

# Metacognition in the Classroom: Developing Brains, Emerging Learning and Study Styles: Facilitating Independent Learning

## **Applications to Specific Students and Classrooms**

### **Presenter:**

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### **Workshop Description:**

The *focus* of this workshop will be on applying information about students' metacognitive ability levels, study strategies, and learning styles to improving instruction and learning. Metacognitive interventions for students who are experiencing academic difficulty or who are in need of additional challenge will be discussed. Developmental maturity and its relationship to curriculum expectations will be discussed. Finally, the use of learning strategies and the impact of learning styles on the acquisition of independent learning skills in students in middle and high school and across the curriculum will be reinforced. The *agenda* for the workshop will include an expository review of prior training and discussion of current applications by teachers in their classrooms.

### ***Expected learner outcomes include:***

1. Participants will be able to list the key factors in successful alternative interventions
2. Participants will be able to cite examples of instructional strategies used in response to assessment of the metacognitive ability and study skill levels of their students.

## Metacognition

**Metacognition** - knowledge about cognitive processes and how they function

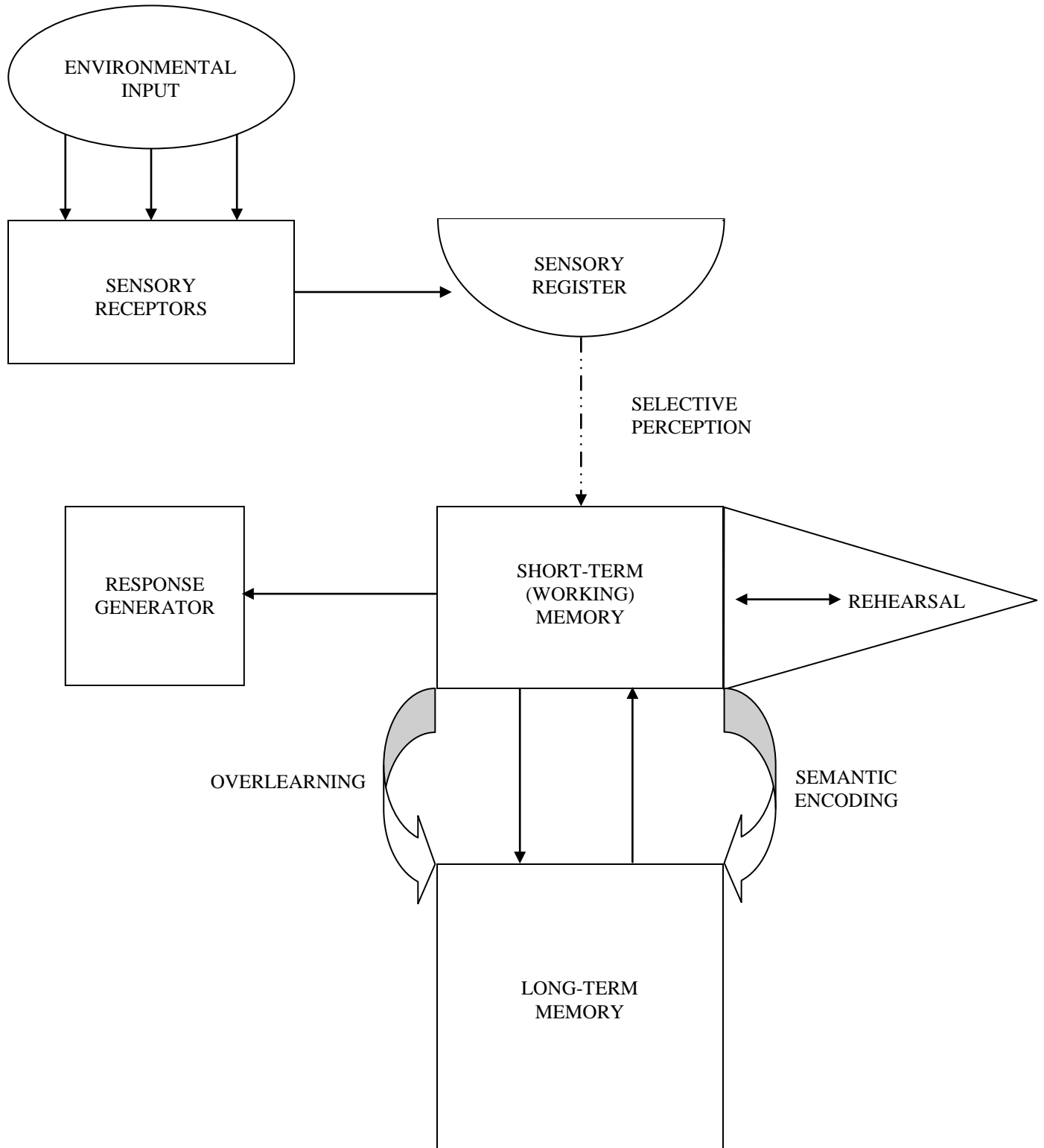
(for every aspect of cognition there is a metacognitive aspect as well - thus we can discuss metalinguistics, meta-attention, metacomprehension, and metamemory, for example)

- *Metamemory is very strongly related to our ability to learn.*
- **Metamemory** - knowledge about how memory works and how to memorize
- **Metacognitive Processes:**
  1. Metaknowledge - what we know about a particular cognitive process
  2. Metamonitoring - our ability to monitor a particular process
  3. Specific strategies - strategies to enhance a particular process

