to accomplish the tasks assigned.

6. Help the student develop a clear understanding of the types of tasks that are easy for her versus those that are difficult. Help her explore the types of courses and career options that are most in line with her unique talents.

**Assignments**

1. Do not assign the student work that is too difficult for her to complete independently. If additional instructional support is required, such as a peer tutor or parent volunteer, be sure to provide it. Reinforce the student based upon the amount of work she completes successfully.
2. Reduce the amount of work the student is required to do during independent seatwork assignments so that she completes her work successfully in school. Comment upon how diligently she has worked on the assignment.

3. When the student has difficulty with an assignment or project, provide the student with an opportunity to redo the work for a higher grade.

4. Remember that a student will become successful by having successful experiences. Initially, ignore the student's errors and mistakes and praise her effort. As effort improves, help the student understand that mistakes are just part of a learning process and that they help inform the teacher about whether or not the material has been learned.

5. Consistently praise the student for sincere effort rather than accomplishment. Increases in effort will result in improvement of the final product.

6. Keep a folder with the student's schoolwork. Occasionally, meet with the student, review past work, and discuss progress and development.

7. As the student's confidence increases, teach her strategies for coping with failure. For example, if she fails an assignment or a test, brainstorm alternative methods of handling the situation. Help her to understand that low grades are not a reflection of self worth.

**Class Discussions**

1. When the student provides correct responses in class, make a positive comment. Commenting upon the right responses will increase confidence and, as a result, help the student develop a more positive attitude toward school.

2. When the student is uncertain about answers, encourage risk taking. Even if a response is incorrect, make a positive comment that acknowledges the student's willingness to express ideas.

3. Until her confidence increases, when calling on the student in class, only ask her questions that you know she will be able to answer successfully. You may want to let her know ahead of time that you will be calling on her and asking her to answer this specific question. If necessary, review the correct answer with her.

4. Help the student organize thoughts and knowledge about a topic prior to a class discussion. Call on the student when you know she will be able to answer a question correctly. If needed, let the student know the question you will ask her before class begins.

**Home**

1. Encourage your child to participate in extracurricular and recreational activities in which she will be successful.
2. Have your daughter be responsible for completing several chores at home. Have her make a list of duties and check off the tasks as they are completed.

3. Encourage your daughter to participate in some type of volunteer program, such as at a local hospital or nursing home. Make sure that the job expectations are clear.

4. Ensure that your child develop an island of competence (Brooks, 1991). She needs to have one or more areas where she is accomplished, admired, and rewarded for her knowledge and talents.
SENSORY IMPAIRMENTS: HEARING

Related Sections: Most of the recommendations provided in the other sections of Part 3 are appropriate for students with sensory impairments, in some cases, with minor adaptations. The recommendations in this section primarily address needs and problems of students with hearing impairments.

Contents: Sensory Impairments: Hearing

Note to the Reader

Primarily Oral Communication: Hard of Hearing/Auditory Processing
  Further Evaluation
  Accommodations
    Technological
    Environmental
    Instructional
  Phonological Awareness, Phonics Approach for Basic Reading and Spelling Skills

Primarily Signed Communication: Deaf
  General Recommendations
  Reading Programs
  Basic Reading and Spelling Skills
  Reading Comprehension
  Content Area Instruction
  Behavior/Social Skills

Hard of Hearing, CAPD, Deaf: Oral or Signed Communication
  Further Evaluation
  Resources
  Technology
  Seating Arrangements
  General Instruction
    Lectures and Content Area Information
    Reading Instruction
    English Grammar and Syntax
    Social-Emotional Competence

Note to the Reader: For the purposes of this section, students who are hard of hearing are those who depend on speech as their primary mode of communication; deaf students are those who use some form of manual communication and little or no speech. Evaluators writing recommendations for students who use a communication mode that incorporates sign and speech, may want to read through the recommendations for both groups.

When choosing a recommendation, consider the type of training and expertise that would be required of the professional providing the service. In the area of hearing impairment, a student may be served by a general education teacher, a certified teacher of the hearing impaired, a speech-language pathologist (SLP), and/or a learning disabilities specialist. A recommendation that depends on interpretation of an audiometric report might best be addressed by the certified teacher of the hearing impaired, whereas the development of phonological awareness skills may be addressed by the general education teacher, the SLP, or the learning disabilities specialist, depending on the hearing abilities and learning needs of the student.

Although the etiologies are different, the problems presented by students who are hard-of-hearing and students with central auditory processing disorders (CAPD) are similar in many ways. CAPD is a perceptual disorder that causes a person to miss or misperceive the sounds of words and/or have difficulty directing attention to auditory input, even in optimal acoustical conditions. These difficulties are exacerbated in the presence of poor acoustic conditions such as background noise, a reverberant room, or extended distance from the teacher or speaker. A CAPD also interferes with perception of speech that is altered in some way, such as rapid or accented speech. While CAPD cannot be diagnosed in students with hearing impairments, many of the accommodations and instructional recommendations are the same or similar. Consequently, the authors have chosen to include Auditory Processing here rather than duplicate many recommendations.

Recommendations that may apply to students who have any level of hearing impairment, regardless of mode of communication, or CAPD, are listed under the last major subheading in this section, Hard of Hearing, CAPD, Deaf: Oral or Signed Communication. The oral language problems secondary to CAPD are addressed in the Oral Language section of Part III: Recommendations.

**Primarily Oral Communication: Hard-of-Hearing/Auditory Processing**

**Further Evaluation**

1. Because the student has particular difficulty with tasks involving auditory processing, he should have a comprehensive audiological examination to rule out a hearing loss. The examination should measure hearing acuity levels at different sound frequencies and discrimination of speech sounds.

2. Request that the student be evaluated for a central auditory processing disorder by an educational audiologist who specializes in this area. The audiologist should rule out a hearing impairment as part of this examination.
Accommodations

Technological

1. Consult the school’s educational audiologist about using an assistive listening device system (e.g., personal FM systems, Sound Field Amplification) for the student to increase the signal-to-noise ratio and, thus, improve perception of the teacher’s voice. (Students with CAPD may benefit from these systems.)

2. The student should use the best possible amplification during the lesson and during the rest of the day so that the language sounds he hears are as accurate as possible. Check his amplification system [hearing aids, FM system, cochlear implant] for proper functioning at the start of each day and just prior to instruction in phonological awareness/reading and speech. High malfunction rates are common in systems that are not routinely monitored.

3. Provide opportunities for the student to use taped materials (e.g., audio books, Language Master) along with printed materials in the classroom. Hearing the words as he looks at them will help to increase the student's oral and reading vocabulary.

Environmental

1. Because the student has difficulty [hearing, perceiving] speech sounds clearly, provide him with preferential seating in any educational settings. Place him near the teacher or major source of instruction. He should have full view of the teacher’s face, have his better ear toward the teacher, and be seated away from noisy areas (e.g., hallway, air conditioner).

2. Attempt to reduce distracting sounds and minimize background noise by seating the student away from noisy hallways, ventilation ducts, windows near playgrounds, or other obvious noise sources. Use rubber tips on chair legs, unless the room is carpeted, and plant thick shrubbery outside windows that face noisy streets.

3. Attempt to minimize reverberation effects by using carpeting, drapery, acoustical ceiling tile, sound-absorbing bulletin boards, and sound-absorbing room dividers to separate work areas.

Instructional

1. Even though the student's hearing may be improved by use of a hearing aid, it is still not corrected. Provide special classroom adaptations, as needed.

2. For group discussions, develop a system for indicating which student is about to speak so that the student who is hard of hearing does not lose the content of what is said while trying to locate the source of the voice. The teacher may call on a student by name while pointing to him or the student who is to speak may raise his hand or stand. Explain to the class the reason for doing this and that it is a matter of courtesy.

3. Discuss with the [teacher of the hearing impaired, resource specialist] ways you can regularly reinforce skills that the student is learning.