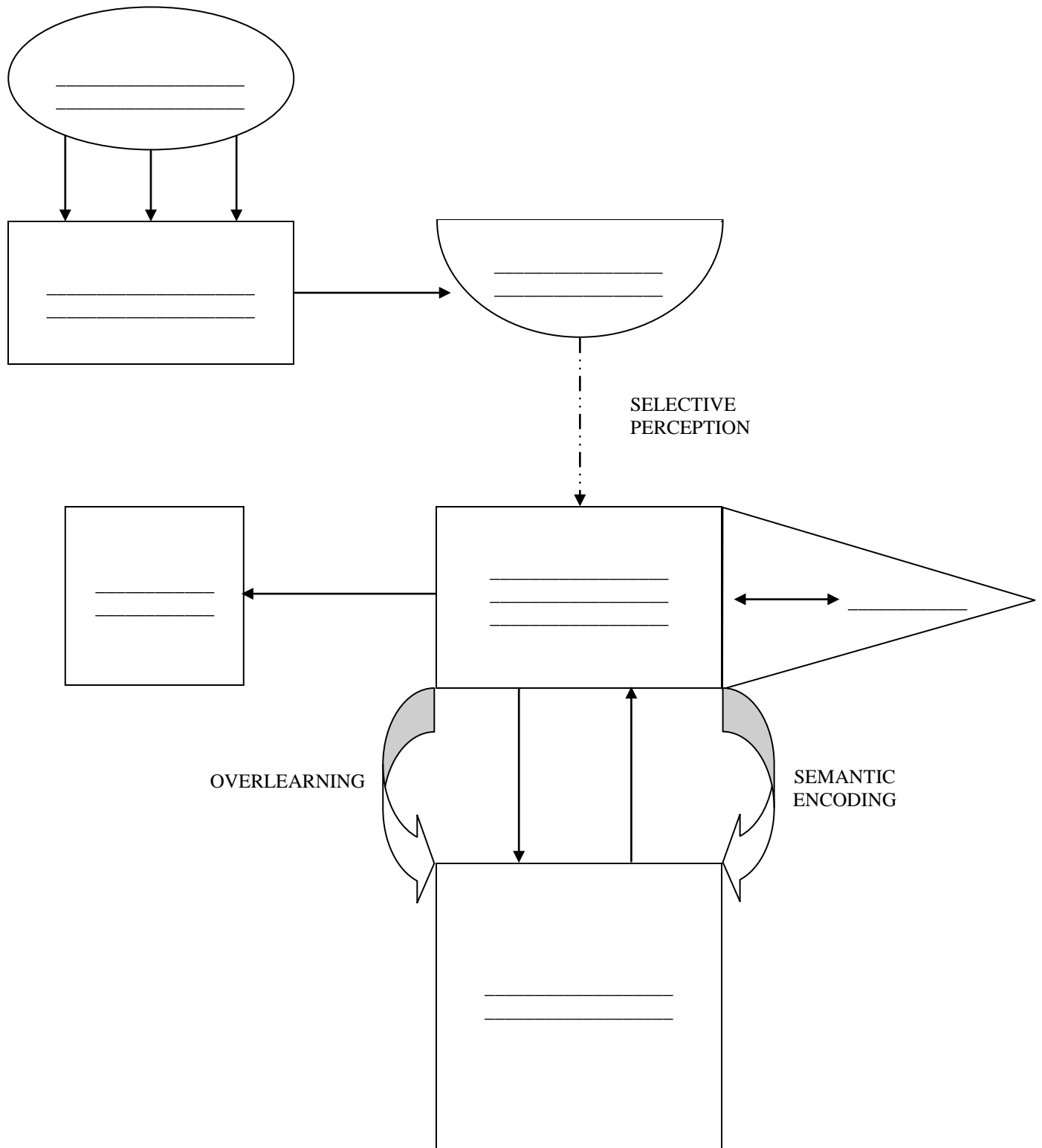
### **Types of Strategies**

1. Rehearsal
2. Elaboration
3. Organizational
4. Comprehension-monitoring
5. Affective
6. Problem-solving

# The Learning Process



# Activity 2.5 The Learning Process



## Class Activity 2.5

Complete the handouts as directed below. After completing the handouts, discuss the questions with your group.

- 1) What do you remember?
  - On the blank sheet titled learning process write everything you remember from the previous presentation.
  - On the second sheet - try to “fill in the blanks”
  - In your small group, answer the following questions.
- 2) How do you remember and encode information? Complete the “study methods” questionnaire on the last page of the packet and answer the following questions in your small group:
  - Do you note a pattern in the questions?
  - How would you describe your style of studying? Are you mostly dependent on rehearsal or on meaningful techniques?
- 3) What did you recall from the presentation on the “blank sheet” (e.g. specific examples or analogies, a schematic diagram, bits of information, a main idea)
- 4) How did you recall it (in the form of a diagram or in paragraph/verbal form)? What might this say about your learning style?
- 5) How did the “fill in the blank” sheet differ from the totally blank page? Did providing specific retrieval cues aid in recall? How did you try to remember - by reconstructing a meaningful sequence or by trying to recall the diagram as it was shown to you? How do you think your students would complete a similar task in the classroom?

## Class Activity 2.5

### STUDY METHODS QUESTIONNAIRE:

Place an "O" in the blank preceding items that describe study activities that you use VERY OFTEN.

Place an "X" next to those that you use SOME OF THE TIME.

Leave blank all items that are NOT characteristic of your own study activity.

- \_\_\_ 1. I memorize factual material by looking at it once or twice.
- \_\_\_ 2. When I study something, I devise a system for recalling it later.
- \_\_\_ 3. To learn formulas, names, and dates, I say them over and over to myself.
- \_\_\_ 4. After studying a unit of material, I often summarize it in my own words to see if I have mastered it.
- \_\_\_ 5. For exams, I memorize the material as given in the text or class notes.
- \_\_\_ 6. I learn new words or ideas by associating them with words and ideas that I already know.

## **Developmental Precursors to Reading**

### **Phonological Awareness**

<b><u>Developmental Steps</u></b>	<b><u>Ages</u></b>	<b><u>How parents can help:</u></b>
An “ear” for the way words sound	2-3	Read nursery rhymes, sing songs and clap along with the rhythm.
Identifying rhyme and alliteration	3-4	Play games with words that sound alike as you experience them in Every day life (“Look , we’re passing Mike’s Bikes!, That’s a funny name because they sound alike.”)
Blending sounds	4-5	Demonstrate how sounds blend together in familiar words like family names. (“Let’s sign your name to Grandma’s card T-o-m –Tom).
Recognizing “onset rime” (initial sounds)	4-6	Play a game with your child where the goal is to find things that begin with a certain initial sound. This is a great game for walks or for car rides. Children also like to find pictures in magazines and make a web on a sheet of paper around the letter/sound.

Recognizing sound units	4-6	Play clapping games with children, clapping with each distinct sound unit (c-a-t is a three clap word, so is fam-i-ly).
Word play with sound units	5-7	Make new words by changing the positions of sound units in words. Writing sound units on cards that can be easily manipulated by little hands is helpful. (b -ig, f- ig, r- ig , p-ig or pot is top spelled backwards).

### **Comprehension skills**

<b>Developmental Steps</b>	<b>Ages</b>	<b>What parents can do</b>
Attend to very short story in	2-3	Read short high interest picture books one on one picture books (reading the same book over and over again is good).
Connect title and story	3-4	Read titles aloud and predict story content
Made predictions about story: follow simple plots	4-6	Ask questions while reading (what's going to happen now?) and allow children to retell stories
Communicates feelings and ideas	4-6	Allow children to talk and tell stories even when they don't appear to make much sense.

## **Print Awareness**

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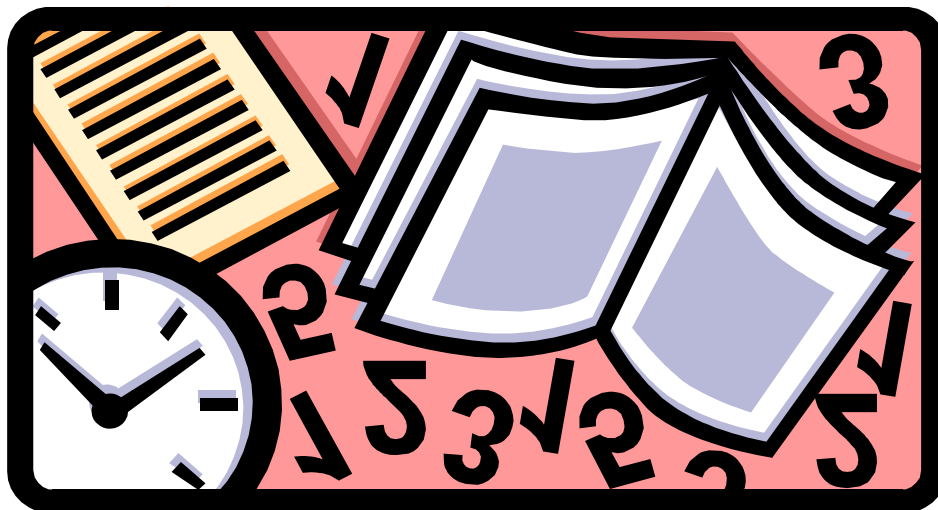
<b>Developmental Steps</b>	<b>Ages</b>	<b>What parents can do</b>
Knows the difference between pictures and print	2-4	Point out print as distinct from pictures in everyday situations. (“That’s a sign for women – that says women.”)
Recognizes environmental print	3-5	Point out store and restaurant marquees (“Look for the sign that says McDonald’s) and other forms of environmental print (“That sign says STOP.”)
Understands that print can appear alone or with pictures or decorations	3-5	Point out print with and without pictures as you read to children (Here’s a page with just words.)
Recognizes that print is print no matter what medium is used to record it	4-5	Point out words written in different mediums (“Let’s write your name in pencil under the own in crayon.”)
Realizes that print can appear on different surfaces	4-5	Point out print on different surfaces. (“That sign has writing on it, so does that door.”)
Understands that words are read left to right	4-6	Trace lines of print with your finger as you read occasionally.

Understands that lines of text are read top to bottom	4-6	Note that we read from top to bottom as you read (“We have to start at the top,” and putt your finger on the left hand corner of the page.)
Understands the function of empty space in establishing word boundaries	4-6	Place a finger between words when the child is writing. Play “find the word games” while reading to children.
Understands that print occasionally as you read to children. word by word.	4-6	Put your finger on each word corresponds to speech,
Understands the difference between letters and words	4-6	Teach the alphabet via song and rhyme and talk about which letters and sounds make up familiar words.

### **Book Handling**

Orienting book correctly	2-4	Give children their own books and allow them to hold the book correctly when being read to
Recognizes the beginning and end of books	3-5	Allow children to find the start of a book before being read to and note the end of a story (say “the End.”)

# Standardized Test Taking Strategies



## *Show What You Know*

*A mini-curriculum for third through six grades*

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# ***Show What You Know***

***A mini-curriculum for third through six grades***

The program overviews specific test taking strategies, metacognitive skills, and critical thinking skills needed for students to perform better on standardized tests. Materials include:

- A reference sheet and program guide for teachers,
- The “Show What You Know” bingo game, specially designed to review skills discussed,
- Mini practice tests provide additional skill review by using mini practice tests,
- Student self-analysis sheets,
- Think-pair-share activity directions for the teacher.