4. Because the student has difficulty [hearing, processing] oral information, provide visual outlines and graphic organizers for tasks involving listening. Resource or itinerant personnel may assist the regular educator with pre-teaching concepts and providing instruction that gives prior knowledge and background to facilitate better processing of the classroom instruction.

5. Encourage the student to tape record important lectures so that he may listen to and write down the significant points at a later date.

6. The student may have difficulty listening to lectures and taking class notes. Provide him with your lecture notes or a note-taker.

7. Because of [poor auditory processing, distorted detection] of sounds, the student is likely to struggle with the phonology of foreign languages. Allow the student to use American Sign Language to meet the foreign language requirement or consider a waiver or course substitution.

8. When speaking to the student, stand within 2 to 6 feet, use a normal voice, face the individual, and speak slowly. Do not exaggerate mouth movements.

9. When the student needs clarification of something you have said, paraphrase or reword your statement instead of repeating it. Move to within 2 to 3 feet of the student at his eye level.

**Phonological Awareness, Phonics Approach for Basic Reading and Spelling Skills**

1. Provide the student with a systematic and explicit program of instruction in phonological and phonemic awareness prior to and integrated with instruction in basic reading and spelling skills. Due to the student’s limited hearing, he may lack incidental experiences in verbal communication and language play (e.g., alliteration, rhyming) that typically provide significant foundation for developing phonological and phonemic awareness. [See Recommendations: Phonological Awareness: Sample Programs for suggestions and descriptions of specific programs.]

2. Directly teach the student how to use verbal mediation and verbal rehearsal to enhance his short-term memory. As many phonological tasks are facilitated by oral or subvocal repetition of sentences, words, or sounds (e.g., repeating words to see if they rhyme, repeating sounds to blend them), verbal rehearsal and mediation are necessary skills. When you assign a task, model and talk through the process, including repeating the oral stimulus. Provide a variety of activities for practice, then guide the student to generalize the use of verbal rehearsal into other tasks.
• A game to promote verbal rehearsal that is used in a small group of students who are hard of hearing, is motivating to students of any age, and focuses on teamwork, is “telephone.” The teacher writes down a sentence that is short and syntactically simple enough for everyone in the group to repeat accurately and, if possible, with consideration to the frequencies that most of the students can hear. The teacher and one student move to a place where their faces cannot be seen by the group, and the teacher (the “teller”) tells the student the sentence. (If the group uses an FM system, the “teller” should use the mike and all students except the “listener” turn off their hearing aids.) The “listener” becomes the “teller,” chooses another student, and passes on the sentence. Students repeat this procedure until each has told another. The last “listener” says the sentence aloud and the teacher checks it against the written sentence. If correct, all of the students receive a reward (e.g., point on board towards free time). This game may also be played with teams competing against each other. Gradually, increase the complexity, length, or conceptual level of the oral stimuli or decrease the context (e.g., word lists, sounds).

3. Because the student’s oral vocabulary is limited, instruction in phonemic awareness and basic reading and spelling skills should incorporate words already in the student’s oral vocabulary. This is important because (a) familiar words are easier to hold in short-term memory, (b) the student is able to focus on the task itself without trying to learn the pronunciation and meaning of a new word at the same time, and (c) when the student is practicing blending individual sounds to make a word, he must be able to find a match for the resultant word in his oral vocabulary.

4. Accurate speech production is important in tasks that depend on sound awareness. The student is more likely to pronounce words accurately if he can hear the sounds; consequently, when planning initial instruction in any phonemic, reading, or spelling skill, request help from the audiologist to identify words and sounds that will be audible to the student based on his audiogram and speech discrimination ability. Words that the student has learned to pronounce correctly, even if he cannot hear all of the sounds, may also be used.

5. Because the student demonstrates severe difficulty perceiving speech sounds, use a program that stresses the oral-motor characteristics of speech. One carefully designed, intensive program for developing phonemic awareness and reading skills is the Lindamood ® Phoneme Sequencing Program for Reading, Spelling, and Speech (LiPS®) (Lindamood & Lindamood, 1998) which incorporates training in the oral-motor aspect of the sounds and cues for remembering them. LiPS requires specific instructor training. Products and training are available from Gander Educational Publishing™, 412 Higuera St., Ste. 200, San Luis Obispo, CA 93401, (800) 554-1819, http://www.lindamoodbell.com/gander.
6. Due to the student’s difficulty in learning new sight words and spelling words, teach him to use multisensory study methods that depend on revisualization of the word without a model (no copying). One such method is the adaptation of LSFW (Look-Sign-Fingerspell-Write) for students who use both sign and speech, including signing and saying the word, fingerspelling and saying the letters and then signing and saying the word, before correctly writing from memory and checking five consecutive times. If the student continues to have difficulty, include a tracing component or use the Modified Fernald Method for Reading and Spelling. [See Strategies: Look-Sign-Fingerspell-Write, Fernald Method for Reading and Spelling: Modified.]

**Primarily Signed Communication: Deaf**

**General Recommendations**

1. The student should be provided with educational opportunities to work with same age deaf peers and to receive instruction directly from a teacher using American Sign Language.

2. The student requires an active, experiential approach to language and concept development that is delivered within [an American Sign Language, a simultaneous communication, other communication system] environment. Language development should be infused and supported throughout the school day.

3. The student can communicate with few people in the school other than his sign interpreter. Provide opportunities for other students in the classroom to learn to sign. An easy way to begin is to teach fingerspelling, the hand positions for individual letters of the alphabet, to the entire class. If possible, invite a person experienced in teaching sign to work with your class several times weekly.

4. The visual contrast between the interpreter’s clothes, and her hands and face can make it easier or more difficult for the student to understand her sign. Help the student to consider this and, if he has a preference (e.g., dark clothes, no stripes or bold print), communicate it to the interpreter.

5. When students are expected to take notes, provide the student with a note-taker, as he cannot take notes while watching the interpreter.

6. Although the student may be able to speechread to some extent, remember that this is not a viable method of communication for any information of import. Only about 30% of English speech sounds are visible on the lips and 50% of speech sounds look like other sounds (e.g., *maybe, baby, pay me*).

7. Teach the student how to use verbal rehearsal in sign to help himself hold information in memory while working with it.

Recommendations: Sensory Impairments: Hearing  p. 7

Reading Programs

1. Select a basic reading program that controls the introduction of sight words and English syntax so that the student receives direct instruction in vocabulary and syntactical structures before they are presented in text, and previously introduced vocabulary and syntax are repeatedly incorporated into subsequent reading and writing activities so that they are continually reinforced, to move the student from new learning to automaticity.

2. Use a reading/spelling program that incorporates many high frequency words, that introduces English syntax systematically, that continuously reinforces previously learned sight words, spelling words, figurative language, and syntax in connected text and writing activities while introducing new ones, and that progresses slowly enough for the student to gain mastery before moving on. One such program is Reading Milestones, Third Edition (Quigley, McAnally, Rose, & King, 2001). Available from Pro-Ed, 8700 Shoal Creek Blvd., Austin, TX 78757-6897, (800) 897-3202, http://www.proedinc.com.

3. As soon as the student has acquired sufficient sight vocabulary and understanding of basic English syntax, incorporate trade books and books of higher interest into classroom reading but do not have the student read above his instructional level.

Basic Reading and Spelling Skills

1. Because the student’s sight vocabulary is quite limited, he will need to focus on building a strong base of sight words. Use the same words for sight word and spelling study, rather than using separate lists. Learning to spell his words will reinforce his reading recognition and provide a solid base for learning words with similar spelling patterns.

2. Use reading materials with carefully controlled vocabulary so that as the student learns new sight words, he encounters them in text repeatedly.

3. Within his reading program, the student will benefit from a strong emphasis on increasing sight vocabulary, learning similar two- and three-word verbs (e.g., look up, look out, look for, look out for), dual meaning words and phrases (e.g., “look up” has at least four meanings), common idioms, and survival words (e.g., Do not enter, poison).