*The following topics should be covered as a large group discussion activity with the entire class.*

## **I. Being “Test Ready” - Minimizing Anxiety**

- Remind students of the importance of getting a good night’s sleep and eating a good breakfast.
- Briefly discuss why students do a better job at school when they are rested and not hungry.

Activity: Ask students to name some things that are a part of a good breakfast. List these items on the board as if they were on a menu. Ask students to choose some of the items for the breakfast they would plan to eat on test days and print them on the “My Test Day Menu”. Send the menus home the Friday before testing begins and ask parents to help provide each student with the meal they chose if possible. Try to match choices with the school cafeteria’s offerings for students who eat breakfast in school

- Remind students that by doing these simple healthy things students are helping their test performance even before arriving at school.
- Briefly discuss the ways taking standardized test can make students feel.
- List those students’ feelings that are indicative of nervousness and anxiety related to test taking on the board.

- After recognizing how common such feelings are in the classroom, discuss ways to overcome such feelings by using one or more of the techniques described below:
  - Positive self-talk: silently remind yourself that you are prepared and you know how to do your best so you don't need to worry.

Activity: Ask students to write a positive self statement on a strip of paper. Examples might be "I am ready!" "I can show what I know!" "I'm prepared". Post the strips around the classroom until the testing is over.

- Close you eyes and take a deep breath to relax.

Activity: Teach students how to breathe deeply using the directions on the relaxation sheet. Have students practice. Discuss how breathing deeply brings more oxygen to your brain helping them to think and concentrate better.

- Take a "mini-vacation". For just a moment imagine you are somewhere else completely relaxed and calm.

Activity: Have students draw a picture of their calm place. Hang the pictures in place visible from all students' desks.

## II. Following Directions, Time Management, and Completing Answer Sheets

- Review the test directions for both the multiple choice and open-ended questions with the students.
- Remind students of the importance of listening carefully to directions and checking their own understanding. (Ask yourself :Do I really know what to do?)
- Also remind students of the importance of completing the answer sheet correctly, including:
  1. completely filling in the answer bubble chosen
  2. choosing only one answer for each question
  3. checking the item number often to ensure they are not losing their place
  4. scan their answer sheet to be sure all questions are answered
  5. discourage students from changing an answer unless certain it is incorrect.

Use of the mini practice tests should aide students in pacing themselves over very short time periods and making decisions about test items.

Teachers should remind students not to dwell on one question for too long.

### III. Multiple Choice Strategies

Multiple choice is the most common question type. Special strategies focused on this question type follow. These strategies are explained in detail and summarized by the mnemonic “**GET MC**”. (Related poster and bingo game are provided.)

#### **G - GET READY**

Students prepare themselves to concentrate and relax while they answer the questions.

#### **E - EVALUATE THE QUESTION**

Carefully read the question stem.

#### **T - TRY TO DECIDE on the ANSWER**

Decide what you think the answer might be before you read the answer choices. Then, read all the answer choices

#### **M - MARK THE ANSWER**

If you are sure of the answer find the proper choice and mark it. If unsure, read every choice, eliminating likely wrong answers and making you best choice.

#### **C - CHECK**

Be sure you are on the right number and when finished have answered every question.

#### **Tips for Reading Questions:**

- Read the passage carefully, but not too slowly.
- Concentrate as you read.
- Silently say what the story meant to you after you finish.

#### **Tips for Mathematics Questions:**

- Use math key words. (Related poster provided.)
- Solve the problem yourself.
- Carefully look for the correct answer.

**\* Always look for words like *all, none, never, always*. Answers that includes these words are not usually correct.**

## IV. Memory Triggers

- Review memory triggers that can be used during test taking with students:
- Practice use of the “GET MC” strategy
- Practice recognizing math key words and their associated operation
- Practice translate the question into your own words
- Practice Visualizing (picturing) the question related to what you already know
- Practice using mnemonics like “Please excuse my dear Aunt Sally” for order of operations.
- Review calling up prior learning when part of the question sounds familiar by instructing children to think about what they were studying when they first learned about the topic
- Practice use of key-word mnemonics.



## INTEGRATING STUDY SKILLS INSTRUCTION INTO CLASSROOM CONSULTATION

### 1. Entry and contracting stage

- establish your role in solving instructional problems
- establish importance of study strategies in effective learning
- review information processing model — interactive learning
- reinforce consultative role in problem-solving model for students

### 2. Problem identification analysis

- what are teacher's objectives for student (are any study strategies included)?
- what are the prerequisite skills (any study skills)?
- does student have them?
- what strategies have been tried to modify instruction / instructional materials (were any of them study strategies)?
- observation — include child's study skills; teacher's suggestions
- curriculum based assessment
  1. assess instructional level (include developmental level)
  2. task analysis: (what study skills are needed to accomplish task?)
  3. process/error analysis (are strategies ineffective for task?)

### 3. Intervention

- classroom teacher requires feedback regarding strategy instruction
- no pat answers (in interventions or study strategies)

### 4. Termination

- includes study skill goals / outcomes, future development

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## Prevention of Academic Failure

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- I. Defining Academic Failure
- II. Causes of Academic Failure
- III. Preventing Early School Failure
- IV. Preventing Failure in the Intermediate Grades and Middle School
- V. Preventing Academic Failure in High School
- VI. Conclusion

**Retention** The practice of requiring a student to repeat a grade or requiring a child of appropriate chronological age to delay entry to kindergarten or first grade.

**Social Promotion** The practice of promoting a student to the next grade even when skills or knowledge sets to be mastered at that level have not been mastered.

**Basic Skills** The skills associated with functional literacy including reading decoding and comprehension skills, math calculation and problem solving, and writing.