4. Guide the student to develop orthographic awareness by helping him to recognize the letter patterns that are frequently seen in written English. The object is for the student to perceive common letter patterns as chunks, rather than as a string of individual letters. For example, once the student automatically recognizes pr, ea, and ch, he is likely to perceive the word preach as having only three elements rather than six. As his inventory of chunks increases, he will perceive new words as having fewer, and more familiar, elements, facilitating both recognition and retrieval. Provide instruction and reinforcement of letter patterns until recognition and retrieval are automatic. [See Strategies: Phonogram Games.]
Recommendations: Sensory Impairments: Hearing

- When teaching sight words, directly teach the student to recognize common letter patterns within the word (e.g., igh in sight, oo in look). Reinforce automatic recognition of the letter pattern by having the student find it in other words and differentiate it from similar patterns. For example, given a page of words containing oo, have him track across each line, circling oo. Later, have him circle oo on a similar worksheet comprised of words that incorporate oo as well as vowel combinations similar to oo such as ou. [See Strategies: Phonogram Games.]

5. As the student needs to focus on letter patterns in order to improve his reading and spelling skills, do not use word searches or words with scrambled letters in instructional or reinforcement activities. Instead, use activities that emphasize the correct letter sequences.

6. Teach the student the difference between vowels and consonants, what syllables are, and that each syllable has at least one vowel. Generally, except for final, silent e, each vowel or vowel combination separated from another vowel/vowel combination by consonants represents a syllable. The ability to recognize the number of syllables in a word gives a clue to its length and facilitates chunking the words for easier recognition of word parts. Make sure that the student learns that there are no words without vowels in English and that all syllables have at least one vowel. (Exceptions do not require discussion at this time.)

7. To learn new sight words and spelling words, teach the student to use LSFW (Look-Sign-Fingerspell-Write) or other study methods that depend on rev visualization of the word without a model (no copying) after initial study. [See that he practices his fingerspelling with a pause between word parts (e.g., cr-ab) to reinforce kinesthetically his recognition of common letter combinations.] If the student continues to have difficulty retaining the words, use one of the modifications, such as incorporating a tracing step. [See Strategies: Look-Sign-Fingerspell-Write.]

8. Teach the student reading decoding skills using a multisensory program such as See the Sound (formerly Visual Phonics), a system of 46 hand signs and written symbols that suggest how a sound is made. Learning sight words through See the Sound gives the student a way to link specific gestures and oral-motor cues, representing sounds, to letters and combinations of letters. Within this system, students learn to recognize letter patterns, such as vowel-consonant as contrasted with vowel-consonant-silent e, thus facilitating the development of a student’s orthographic awareness. More information is available from: International Communication Learning Institute (ICLI), 7108 Bristol Blvd., Edina, MN 55435, (612) 929-9381.

9. Due to difficulty recognizing and retaining sequences of visual symbols, the student will benefit from instructional techniques that highlight the critical features of the symbols while compelling attention to task. For reading, use multisensory techniques to teach the student to recognize common letter patterns as well as whole words. For math, use Touch Math, as a supplement to the classroom math program, for basic computation skills and for comprehension of word problems. Available from Innovative Learning Concepts 6760 Corporate Drive, Colorado Springs, Colorado, 80919-1999, (888) TOUCHMATH (or 868-2462), http://www.touchmath.com.

10. Create multiple opportunities for the student to encounter new words and previously learned words in a variety of reading materials and to write them many times within meaningful but structured writing assignments.

11. Use computer programs whenever possible for drill and practice to enhance the student’s attention to the principle or skill being reinforced. Make sure, however, that the programs used directly address the skill he is learning and that the auditory components of the program are not necessary for him to benefit from its use. [See Strategies: Software Selection Tips.]

12. If the student repeatedly sequences letters incorrectly while practicing the fingerspelling component of word study and cannot resolve his confusion quickly, with guidance, have him stop studying that particular word and come back to it later so that he does not learn the incorrect sequence.

**Reading Comprehension**

1. As the student’s primary language is American Sign Language (ASL), teach him the difference between ASL and English. Initially, for reading comprehension, he needs to be able to translate what he reads into his primary language. You might start with a picture and ask him to sign what is happening. If necessary, help him to sign it in proper ASL, not English. Then show him how it is written in English. Help him to understand that ASL is how it would be signed when directly communicating with another person but English is how it is written. Gradually, move him toward reading a simple English sentence first and then signing it in ASL.

2. When teaching any reading comprehension skill, teach the concept first in [American Sign Language, primary communication mode.] For example, when teaching main idea, present stories or expository information in ASL or on a videotape (with the characters signing or teacher interpreting the captions), and conduct activities and discussion regarding main idea in ASL. When the student can watch an ASL presentation and sign the main idea, provide reading passages at his independent reading level, and practice expressing the main idea.

**Content Area Instruction**

1. The student depends on visual learning. When planning lessons, think in terms of replacing sound with vision. Make every effort to provide visual representations of concepts and information that he needs to learn. This includes the use of videotapes and computer software. For example, computer software is available that provides explanations along with 3-dimensional views of geometry concepts, photosynthesis, and historical events. Make frequent use of graphic organizers, such as using a timeline to show events in temporal relationship or a two-column table to show comparison/contrast.

2. As the student has particular difficulty understanding question words, encourage him to take particular notice of these words and motivate him to consider their meaning more carefully by giving credit for paraphrasing a question correctly, in sign, even if he cannot answer it. For example, in response to the question, “Why did the settlers keep moving west?” the student would receive partial credit for signing, “Reasons for move west.”

3. When using a video in content area classes, increase comprehension and retention of the important information using some supportive techniques: (a) writing on the board and briefly explain the key concepts you want the student to get from the video, (b) give the student a study guide containing questions he will answer either during or after the videotape presentation. Explain the questions and clarify the type of information that constitutes an acceptable answer, (c) interpret the entire videotape, simplifying the language when necessary. Do not depend on the student reading the captions, and (d) using the remote, stop the tape when you need more time to interpret and explain the information being given in the captions – especially when the video answers one of the questions you have asked.

4. Teach the student a study technique for learning and recalling conceptual information using index cards as study materials. On one side of the index card, print the word for the target concept. On the other side of the card, provide examples of the concept using pictures, pictures of the signs, or printed words. For example, if photosynthesis were printed on one side of the card, a diagram of the process could be drawn on the other; if attitude were written on one side, the other could have pictures or signs illustrating willing, cheerful, angry, and rude. The student can read the word on the card, try to explain the meaning to himself, and then check by turning the card over. Conversely, he can look at the picture/sign side of the card and sign or spell the word that names the concept.

Behavior/Social Skills

1. Teach the students how to appropriately gain someone’s attention, such as tapping on the table top with the flat of the hand, tapping a person lightly on the shoulder, or waving a hand from a few feet away.

2. When writing classroom rules and behavioral intervention objectives, keep in mind the differences between Deaf and hearing cultures. For example, “Keep hands to yourself” may prohibit a student from requesting attention in expected and acceptable ways. Model what you mean.

Hard of Hearing, CAPD, Deaf: Oral or Signed Communication

Further Evaluation

Consult an educational audiologist to obtain a comprehensive hearing evaluation for the student that measures the degree of loss and the individual's level of hearing at various sound frequencies as well as his ability to discriminate speech sounds. The evaluation should include unaided and aided hearing levels and speech discrimination.

Resources

1. In planning the student's educational program, consult with a specialist in education of the hearing impaired who can recommend necessary classroom modifications, provide resource help, and identify community resources.
2. Consult with the audiologist or teacher of the hearing impaired regarding the type of hearing loss the student has. Realize that a conductive hearing loss can be assisted by amplifying sound, whereas a sensorineural hearing loss may or may not be helped by amplification since the distortion of sound is also amplified.

3. Schedule regular communication with resource personnel so that information in classroom lessons can be reviewed in individual therapy.

4. Identify the local, state, and national resources that can help you develop a program for a student with a hearing impairment.

5. Two websites that provide a wide range of valuable information regarding issues related to deafness and hearing impairment, including education, are http://www.nad.org, sponsored by the National Association of the Deaf and http://clerccenter.gallaudet.edu, sponsored by Gallaudet University.

**Technology**

1. Amplification systems (e.g., different types of hearing aids, cochlear implants, auditory trainers, classroom FM systems, sound-field systems) differ widely in their use and in the type of benefit they provide to the people wearing them. Request information from the teacher of the hearing impaired or the educational audiologist regarding the type of amplification system he has, its features, the most effective way to use it, and when he should take it off (e.g., for swimming, certain PE activities).

2. [Many deaf students who use sign language predominantly, depend on their personal amplification systems to alert them to environmental sounds, emergency situations, and, in many situations, to assist in perceiving oral communication.] Have the school audiologist or speech/language pathologist teach you how to [operate, test] the student’s amplification [system, device.] Check daily to see if the equipment is turned on and switched to the proper setting. Keep spare batteries in your desk and know how to change them.

3. Make sure that the student who cannot use the telephone has access to a telecommunication device (TTY), enabling him to send and receive typewritten messages over telephone lines. Also, teach him how to use the relay system so that he can use his telecommunication device (TTY) to communicate with people who do not have a TTY.

**Seating Arrangements**

1. Use seating arrangements that allow the student to see other students (e.g., horseshoe, circle). This type of arrangement is particularly important during group activities.

2. Because the student requires more intensity, repetitions, and a different technique than his classmates, he should always have the option to study in a place out of the view of other students but where he can be easily monitored periodically by the teacher. A study carrel would serve this purpose or considered positioning of his desk in the classroom.
General Instruction

1. The student requires an educational program designed for the hearing impaired and administered by a certified teacher of the hearing impaired. [American Sign Language, simultaneous communication, or other language system] should be the primary language of instruction within a small student to teacher instructional setting.

2. Due to the student’s learning disabilities, he requires instruction that is explicit and systematic. Present all [insert skill area] skills to the student in a developmental and logical sequence, provide direct instruction, assess his understanding, provide drill and practice, assess mastery, and teach generalization. Review and reinforce previously learned skills and concepts by incorporating them into practice of more recently learned skills.

3. Use films and videotapes with open captions so that the student will be able to read the same information that other students are hearing from the soundtrack. Films and videotapes may borrowed, rent-free, from a catalog of over 4,000 from Captioned Media Program, National Association of the Deaf, 1447 E. Main Street, Spartanburg, SC 29307, phone: (800) 237-6213 (voice); (800) 237-6819 (TTY); website: http://www.cfv.org, e-mail: info@cfv.org.

4. To enhance learning, provide relevant visual stimulation such as videos, pictures, graphic organizers, and computer software to help the student form associations for new concepts.

5. Help the student expand his vocabulary by providing field trips to a variety of locations accompanied by [signed] discussions of what you are seeing or experiencing.

Lectures and Content Area Information

1. Because students who are deaf or hard of hearing miss vast amounts of information that hearing children learn incidentally, their background knowledge is often critically limited. Consequently, it is imperative to assess the student’s prior knowledge in any area of study before starting a new unit. It is likely that he will need supplementary information to establish the same level of readiness as his classmates to begin the new unit.

2. Preteach difficult or important words and concepts before presenting them in class. Resource teachers, itinerant teachers of the hearing-impaired, teaching assistants, and parent volunteers can assist in this area.

3. Have the student prepare ahead for topics that will be discussed in class. For example, the student may read the chapter before it is introduced in the class. This will help the student to participate more fully in class discussions.

4. Encourage the student to ask questions when he does not understand what has been said. Rephrase the information to convey the intended meaning.
5. Students with hearing impairments gain particular benefit from well-organized lessons in content areas. Some guidelines are: activate students’ prior knowledge, preteach key vocabulary, provide an advance organizer, present the material, and reinforce and evaluate concept learning. [See Strategies: Content Area Instruction: Components of Effective Lessons.]

6. When you are introducing a new subject, give some indication to the student that you are changing the topic. For example, write the new topic on the board or, if you have written an outline on the board, cross out the topic you have just completed.

7. Write homework assignments on the board— if possible, at the beginning of the period—and provide quiet time for all of the students to copy it down. The student is less likely to understand the assignment, and may not know there is an assignment, if it is explained only orally or if he must copy it down in a hurry.

**Reading Instruction**

1. When teaching sight vocabulary, teach the words most frequently used in print in English. The first 25 make up about 30% of all printed material, the first 100 words make up 50%, and the first 300 words comprise 65%. [See Strategies: Instant Words 300.]

2. Teach the student to use context clues primarily as a way to infer the meaning of a word but only as a supportive strategy for word recognition. Generally, in educational materials used in grades 4 through 8, students are 40% accurate in using context to guess function words (e.g., articles, prepositions) and 10% accurate in guessing content words (e.g., nouns, verbs), which carry the most important meaning. Instead, focus on the development of a sight vocabulary covering many concepts, multiple meanings, and figurative language. [See Strategies: Context Clues.]

3. Specifically teach the student the morphological structure of words, including Greek and Latin word parts, to help the student develop both orthographic recognition of words as well as clues to their meanings.
English Grammar and Syntax

Use a hands-on, visual program to teach the student to understand and use English grammar correctly for reading and writing. One such program is Manipulative Visual Language (MVL) (Gore & Gillies, patent pending), developed by teachers of the deaf to provide students, deaf or hearing, with a visual, manipulable model of English grammatical forms. This program utilizes 2- and 3-dimensional forms--variously shaped, colored, and coded--to represent different parts of speech. Concepts of nouns, verbs, verb tenses, prepositions, and other grammatical elements are introduced through the use of these shapes. Once the concepts are understood, English sentence structure is introduced, and ultimately, literature is incorporated. MVL is recommended for elementary students to establish an early, strong foundation in English grammar and is also appropriate for use with older students still struggling with these skills. MVL can also be used to teach the syntax of American Sign Language. Instructional materials, the teacher’s manual, and training in using the system are available from Robert Gillies, 23 Bridge Street, Yarmouth, ME 04096, phone: (207) 846-8937, e-mail: caitnor@mac.com, or Jimmy Challis Gore, phone: (520) 744-2168 (TTY) or use Relay Service, e-mail: JGore3312@aol.com.

Social-Emotional Competence

The student would benefit from participation in a program to increase emotional and social competencies. The PATHS (Promoting Alternative THinking Strategies) Curriculum is one such program, designed for elementary school-aged children, and research validated with classes of deaf and hard-of-hearing children as well as with children in regular education settings. A key objective of the PATHS Curriculum is to prevent or reduce behavioral and emotional problems. Documented outcomes included an increase in children’s ability to understand social problems and develop effective alternative solutions, and a decrease in aggressive or violent solutions. Additionally, children demonstrated increased understanding and recognition of emotions and frequency of prosocial behaviors. PATHS was selected by the Center for the Study and Prevention of Violence as one of 10 model programs (out of 450 reviewed) based on effectiveness in violence prevention. Available from Developmental Research and Programs (subsidiary, Channing L. Bete Co.), 200 State Road, South Deerfield, MA 01373, phone: 877-896-8532, e-mail: custsvcsc@channing-bete.com, website: http://www.channing-bete.com. PATHS website: to www.colorado.edu/cspv/blueprints/model/programs/PATHS.html.
SENSORY IMPAIRMENTS: VISION

Related Sections: Most of the recommendations provided in the other sections of Part 3 are appropriate for students with sensory impairments, in some cases, with minor adaptations. The recommendations in this section primarily address needs and problems of students with visual impairments.