**School Readiness** The set of skills children need in order to learn successfully in school.

**Emergent Literacy** The recognition of environmental print that leads to gradual understanding of the role of letters and words in written language.

**Phonological Awareness** Children's awareness of the way words sound particularly rhyme and alliteration, ability to blend sounds, recognize onset rime (initial sounds), and identify sound units.

**Learning Disability** A discrepancy between a student's measured ability and actual achievement caused by a dysfunction in a basic neuropsychological process.

**Learning Strategy** A voluntary activity students use to facilitate remembering, learning or problem solving.

**Mastery Learning** An instructional approach that allows students to repeat instruction and assessment until competency is achieved.

**Cooperative Learning** An instructional approach that uses peer groups to facilitate and reinforce learning.

**Peer Tutoring** An instructional approach that uses peers to reinforce classroom instruction by providing individual instruction to students.

**Team Teaching** An instructional approach that allows teachers, often with different areas of expertise, to share instructional duties.

**Curriculum Based Assessment** An assessment approach that uses students' progress in their actual curriculum as a measurement point.

**Prevention of Academic Failure** is a serious challenge because children who fail academically experience significant social and economic challenges throughout their lives. Causes of academic failure include familial, socio-economic, and cultural issues that lead to a lack of readiness for school, academic, instructional and motivational problems; and physiological, cognitive and neurological barriers to learning. Attempts to help students who are experiencing academic failure fall into three categories: Prevention, Intervention, and Remediation. Preventative approaches aim to stop academic failure before it occurs. Early intervention programs aim to catch children during key developmental periods and facilitate development and readiness skills. Remediation programs are usually applied when a student has demonstrated a significant skill deficit and is experiencing significant academic failure. Special education programs often take this form, as do other kinds of academic accommodations for students identified with special needs.

### **I. Defining Academic Failure**

A lot depends upon a child's success in school – their self-esteem, their sense of identity, their future employability. Preventing academic failure means that as a society we are much more likely to produce individuals who feel confident about their ability to contribute to the common good, whose literacy skills are competent, and who are able to successfully hold jobs. Thus, prevention of academic failure should be a primary concern for any society. But exactly what is meant by academic failure? What does the term connote? Generations of school children since the 1920's, when the system of grade progression began, have equated academic failure with retention in grade. School failure meant literally failure to progress onto the next grade with the assumption that the skills and knowledge taught in that grade had not been mastered. To have flunked multiple grades quickly led to quitting school all together – the ultimate academic failure.

More recently, academic failure has come to mean a failure to acquire the basic skills of literacy. Students who were unable to read at a functional level, to communicate effectively through writing, and to complete basic math calculations were seen as representing a failure of the academic system even though they might hold high school diploma. The practice of moving students on from one grade to the next even though they may not have mastered basic competencies associated with lower grade levels is often referred to as social promotion. This type of academic failure led to calls for an increased emphasis on basic skills, the 3 R's – reading, (w)riting, and (a)rithmetic in public education. Partly in reaction to emphasis on basic skills, a third interpretation of academic failure has also emerged. In this view, academic failure occurs not only when students fail to master basic skills, but when they emerge from school without the ability to think critically, problem solve, learn independently, and work collaboratively with others – a skill set deemed necessary for success in a digital age. This underachievement symbolizes a significant loss of intellectual capital for a culture. Finally, statistics show that students who do not complete high school are much more likely to need welfare support, have difficulties with the law and police, and struggle economically and socially throughout their lives. Thus academic failure ultimately means both the failure to acquire the skill sets expected to be learned and the failure to acquire official documentation of achievement by the school system.

## **II. Causes of academic failure**

Students struggle academically for many reasons including familial, socio-economic, and cultural issues that lead to a lack of readiness for school, academic, instructional and motivational problems; and physiological, cognitive and neurological barriers to learning. Early school failure often occurs because children enter the structured school environment not ready to learn.

### **A. School Readiness**

**School Readiness** refers to the idea that children need a certain set of skills in order to learn and work successfully in school. Often this term refers to whether or not a child has reached the necessary emotional, behavioral, and cognitive maturity to start school in addition to how well they would adapt to the classroom environment. In order to create some consensus about when a child should begin school, states designate a specific cut-off date. If a child reaches a certain age by the cut-off (usually five for kindergarten and six for first grade), a child may begin school. However, cut-off dates are arbitrary and vary considerably across nations and age is not the best determinate or most accurate measure of whether or not a child is ready to begin school. Research has suggested that we must look at all aspects of a child's life, their cognitive, social, emotional, and motor development, in order to get an accurate idea of their readiness to enter school. Most importantly a child's readiness for school is affected by their early home, parental, and preschool experiences.

Stated in simplest form, school readiness means that a child is ready to enter a social environment that is primarily focused on education. The following

list of behaviors and/or characteristics are often associated with school readiness:

- Ability to follow structured daily routines
- Ability to dress themselves independently
- Ability to work independently with supervision
- Ability to listen and pay attention to what someone else is saying
- Ability to get along with and cooperate with other children
- Ability to play with other children
- Ability to follow simple rules
- Ability to work with puzzles, scissors, coloring, paints, etc.
- Ability to write own name or to acquire the skill with instruction
- Ability to count or acquire the skill with instruction
- Ability to recite the alphabet
- Ability to identify both shapes and colors
- Ability to identify sound units in words and to recognize rhyme.

Family environment is very important in shaping children's early development. Some family factors that can influence school readiness include: low family economic risk (poor readiness for school is associated with poverty); stable family structure (children from stable two-parent homes tend to have stronger school readiness than children from one parent homes and from homes where caregivers change frequently); and enriched home environment (children from homes where parents talk with their children, engage them in conversation,

read to them, and engage in forms of disciplines such as time-out that encourage self-discipline have stronger readiness skills.)