Contents: Sensory Impairments: Vision

Further Evaluation
Consultation, Collaboration, and Resources
Accommodations
   Environmental Accommodations
   Technological Accommodations and Special Materials
   Task Accommodations
Inclusion
Instruction
   Orientation
   Social Skills
   Cognitive and Academic Strengths
Braille
Reading
Math
Content Area Learning

Further Evaluation

1. Obtain a complete, clinical vision evaluation from an ophthalmologist. The evaluation should provide information on visual acuity, visual fields, use of binocular vision, visual disorders (if any), and prognosis for visual functioning.

2. Obtain a functional vision assessment, which provides specific information on how the student uses his vision in typical activities and recommendations for how to optimize his use of his vision. If additional information is needed, a low vision evaluation can provide suggestions for optical and non-optical aids and materials to enhance visual functioning.

3. Obtain an evaluation from a behavioral optometrist to assess the student’s ocular-motor functioning, or ability of the eyes to work together efficiently, including skills such as convergence sufficiency (combining the image from each eye into one clear image), accommodative efficiency (quickly changing focus between far and near objects), and tracking (moving the eyes smoothly along a line of print or down a column).

4. Request that the vision specialist conduct a learning media assessment to ascertain the student’s most effective modes of learning and literacy--tactual, visual, or auditory, and, based on the results, to make recommendations on best methods of working with the student.
5. Request that the vision specialist evaluate the benefit of colored, non-glare transparent overlays. Try them with different materials, with different size print, on different colors and compositions of paper, and in all of the lighting environments in which the student might read in the school and, if possible, at home. Document his responses and try to determine if he receives any benefit from the overlays.

6. Although the student appears to have difficulties that would indicate the presence of a learning disability, before classifying him as such, the multidisciplinary team is advised to review the student’s educational history and determine if the student has been receiving instruction and accommodations for his visual impairment that are both appropriate and sufficient to his needs; if the consistency of provision of services met his needs; and if he has been provided with the services of a certified teacher of the visually impaired who is both knowledgeable and competent.

**Consultation, Collaboration, and Resources**

1. The classroom teacher, vision specialist, and learning disabilities specialist should meet to decide what role each will take in providing the student the multiple services he needs, how to reinforce what the others are teaching, and how to communicate problems as they arise. Set up meetings at regular intervals to review his progress.

2. Consider asking the vision specialist to provide inservice training for all staff working with the student to explain how he sees his world, how his visual impairments affect his learning, and the importance of providing the accommodations she has recommended.

3. In planning the student's educational program, consult with a vision specialist who can clarify or explain information regarding the student's visual abilities and recommend necessary classroom accommodations and modifications, provide resource help and appropriate instructional materials, and identify community resources.

4. Obtain help from the vision specialist on ways to adapt lessons and materials so that the student can participate fully in the activities of the class.

5. Read the student’s ophthalmologic, functional vision, and/or low vision evaluations and consult with the vision specialist to ensure that the student has the visual devices, accommodations, and modifications required for him to benefit from his educational experience to the same extent as his normally-sighted peers.

6. The teacher may find it helpful to obtain additional information regarding visual impairment. The following websites provide a wide range of information regarding blindness and low vision.
   - Lighthouse International: [http://www.lighthouse.org](http://www.lighthouse.org)
   - About.com, The Human Internet: [http://www.blindness.about.com](http://www.blindness.about.com)
Accommodations

Environmental Accommodations

1. Keep classroom supplies and materials organized, in the same place, and easily accessible so that the student may locate them easily.

2. At all times, make sure that the student is seated so that he has an unobstructed view of the target of attention such as the board, the teacher, overhead projector screen, or demonstration materials.

3. Since the classroom is not organized traditionally, rather than seating the student at the front of the room, include him in the “pod” arrangement of desks with his CCTV at right angles to his desk. Make a desk available to him near the front of the room to which he can move when the overhead projector is being used or when other activities are happening there.

4. Make sure that the illumination in the classroom is appropriate for the student and that he is not in a position to look at direct light or into the glare of direct light on surfaces.

5. Avoid moving large pieces of furniture/equipment without first bringing it to the attention of the student. Teach all of students in the class to push their chairs in whenever they get up so they are less likely to obstruct the student’s passage.

6. Specify a specific place in the classroom, such as near the door, for the student to store his cane. Make sure that other students understand clearly that they are not to touch it.

Technological Accommodations and Special Materials

1. Read the reports of the student’s [ophthalmological, functional vision, low vision, behavioral optometric] evaluations and consult with the vision specialist regarding the materials and technology that would be beneficial for the student.

   • Specialized materials may include soft pencils or black felt-tip pens to increase contrast when writing, raised-line paper to enable the student to identify writing guidelines tactually, reading materials and writing paper printed on off-white or light-colored paper to reduce glare and increase contrast, and large print (print size must be specified) [or smaller print, for reduced visual fields] in sans serif fonts;

   • Specialized devices may include special lenses for glasses, magnification and/or telescopic devices, and slant boards;

   • Lighting accommodations may include dimmed lights, indirect light, or a lamp focused directly on the student’s work;
Recommendations: Sensory Impairments: Vision

1. Technological accommodations may include books on tape to compensate for slow reading or delayed reading skills, a CCTV (closed-circuit television) to magnify print and graphic materials or small objects; a screen magnifier program to magnify print and graphics on a computer monitor to any chosen size; a screen reader program to read all printed and graphic information on the computer screen; talking calculators, spell checkers, and thesaurus/dictionaries; and a speech recognition device to convert voice input to print on the computer.

2. Read the reports of the student’s vision evaluations and consult with the vision specialist to ensure that the student has the accommodations and modifications required for him to benefit from his educational experience to the same extent as his normally-sighted peers. As the student does not have residual vision usable for instructional purposes, ask about technological accommodations such as books on tape; Braille materials and a Braille Writer; a Braille note-taker (the user types Braille notes into the device and it reads them back), a screen reader program that will read aloud all printed and graphic information on the computer screen; a speech recognition device to convert voice input to print on the computer; an abacus; and a talking calculator, spell checker, and thesaurus/dictionary.

3. Investigate the possibility of providing the student with a computer Braille display--software and board of Braille cells that allow the user to use Braille to interact with the computer screen. The board displays refreshable Braille (Braille cells with pins that rise up out of the base or retract to represent Braille symbols). The user can move up or down rows of Braille cells or lines of print by use of rocker keys on the board. The cursor is indicated by a “blinking” (continuous up and down movement) pin just below the Braille cell, which the user can move to insert or delete text, as one would in a word processing program. This technology transforms the print on the screen into Braille on the display and converts the user’s braille-writing on the display into print on the screen. One such device is the PowerBraille, available from Blazie, a division of Freedom Scientific, BLV Group, LLC, 2850 SE Market Place, Stuart, FL 34997, (800) 444-4443, http://www.blazie.com.

Task Accommodations

1. When writing notes on the board, write large, neatly, and in a clearly organized format. Erase non-essential information and keep boards clean to eliminate visual distractions and clutter.

2. While writing notes on the board, read them aloud or, with the student’s permission, appoint another student or an instructional aide to read them to the student.

3. Do not require the student to copy from the board. As much as possible, provide this material preprinted for him. When not possible, provide a note-taker.

4. Whenever you use visual displays in the classroom, remember to describe the diagrams or illustrations in detail as well as the relationships between parts.

5. Provide the student with a printed copy of the [DOL sentences, “Fast Five” math problems, or other daily tasks that students copy from the board], so that he can do the work directly on the paper rather than having to copy the [sentences, problems, other stimuli] before doing the task.

6. Allow the student to record all class lectures on an audio tape.

7. Provide the student extra time to accomplish visual tasks such as reading, writing, math computation, drawing, and pulling information from pictures.

8. Remember that a student using braille or large print will typically read at a rate two or three times slower than the average reader. Be sure to allow him/her sufficient time to complete readings or shorten the assignments.

9. Ensure that the student’s reading materials are clear, well-spaced, and easy to read.

10. Teach the student how to take notes verbally for a paper or report, using a tape recorder. Later, the information can be transcribed into [print, braille.]