Children's readiness to read, in particular, has gained greater attention recently from educators as the developmental precursors to reading have become more evident. During the preschool years, children develop emerging literacy skills --- pre-academic skills that allow children to develop a disposition to read, write, and compute. Children are ready to read when they have developed an ear for the way words sound, can identify rhyme and alliteration, can blend sounds, recognize onset rime (initial sounds), and can identify sound units in words. Together these skills are called *phonological awareness* and usually emerge in children between ages two and six. Children with good phonological awareness skills usually learn to read quickly. Children who are poor readers have weak phonological skills and children who do not learn to read fail in school. Another important readiness skill that helps children learn to read is called *print awareness*. Print awareness means that the child:

- Knows the difference between pictures and print
- Recognizes environmental print (Stop signs, McDonald's, K-mart)
- Understands that print can appear alone or with pictures
- Recognizes that print occurs in different mediums (pencil, crayon, ink)
- Recognizes that print occurs on different surfaces (paper, computer screen, billboard)
- Understands that words are read right to left
- Understands the lines of text are read top to bottom

- Understands the function of white space between words
- Understands the print corresponds to speech word for word
- Knows the difference between letters and words

Children also need to learn *book-handling* skills such as orienting a book correctly and recognizing the beginning and the end. Children who begin school without these basic readiness skills are at risk for school failure. The use of screening assessments in preschool and kindergarten to identify students who may be at-risk for academic failure, particularly in the area of phonemic awareness, has been shown to be a sound method of predicting which children will have difficulty learning to read. Most likely to be retained in kindergarten are children who are chronologically young for grade, developmentally delayed, and living in poverty.

### **B. Academic, Instructional and Motivational Reasons**

Children who do not master basic reading skills, specifically the ability to automatically decode new words and build a sight word vocabulary that leads to fluency experience academic failure. By third grade learning to read has become reading to learn. In other words, in third grade the curriculum becomes much less focused on teaching students to acquire the basic tools of literacy (reading, writing, and computing) and much more focused on using those tools to learn content, to express ideas, and to solve problems. At this point, students are likely to be given content textbooks in science and social studies and to read nonfiction for the purpose of gaining new information. Thus, inability to read effectively and to learn to study independently often leads to failure at the elementary and

middle school levels and creates profound motivation problems at high school that contribute to the ultimate school failure – dropping out.

Inability to master key concepts in pivotal classes, such as Algebra, now typically taken at the middle or junior high school level, often limits a student's ability to proceed in coursework. Students may fail to understand algebraic concepts because of their developmental level (many students are still thinking in concrete terms in middle school and have not yet moved into a stage of cognitive thinking allowing them to understand formal logic and manipulate symbols – a developmental source of failure.) In addition, some students may not have automatized basic arithmetic skills, particularly computing with fractions – an academic or instructional failure. Some students may have become turned off to math and accepted self-images that permit poor math skills – a motivational failure. Finally, many students will fail algebra for all of these reasons and the impact will often be that they will finish school in a non-academic or basic track or may even dropout.

Thus, academic and instructional reasons for school failure include the effectiveness of the instruction a student has received and the quality of remediation strategies or programs available. A typical example which illustrates academic and instructional reasons for school failure follows: A teacher reports that a student is having difficulty getting beyond the primer level in reading and is being considered for retention. The child was assessed as having average intelligence. No behavioral or attention problems were noted. Closer inspections of the student's reading skills indicated that she had poor phonological skills and

was not profiting from the type of classroom reading instruction she was receiving which depended heavily on auditory phonics instruction that stressed “sounding out words” and matching sound-symbol connections. Appropriate interventions included using techniques to build up a sight word vocabulary through repetition and distributed learning and introduction of the student to a visual decoding system to allow her a method reading unknown words by analyzing the word and breaking it down into more familiar visual units.

### **C. Physiological, Neurological, and Cognitive Reasons**

Imagine that a child had spent most of the year in kindergarten with an undetected hearing loss that had made it very difficult for her to benefit from instruction. Imagine another child struggling to learn to read in first grade whose vision impairment has not been caught or corrected. Similarly, students suffering from a variety of conditions and illnesses, such as childhood diabetes, asthma and allergy related problems, or sickle cell anemia may have difficulty maintaining energy and attention in school due to chronic fatigue and the impact of medications. Children may also suffer from orthopedic or motor impairments that make it difficult for them to explore their environment, interact with others, or master tasks demanding motor skills.

Students who suffer from various kinds of neurological disorders or learning disabilities may also have cognitive learning problems that make it difficult for their brains to process information, interpret sounds and symbols efficiently in reading, calculate and understand number concepts, or write effectively. Other children may have cognitive deficits such as mental retardation that limit their

ability to absorb and apply regular classroom instruction. Children with Attention Deficit Disorders have difficulty directing and maintaining their attention, may exhibit impulsive behavior, and have trouble interacting independently in typical classroom environments without support. Specialized and/or special education interventions are designed to provide individualized strategies and approaches for students who have physiological based learning problems interfering with their ability to learn.

### **III. Preventing early school failure**

#### **A. Early Intervention Programs**

Programmatic interventions may include developing screening programs to identify children at risk for school failure and to ensure early access to readiness programs already available in the school or community, such as Head Start. Many states are now developing guidelines for children ages six and younger based on the National Association for the Education of Young Children's (NAEYC) list of developmentally appropriate practices. The major challenge facing early intervention programs is to provide developmentally and individually appropriate learning environments for all children. Essential ingredients to successful preschool experiences include small group and individualized teacher directed activities, as well as child-initiated activities. Quality programs recognize the importance of play and view teachers as facilitators of learning.