11. Provide the student with appropriate modifications for testing, ranging from extension of time limits to provision of oral examinations. [See Recommendations: Testing/Test-Taking.]

12. Be aware that the student may not interpret pictures accurately, especially line drawings or sketches.

13. Allow the student to have frequent rest periods from near-point visually demanding tasks.

Inclusion

1. Encourage the student to participate in as many classroom activities as possible. If an activity is inappropriate for the student, arrange an alternative activity.

2. To ensure that the student is a full participant in the class, have him perform the same types of tasks as other children, such as watering plants, erasing the chalkboard, or collecting lunch money. You may choose those that are less dependent on vision or appoint a buddy to guide the student, but not to do it for her.

3. Work closely with the physical education teacher to develop an appropriate physical education program. Try not to exclude the student from typical activities, unless indicated by the ophthalmologist.

Instruction

Orientation

1. Help the student devise a system to keep his materials organized in the classroom.

2. Obtain the services of a certified Orientation and Mobility Specialist to help the student [with very limited vision] learn to move about the classroom and school environment safely and independently.

3. Request that the vision specialist make labels and signs in Braille to post around the classroom. Explain to the students how braille is another system of communication.

**Social Skills**

Because of the student’s visual impairment, he is [severely, moderately, somewhat] limited in the type of social information that normally-sighted children acquire through incidental learning, including reading body language and facial expressions in social contexts, knowing when to offer his hand to shake, making or simulating eye contact, and developing conversational pragmatics. Use opportunities throughout the school day to explain these social conventions to him and provide him the opportunity to practice when you are able to observe and give feedback.

**Cognitive and Academic Strengths**

Despite the student’s significant visual impairment, he demonstrates a strength in his ability [to note critical details in pictures and remember them later.] Thus, the use of [pictures] will be an important instructional device in helping him to learn new concepts and remember rote information.

**Braille**

1. Help the student use his remaining vision to learn to recognize the spatial orientation of the dots comprising Braille symbols. For example, use half of an egg carton as a Braille cell and 6 ping-pong balls as dots. Paint 3 balls in one color and the other 3 in a contrasting color, for example, red and yellow. Teach the student that the left side of the cell is always yellow and the right is red. Give the student practice in using the color coding along with the placement of the balls to recognize and construct Braille letters. When the student masters a letter or contraction, continue to practice it with all white balls. Then practice with eyes closed. Gradually, reduce the size and tactile contrast of the materials.

2. As the student is experiencing severe difficulty recognizing the spatial layout of the dots comprising Braille symbols, introduce letters represented by larger cells, more pronounced tactile contrast, and increased spatial information. For example, teach a letter on a swing cell on which the student will be able to feel the holes (“non-dots”) as well as the dots. For spatial orientation, knowing where dots are not is just as important as knowing where dots are. The ability to feel all six positions provides more information as to the spatial layout of the symbol than feeling only the raised areas. Using different materials, gradually reduce the tactile contrast between the dots and non-dots (e.g., a mouse pad with a row of cells represented by 6 punch-holes for each and ball bearings for dots). Practice recognition and construction of Braille symbols, gradually reducing the size, tactile contrast, and non-dots as the student masters them in each medium. Continue, ensuring mastery at each step, until the student is able to recognize normal braille symbols.

3. Because the student confuses reversible Braille letters, such as lowercase i and e, help him to devise tactile-kinesthetic or oral mnemonics to help him distinguish between them. Example: Tactile-kinesthetic mnemonic: To distinguish between i and e, teach the student to simultaneously say, ice—i-c-e while he Braille-writes i-c-e until the movements are automatic. Then, the next time he experiences i/e confusion, he can use the spelling of ice to remind him. Example: Verbal mnemonic: To distinguish between m/sh, teach the student to use the phrase, “m and sh are meshed,” noting that /m/ starts the word and /sh/ ends it. Correspondingly, when 2 dots are on the left (or beginning) side of the cell, the letter is m, when the 2 dots are on the right side (the end) of the cell, it is the sh contraction.

**Reading**

1. Help the student register with Recordings for the Blind & Dyslexic (RFB& D) and secure textbooks on audiotape from them. The master-tape library has educational books that range from kindergarten through postgraduate level. If a book is unavailable, and is deemed to fit within the scope of the collection, it will be recorded upon request. In late 2001, RFB&D will make available a library of digital textbooks on CD-ROM, allowing students to navigate the book/disk by page, chapter or heading. [See Strategies: Taped Books.]

2. Provide the student with information regarding free sources for taped books (e.g., Recordings for the Blind & Dyslexic, public or university library, local school or agency for the visually impaired) and how to obtain them. [See Strategies: Taped Books.]

3. Before the end of this school year, ascertain what textbooks and novels the student will be required to read next year, complete an application to register him with Recordings for the Blind & Dyslexic, and place an order for any books that he will need. [See Strategies: Taped Books.]

4. Ensure that the student has a taped copy of any book that the class is reading. Provide headsets and encourage the student to listen to the book during silent reading time.

5. Document the student’s reading rate before he begins to use a new visual device and periodically as he uses it to ensure that his reading rate returns to baseline or higher. Be aware that when a student first starts using a new visual device, his reading rate is likely to decrease. As he becomes familiar with the use of the device, his rate should increase again. (Smith, 1999).

6. As the student needs a highly systematic multisensory decoding and spelling program, consider becoming trained in the Wilson Reading System and adapting it for the student and others with visual impairments needing a similar program. Originally designed for older students with reading disabilities, the program does not depend on pictures for any of the exercises, making it uniquely adaptable for students with visual impairments. [See Strategies: Wilson Reading System.]
7. To reinforce reading recognition, build automatic retrieval of [letter sounds, sight words], and increase reading fluency, create speed drills from the [phonics skills, sight words] the student has learned but which have not become automatic. The goal is for the student to read a page of 60 words within 60 seconds. Given his current achievement, [phonics elements, sight words] to include would be [write in specific phonics elements and sight words.] This technique works well with large paper and print. The field on a CCTV, however, is too restricted to allow for uninterrupted reading across a line and a smooth return to the left side of the line below. [See Strategies: Speed Drills for Reading Fluency and Basic Skills.]

8. To reinforce reading recognition, build automatic retrieval of [letter sounds, sight words], and increase reading fluency, create speed drills from the [phonics skills, Braille contractions, sight words] the student has learned but which have not become automatic. The goal for each page is for the student to read __ words within 60 seconds. [Write in a number that would represent a reasonable increase in rate based on the baseline measurement.] Given his current level of achievement, [phonics elements, contractions, sight words] to include would be [include those on which the student needs practice.] Develop speed drills using the attached method but prepare materials in Braille. [See Strategies: Speed Drills for Reading Fluency and Basic Skills.]

Math

1. Ensure that the student learns to use both an abacus and a talking calculator for math functions. The abacus is the blind person’s “paper and pencil” for solving math problems. The use of this device requires the development of problem-solving skills that the calculator does not. Additionally, the student needs to have a device, at least as a backup, that is unlikely to break.

2. As the student is having so much difficulty transferring his knowledge of foundational math concepts to the use of numbers and numerical operations, teach him Touch Math. If the student has difficulty seeing the dots clearly, use fuzzy dot stickers. Touch Math available from Innovative Learning Concepts 6760 Corporate Drive, Colorado Springs, Colorado, 80919-1999, (888) TOUCHMATH (or 868-2462), http://www.touchmath.com.

Content Area Learning

1. Due to the student’s visual impairment, his oral vocabulary is considerably more limited than that of most normally-sighted age-peers. Even when events or objects are described to him, he may not have an adequate concept with which to match the description. For example, if he has never seen a cloud, a description of the difference between cumulus clouds and thunderheads would have little meaning. Consequently, it is imperative to provide the student with as many direct experiences as possible, in varied situations, especially those that allow touch and physical involvement. Simultaneously, describe what he is experiencing and touching, verbally expand upon the experience, relating it, as much as possible to other information that is familiar to him.