## **B. Preventing School Failure in the Elementary Grades**

Full day kindergarten (as opposed to half day) programs provide more time for field trips, activity centers, projects, and free play. At-risk students who attend rigorous yet nurturing full day programs have a greater chance of experiencing academic success. Full day kindergarten programs help increase academic achievement as well as decrease the number of children retained in the early elementary grades. Research shows that full day kindergarten programs for children who come from disadvantaged backgrounds lead to stronger achievement in basic skill areas and generally better preparation for first grade.

Table 1 summarizes the research on full day kindergarten. Any decisions about whether or not to schedule full day or half-day programs should recognize that what a child is doing during the kindergarten day is more important than the length of the school day.

**<Insert Table 1 about here>**

The instructional technology that enables classroom teachers to meet the needs of students of different skills levels is already available, but in many cases teachers do not have access to that technology. Reading interventions that provide intensive, early, and individualized help that targets a child's specific weaknesses (e.g. Success for All, Reading Recovery, Direct Instruction) have been shown to be effective in reducing early reading failure. Instructional approaches such as mastery learning, adaptive education, team teaching, cooperative learning, peer tutoring, and curriculum-based assessment are all

methods that have been shown to produce academic gains in students of all achievement levels in the elementary grades. Recently, technology has offered greater individualization of instruction and increased flexibility in allowing students to progress at their own pace and to respond to instruction.

#### **IV. Preventing Failure in the Intermediate Grades and Middle School**

Remedial programs such as the Title or Chapter 1 programs have also been used to remediate early skills deficits in reading and math. However, developing intervention programs such as after-school tutoring or summer school courses may not be sufficient to make up serious deficits in short amounts of time and cannot take the place of preventative, systemic approaches.

The use of learning strategies instruction has been shown to be very effective in improving study skills and performance in middle school students. Because unsuccessful middle school students often lack basic strategic learning skills, intervention programs should also target these areas. Similarly, approaches that utilize learning, problem-solving, and memory strategies are the most effective interventions in terms of producing actual gains in student achievement in the classroom.

#### **V. Preventing Academic Failure in High School**

At the secondary level development of reentry programs for dropouts and alternative education programs, such as ones that combine teaching skills with job training are essential to prevent further academic failure. Research on academic failure at the secondary level has generally examined the relationships

between grade retention and attendance, suspension, and self-concept, with an emphasis on the correlation between retention and dropout rates. Academic failure at the high school level is related to attendance and suspension rates. Generally, students who are failing do not attend school on a regular basis. In addition, students who have been retained prior to the secondary level are less likely to attend school on a regular basis in junior and senior high school. Additionally, regardless of the grade in which retention occurs, secondary students who have been retained often exhibit low self-esteem.

Many studies have reported that students who drop out are five times more likely to have repeated a grade than students who eventually graduate. Being retained twice virtually guarantees a student will drop out of school and grade retention alone has been identified as the single most powerful predictor of dropping out. The dropout rate of overage students is appreciably higher than the dropout rate of regularly promoted students when reading achievement scores are equivalent for the two groups. Even in high-socioeconomic school districts, where students are less likely to leave school, a significant increase in dropout rates has been found for retained students.

Successful programs at the high school level often have two characteristics: (a) one or more individuals who develop relationships with students individually and monitor their progress carefully; and (b) some mechanism to allow students who have failed courses and lost credits to regain these credits in quicker than normal time, allowing for graduation at the expected time. Simply put, successful programs must address the motivational issues that

have developed by adolescence and the lack of academic achievement identity typically present in students who drop out of school. School to work programs that combine vocational counseling with on the job experience are successful ways to increase a sense of academic competence while connecting to students' current self-concept and needs.

## **VI. Conclusion**

Attempts to help students who are experiencing academic failure fall into three categories: Prevention, Intervention, and Remediation. Preventative approaches aim to stop academic failure before it occurs. Early intervention programs from birth to five, for example, aim to catch children during key developmental periods and facilitate development and readiness skills. Intervention programs such as Robert Slavin's, Success for All program aim to intervene as soon as students begin to show signs of slipping behind their peers. Intervention plans may also be designed under Section 504 of the Americans with Disabilities Act that mandates accommodations in the instructional environment for students who have physical or neurological problems that may interfere with their ability to learn or succeed in a typical classroom. Remediation programs are usually applied when a student has demonstrated a significant skill deficit and is experiencing significant academic failure. Special education programs often take this form as do other kinds of academic accommodations for students identified with special needs.

Of course, early identification and prevention of academic problems is always preferable to later intervention and remediation. Thus, systemic solutions that

target early reading deficits, independent learning skills, and motivational problems from a developmental perspective are essential to the prevention of academic failure. Working to change school practices will require sharing the research with educators, conducting evaluations on the outcomes of alternative interventions at the local level, and lobbying at the state level to promote changes in policy and to advocate for alternative service delivery systems that more effectively meet the needs of students experiencing school failure. Successful programs to boost student achievement however must attack underachievement in three key areas. These key areas: early reading intervention, acquisition of strategic learning and study skills, and motivation to achieve are highly related to school failure.

First, acquisition of basic reading skills must be addressed. If students underachieve at the primary grades it is most often because they have failed to learn to read. Kindergarten screenings should include an assessment of phonological awareness. Children identified with weak skills should be targeted for intervention through phonological awareness training in kindergarten. Pre-kindergarten programs for high-risk students are recommended. Students should be tracked using curriculum-based assessments of oral reading in the primary grades. Any student who falls behind the average rate of acquisition for his or her class should receive an individualized analysis of reading skill and additional after-school intervention based on that analysis to allow him or her to “catch-up” to classmates. This early, intensive, and individualized intervention allows for all students to enter the intermediate grades as able readers. Some students with

special needs may not progress at the same rate as classmates, but they too will benefit from early reading interventions.