2. Allow the student to tactually explore materials and equipment that will be used in classroom demonstrations or projects, such as science experiments or models, before the activity begins.

3. In the classroom, provide the student with concrete objects to accompany a lesson and encourage exploration of the environment. Explain relationships between objects and encourage the student to touch and manipulate objects.

4. Provide concrete systematic experiences to help the student master science and social studies concepts. Investigate content area programs designed specifically for students with visual impairments which include hands-on activities.

5. At home and at school, provide the student with general information about the world. This is best done throughout direct experience and touch, audiotapes, [videotapes], discussion, and reading materials that introduce new subjects at very basic levels.

6. Always assess prior knowledge before introducing a new unit or topic. The student is likely to need some compensatory instruction to keep pace with the class in learning the new material.

7. Check the student’s comprehension during class discussions, lectures, and instructions, using open-ended questions.

8. Teach listening skills and use verbal cues to alert the student to upcoming important information or to highlight the organization of a lecture or instructions. Words such as, “OK - new topic,” “the first thing you need to know,” “first, finally,” “now this is interesting,” and “remember.”
TRANSITION

Contents: Transition

Further Evaluation
Elementary to Middle School
Secondary to Vocational/Adult Living
Secondary to Postsecondary Education
Self Advocacy
Accessing Community Resources

Further Evaluation

1. Schedule a comprehensive educational evaluation to include a thorough assessment of cognitive abilities, including receptive/expressive language abilities, and achievement areas. The central goal of the evaluation should be to identify specific strengths and weaknesses to aid with educational and vocational planning.

2. Schedule an evaluation of the student that includes cognitive abilities, oral language skills, academic achievement, adaptive behavior skills, and vocational aptitude and interest.

3. Have a vocational specialist evaluate the student's interests and aptitude for suggestions as to possible vocational directions.

4. Provide a functional vocational evaluation to estimate the student’s current levels of functioning and to develop necessary transition services.

5. Using an adaptive behavior scale, assess the student's ability to function independently in nonacademic areas, such as personal living skills, community orientation, work-related skills, social communication skills and motor skills. Identify specific goals and objectives that will help him develop independent living skills.

6. Assess the student's functioning levels related to transition. Areas for assessment should include work behaviors, as well as social, independent living, and vocational skills.

7. Assess the student's ability to function independently and age-appropriately in the following areas: current vocational skills, vocational training, independent living or residential placement, transportation, finances, recreation/leisure, social relationships, and sexual awareness.

8. To help the student explore career options, locate a career counselor who will provide aptitude, interest, and personality testing.
Elementary to Middle School

1. As the student begins middle school, consult a vocational specialist to design and involve him in a structured program of career exploration. As the student moves toward one broad vocational path, select high school courses that will provide the prerequisite skills.

2. At the beginning of the school year, schedule periodic conference dates for the parents, school personnel, and the student, if appropriate, to discuss the student's progress and suggest changes in the educational plan, if necessary.

3. To help the student move smoothly into school next year, obtain a list of academic and behavioral skills expected of the average student entering ___ grade. Use these to create teaching objectives and a plan for transition.

4. As middle school places more demands on a student to be organized and responsible, consider the student’s special needs in setting up a class schedule and selecting teachers for next year. Include accommodations and behavioral objectives on his [IEP, Section 504 accommodation plan] to provide support and help him develop the skills he needs in these areas.

5. At the end of the school year, take the student on a tour of the middle school, arrange for him to observe the classes he is likely to take next year. Introduce him to some of the teachers, counselors, and office staff. If possible, arrange for him to shadow a sixth-grade student who will be friendly and helpful and introduce him to other students.

6. Arrange for a staff member, such as a teacher or counselor, to serve as an advocate and contact person for the student in middle school. The advocate should schedule regular check-in times, at least once a week, to provide support, help solve problems and straighten out confusions, and assist the student in new situations.

Secondary to Adult Living: General

1. Teach the student about his rights under [Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990] regarding his disabilities and [support services in school, rights to reasonable accommodations in the workplace], and the right to reasonable access in businesses open to the public.

2. Develop a program in independent living skills including components related to daily living, employment, leisure and recreation, community involvement, home and family, personal development, and health. Teach and practice daily living skills within the settings in which they are to be used.

3. Help the student contact a rehabilitation counselor, for example through Vocational Rehabilitation, for referral to an independent living center for a postsecondary program in independent living skills.
4. Help prepare the student for independent living by teaching him organizational skills, such as using a calendar, a time planner, and a “to do” list. Help him set up a file drawer with files for various kinds of papers he will need access to, such as renter’s insurance, car insurance, car repair receipts, receipts for purchased items, medical records, bank statements, and credit card information.

5. Focus on helping the student develop interpersonal skills expected of adults in the workplace or in college such as using good posture, using a pleasant tone of voice, paying attention, asking questions during conversation, active listening, and maintaining eye contact.

6. Help the student and other students develop poise and state information confidently and concisely. As each student enters the classroom, have him shake your hand firmly, summarize how the previous day went, how today is going so far, and what he will accomplish in class today.

7. Have the student make a personal and professional data card on which he writes information normally required on job applications. The card can be tri-folded and kept in his wallet for immediate access.

8. Currently, the student is lacking the social skills necessary for successful functioning in the workplace or in postsecondary education. Write social skills goals into the student’s Individualized Educational Plan and develop a social skills training program for him to include [problem solving, goal setting, relaxation techniques, self-evaluation.]

9. Due to the student’s nonverbal learning disabilities and resultant limits in social perception, he is likely to have difficulties in the workplace or in postsecondary education. Develop a program of social skills training specifically in areas such as recognizing and interpreting nonverbal communication, such as facial expression, body posture, and gesture; recognizing and respecting personal space; appropriate touching; and interpreting suprasegmental language cues such as voice pitch, tone, volume (Minskoff, 1982).

**Secondary to Vocational/Adult Living**

1. As part of the student's IEP, write an Individualized Transition Plan (ITP) for the transition into adult life. Begin this process four years prior to the student's proposed graduation and include instruction in career options, experience in the community, development of employment-related skills, adult living objectives, daily living skills, and a functional vocational evaluation. Update the ITP annually.

2. Ensure that the following components are included in the student’s transition plan: (a) individualized goals, reviewed annually, addressing residential living, vocational or postsecondary education, and independent living skills; (b) integration into normalized/mainstream settings; (c) acquisition of a work history through paid work experience; (d) active family involvement for support; (e) coordination between the school and adult services; (f) specific instruction in locating and obtaining employment; and (g) ongoing evaluation and feedback regarding progress toward transition goals (Rojewski, 1992).
3. As part of the student's IEP, write an Individualized Transition Plan (ITP) for the transition into adult life. Focus on vocational education programs, instruction in community-based environments, and paid, part-time employment. Ensure that the ITP includes long-range plans, specific objectives related to expected outcomes and activities, the person responsible for each objective, and timelines.

4. Help the student gain the skills necessary for obtaining and maintaining employment: (a) completing a personal inventory of interests and skills (technical and adaptive), (b) matching the results to vocational interests, (c) learning to view one’s self from the employer’s perspective, (d) writing a resume, (e) completing and following up on an application, (f) practicing job interview skills, and (g) developing work ethics and character traits important for maintaining employment (e.g., promptness, hard work, following rules, interpersonal skills).

5. Refer the student to the guidance counselor to assist him and his parents in planning an appropriate academic schedule.

6. Work with the student's parents in prioritizing transition goals. Some considerations include current therapy, opportunities for mainstreaming in school, community-based instruction, and technical training.

7. To facilitate the transition from school to independent living, obtain information from the parent regarding the child's medical history and needs, family history, independent living skills, and social/emotional development.

8. Help the student to develop clear, realistic vocational goals that will provide the direction for educational planning and support services throughout high school.

9. As part of transition services, provide the student with personal and career development counseling that will help him clarify his interests and consider academic and professional goals.