Second, students must acquire independent learning and study skills during the intermediate and middle school years if they are to maximize achievement and be competitive in the job market of tomorrow. Many students underachieve in middle school because they lack the organizational and learning strategies to master the demands of the upper grades. Embedded approaches to strategy instruction that facilitate generalization and encourage students to use all of their mental tools. Assessment of students' study skills and metacognitive development (the degree to which they are aware of and control their own cognitive processes) leads directly to specific interventions.

Third, students in high school often underachieve because they lack the motivation to excel academically. They often have failed to incorporate a picture of themselves as successful students into their self-concepts. Through a variety of approaches including staff in-service, a study skills coach approach to peer tutoring, and an individualized profile of each student's study style and vocational options increased academic competence and a value for academic work can be built.

### Further Reading

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**Table 1 Research Summary****Full Versus Half-Day Kindergarten Programming**

<b>Research on Effects of Full Day Programs on Achievement</b>	<b>Research on Effects of Full Day Programs with Educationally Disadvantaged and Low SES Children</b>	<b>Research on Other Effects of Full versus Half Day Programs</b>
Full day programs increased long term achievement	Full day programs allow for greater opportunity for assessment and screening)	Full day programs have been shown to raise children's self-esteem, independence, and creativity No evidence that the curriculum is more individualized or innovative
Full day programs produce higher reading scores in second and third	Full day programs show higher academic and social gains	Parental involvement diminished in Full Day programs
Fewer grade retentions, higher report card marks, higher scores on standardized tests	Full day programs allow for more informal and formal instructional time on individual basis	Full day is not found to cause excessive fatigue or stress in children
Full day provides more time for individualized instruction, academics, and the reinforcement of children's positive	Full day provides access to nutritional lunch as well as breakfast	Full day allows for unhurried, relaxed school day with more variety of experience
Full day programs found to have no effect on achievement	Title I children have significantly higher achievement in Full day programs	Children in full day programs have been shown to be less likely to be dependent, shy, and withdrawn Half day programs spent more time in large groups than in free play

# Learning Styles and Strategies Checklist

1. First, analyze the lesson you have just participated in by putting a checkmark in each category and underlining the types of activities included in the lesson. Mark any learning strategies that were included as well.
2. Second, consider what learning style needs were not met and what activities might be added to the lesson. Put a plus sign in the categories that could be added and circle the activities that might be included or write in your own suggestions.

## Learning Style Categories

\_\_\_\_\_ **Visual** (students have something to look at)

Example activities: *viewing a model or real object or animal, viewing an overhead, chart or concept web, watching a video, reviewing a handout, readings, \_\_\_\_\_*  
\_\_\_\_\_)

\_\_\_\_\_ **Auditory** (students have something to listen to)

Example activities: *oral preview, summary, or review, audiotapes, actual sounds from the environment, \_\_\_\_\_*  
\_\_\_\_\_)

\_\_\_\_\_ **Kinesthetic** (students learn by doing some activity)

Example activities: *conduct an experiment, work through an exercise, make a model, \_\_\_\_\_*  
\_\_\_\_\_)

\_\_\_\_\_ **Deductive** (students move from part to whole in the thinking process)

Example activities: *put facts together to construct a concept web, assemble pieces into a model, discover information gradually to solve a problem, complete a puzzle, \_\_\_\_\_*  
\_\_\_\_\_)

\_\_\_\_\_ **Inductive** (students move from whole to part analysis in the thinking process)

Example activities: *break out parts of a task, make an outline from a reading, take a model apart, dissections, identify components of a process, \_\_\_\_\_*  
\_\_\_\_\_)

\_\_\_\_\_ **field dependent** (students need to interact with the environment and social context)  
Example activities: *large or small group Discussion, think-pair-share, cooperative learning, buddy exercises, teacher-student dialogues, \_\_\_\_\_)*

\_\_\_\_\_ **field independent** (students work on their own to complete a project or analyze data)  
Example activities: *independent field or seat work, \_\_\_\_\_)*

### **Are Learning Strategies embedded in the lesson to help compensate for diverse learning styles?**

\_\_\_\_\_ **Elaboration strategies** (visual imagery, acrostics, acronyms, etc.)

\_\_\_\_\_ **Organizational strategies** (note-taking aids such as skeletal outlines, chunking information, cluster cards, concept webs, etc.)

\_\_\_\_\_ **Comprehension strategies** (SQ4R, problem solving cues, strategies for following directions etc.)

\_\_\_\_\_ **Monitoring strategies** (check sheets etc.)

\_\_\_\_\_ **Problem solving strategies**  
(personalization, visualization, algorithm identification cues etc.)

\_\_\_\_\_ **Affective strategies** (goal setting, relaxation, reinforcement, etc.)

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# Strategies to reduce academic failure

## **Problem-solving Worksheet**

### **1. Describe your problem:**

Is there a particular grade level(s) where the problem of underachievement peaks?

What curriculum restraints exist at this grade level ( are teachers restricted to use of a particular basal reading series, for example, or does that state or district have a set of performance standards which must be met or a test which must be passed?)

Does the population in question have special needs (bilingual, low SES, etc.)?

### **2. Analyze existing resources:**

(List current services and resources already present)

### **3. Brainstorm solutions by matching the needs with existing resources:**

### **4. List additional resources you will need to solve the problem:**

### **5. Brainstorm methods of obtaining those resources:**