10. Request that the student's parents complete a questionnaire regarding their plans and expectations for their son after graduation, the level of involvement they expect to maintain, and areas in which they foresee him needing assistance.

11. Assist the student in acquiring the skills needed for transition, including appropriate work behaviors, as well as social, independent living, and vocational skills.

12. Ensure that the student understands most employers consider traits such as being on time and getting along with co-workers more important than initial skill on the job.

13. Educate the student and his parents about options for future vocational placements and the requirements for entering and being successful in those placements.

14. Suggest vocational training to the student as an alternative to college. He may be more willing to devote energy to learning skills that have more immediate and practical applications.
15. Assist the student in exploring vocational training programs at the community college and local technical schools.

16. Assist the student's parents in developing a plan for encouraging and training independent responsibility in their son over the next ( ) years. Particular areas of focus include helping the student: (a) do financial planning, (b) obtain a social security number, (c) make a will, (d) apply for Supplemental Security Income, (e) set realistic goals, and (f) develop self-advocacy skills. Other areas include: (a) monitoring good grooming habits; (b) encouraging and facilitating social activities with peers; (c) providing sex education; (d) reinforcing good work habits; (e) encouraging and supporting the student in a job in the community; (f) teaching daily living skills such as cooking, cleaning, and doing laundry; (g) teaching and monitoring money management such as budgeting and saving; and (h) developing leisure time skills such as participation in sports, daily exercise, hobbies, or acquiring computer skills.

17. Provide consultation from a Vocational Transition Specialist regarding equipment modifications that may be necessary when the student pursues a job.

18. Because current academic skills and skills related to successful adult living are age appropriate, specialized transition services are presently not necessary.

**Secondary to Postsecondary Education**

1. Help the student request [appropriate accommodations such as extended time, private testing area, responding in test booklet rather than on response sheet] for standardized examinations such as the [name of exam student will take for college entrance or eligibility.]

2. Upon completion of the secondary program, help the student find a two-year or four-year college that provides support services for students with disabilities.

3. In exploring college options, encourage the student to review institutions that have well-established programs for students with disabilities.

4. Help the student identify an appropriate college program using a collaborative effort that involves his family, his teachers, and the guidance counselor.

5. Help the student select a college program that will provide the necessary compensations and accommodations that the student requires to succeed.

6. Prior to applying to college, help the student understand the difference between meeting the minimum requirements and taking challenging courses that will help prepare him for college level work. Competitive colleges expect students to go beyond the typical high school course load by taking advanced placement courses.

7. Ensure that the student has updated testing prior to transitioning to college. Most colleges will require documentation of a disability that has been completed within the last three years.
8. Because the student has a documented disability that impacts the academic areas of [specify area(s)], request course substitutions. These requests are evaluated on a case-by-case basis and require approval from the college. The decision will be based on the information provided in the student's assessment report, primarily the testing reflecting the individual's achievement in the area(s) in question. In most instances, course adaptations or accommodations are considered before a substitution is granted.

9. For the first semester of college, the student should consider taking a reduced course load. This will allow him to adjust to the postsecondary setting without being overwhelmed with the amount of work and to have adequate study time.

10. If the student chooses a field in which a considerable amount of reading and writing are involved, have him consider taking two or three courses per semester rather than a full course load. This will provide him with enough time to complete assignments.

11. Suggest that the student request help from the center for students with disabilities just prior to the start of the first semester to engage a tutor for [area of need such as algebra, writing papers, study skills, organizational skills.]

12. During his junior year (high school), set up a program in which the student will explore postsecondary options, evaluate learning disabilities services provided at colleges and universities, prepare for the college entrance exam (e.g., SAT, ACT), organize a personal transition file, and begin to narrow down postsecondary alternatives (Brinkerhoff, 1996).

13. Find out what courses the student will be required to take during the next year. Help him learn reading, writing, note-taking, study, and learning strategies that are directly applicable to these courses. If possible, obtain a syllabus prior to the beginning of class and use the course material to teach study strategies.

14. Whenever possible, encourage the student to obtain his textbooks in the summer prior to the academic year so that he can begin reading and reviewing the material prior to taking courses.

15. Help the student understand that the accommodations that he received during high school or college may or may not be available in certain courses and/or on certain exams. Often times, more advanced exams, such as required by licensing agencies, review documentation to ascertain if specific accommodations will be approved and granted.

16. Develop a program of skills training that specifically addresses the skills that are necessary for successful functioning in college such as understanding of one’s areas of cognitive and academic strengths and weaknesses, self-advocacy, learning strategies, listening and memory strategies, time management skills, note-taking strategies, test preparation, test-taking strategies, and use of a variety of computer applications including word processing, spreadsheets, and presentation programs (e.g., Powerpoint).

17. Explore psychological and emotional supports available to students with learning disabilities at the colleges and universities the student is considering. Help him to connect with the chosen support (e.g., counselor, facilitated support group) within the first week of school.
Self Advocacy

1. Help the student develop an self-advocacy plan for either work or school, including a list of accommodations or modifications he will need. In preparation for this, help the student prepare to run his own Individualized Educational Plan (IEP) meetings. Part of the preparation should include a self-evaluation of academic and personal strengths, areas to improve, and vocational or educational goals. The student should also set the date for his IEP meeting and send out notices. Subsequent to the IEP meeting, help the student monitor his progress toward the behavioral objectives.

2. Help the student become a self-advocate. Help him understand what compensations he needs in a classroom and how to request them.

3. Help the student learn to appreciate that all people have their own rates and styles of learning. Self-understanding can be obtained through appreciating that all people have both strengths and weaknesses and that an understanding of learning and behavior is necessary for self advocacy.

4. Ensure that the student understands clearly the nature of his difficulties. Teach ways that he may use his strengths to compensate for weaknesses.

5. Teach the student how to explain his learning difficulties to another person, such as a teacher or employer, as well as how to request modifications that will help him succeed in the particular situation. For example, have the student role play asking an employer to give a set of instructions slowly enough so that he can write them down.

6. Given that the student is reluctant to ask others for help, provide him with an advocate at school who is familiar with his needs and can monitor progress and accommodations.

7. Help the student set up appointments to meet with teachers individually at the beginning of each semester to introduce himself and explain his needs. Encourage the student to meet with each teacher during office hours at least every two weeks to check on progress.

8. Help the student and his parents to understand that colleges and universities will ask students to indicate if he has a disability and, if so, to provide documentation that supports requests for accommodation. The college disabilities support services provider will interact directly with the student, not with the parents, so that student will be responsible for obtaining services and legal protections.

9. Help the student learn how to apply compensatory strategies; express needs to faculty and staff; and independently access essential services in the postsecondary setting.

10. Encourage the student to consult on a regular basis with an academic advisor who will help him to set goals and develop appropriate strategies for meeting these goals. Goals can include improvement in the areas of time management, self advocacy, study strategies, as well as personal issues affecting social and academic success.

11. In order to become an advocate for himself, the student will need continuous support and encouragement from supportive adults, both parents and teachers, who will help him develop both academic and vocational goals.

**Accessing Community Resources**

1. Provide the student and his parents with information regarding community services available to adults with disabilities.

2. Obtain information from agencies and services for adults with disabilities regarding eligibility requirements. Help the student apply to the appropriate services.

3. Educate the student and his parents about the procedures within the school system and community service agencies for accessing services.

4. Help the student's parents with advocacy and case management so that they can effectively secure services for their son and coordinate the services and information from professionals working with him.

5. Help the student locate community services and resources for further education, recreation, leisure, and work opportunities.

6. Provide consultation from a Vocational Transition Specialist to coordinate school services, related services, and adult services in the community.

7. Assign the student an advisor or case manager who can help coordinate the accommodations and recommendations into his academic program, as well as help the student know how to locate the necessary people on campus who will provide and implement the services.

8. Help the student learn to take advantage of the resources that are available in the university setting, including computer labs, study groups, and any tutorial services.