RTI Toolkit: A Practical Guide for Schools

RTI: Academic & Behavioral Evidence-Based Interventions

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Intervention & Related RTI Terms: Definitions

Educators who serve as interventionists should be able to define and distinguish among the terms *core instruction*, *intervention*, *accommodation*, and *modification*. (In particular, interventionists should avoid using modifications as part of an RTI plan for a general education student, as they can be predicted to undermine the student's academic performance.) Here are definitions for these key terms.

- Core Instruction. Those instructional strategies that are used routinely with all students in a general-education setting are considered 'core instruction'. High-quality instruction is essential and forms the foundation of RTI academic support. NOTE: While it is important to verify that a struggling student receives good core instructional practices, those routine practices do not 'count' as individual student interventions.

- Intervention. An academic *intervention* is a strategy used to teach a new skill, build fluency in a skill, or encourage a child to apply an existing skill to new situations or settings. An intervention can be thought of as "a set of actions that, when taken, have demonstrated ability to change a fixed educational trajectory" (Methe & Riley-Tillman, 2008; p. 37). As an example of an academic intervention, the teacher may select question generation (Davey & McBride,1986.; Rosenshine, Meister & Chapman, 1996), a strategy in which the student is taught to locate or generate main idea sentences for each paragraph in a passage and record those 'gist' sentences for later review.

- Accommodation. An accommodation is intended to help the student to fully access and participate in the general-education curriculum without changing the instructional content and without reducing the student's rate of learning (Skinner, Pappas & Davis, 2005). An accommodation is intended to remove barriers to learning while still expecting that students will master the same instructional content as their typical peers. An accommodation for students who are slow readers, for example, may include having them supplement their silent reading of a novel by listening to the book on tape. An accommodation for unmotivated students may include breaking larger assignments into smaller 'chunks' and providing students with performance feedback and praise for each completed 'chunk' of assigned work (Skinner, Pappas & Davis, 2005).

- Modification. A modification changes the expectations of what a student is expected to know or do—typically by lowering the academic standards against which the student is to be evaluated. Examples of modifications are giving a student five math computation problems for practice instead of the 20 problems assigned to the rest of the class or letting the student consult course notes during a test when peers are not permitted to do so. Instructional modifications are essential elements on the Individualized Education Plans (IEPs) or Section 504 Plans of many students with special needs. Modifications are generally not included on a general-education student's RTI intervention plan, however, because the assumption is that the student can be successful in the curriculum with appropriate interventions and accommodations alone. In fact, modifying the work of struggling general education students is likely to have a negative effect that works *against* the goals of RTI. Reducing academic expectations will result in these students falling further behind rather than closing the performance gap with peers

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Academic Interventions 'Critical Components' Checklist

This checklist summarizes the essential components of academic interventions. When preparing a student's Tier 1, 2, or 3 academic intervention plan, use this document as a 'pre-flight checklist' to ensure that the academic intervention is of high quality, is sufficiently strong to address the identified student problem, is fully understood and supported by the teacher, and can be implemented with integrity. NOTE: While the checklist refers to the 'teacher' as the interventionist, it can also be used as a guide to ensure the quality of interventions implemented by non-instructional personnel, adult volunteers, parents, and peer (student) tutors.

Directions: When creating an academic intervention plan, review that plan by comparing it to each of the items below.

- If a particular intervention element is missing or needs to be reviewed, check the 'Critical Item?' column for that element.
- Write any important notes or questions in the 'Notes' column.

Allocating Sufficient Contact Time & Assuring Appropriate Student-Teacher Ratio

The cumulative time set aside for an intervention and the amount of direct teacher contact are two factors that help to determine that intervention's 'strength' (Yeaton & Sechrest, 1981).

Critical Item?	Intervention Element	Notes
☐	**Time Allocated.** The time set aside for the intervention is appropriate for the type and level of student problem (Burns & Gibbons, 2008; Kratochwill, Clements & Kalymon, 2007). When evaluating whether the amount of time allocated is adequate, consider: • Length of each intervention session. • Frequency of sessions (e.g.., daily, 3 times per week) • Duration of intervention period (e.g., 6 instructional weeks)	
☐	**Student-Teacher Ratio.** The student receives sufficient contact from the teacher or other person delivering the intervention to make that intervention effective. NOTE: Generally, supplemental intervention groups should be limited to 6-7 students (Burns & Gibbons, 2008).	

Matching the Intervention to the Student Problem

Academic interventions are not selected at random. First, the student academic problem(s) is defined clearly and in detail. Then, the likely explanations for the academic problem(s) are identified to understand which intervention(s) are likely to help—and which should be avoided.

Critical Item?	Intervention Element	Notes
☐	**Problem Definition.** The student academic problem(s) to be addressed in the intervention are defined in clear, specific, measureable terms (Bergan, 1995; Witt, VanDerHeyden & Gilbertson, 2004). The full problem definition describes: • *Conditions*. Describe the environmental conditions or task demands in place when the academic problem is observed. • *Problem Description*. Describe the actual observable academic behavior in which the student is engaged. Include rate, accuracy, or other quantitative information of student performance. • *Typical or Expected Level of Performance*. Provide a typical or expected performance criterion for this skill or behavior. Typical or expected academic performance can be calculated using a variety of sources,	
☐	**Appropriate Target.** Selected intervention(s) are appropriate for the identified student problem(s) (Burns, VanDerHeyden & Boice, 2008). TIP: Use the Instructional Hierarchy (Haring et al., 1978) to select	

	academic interventions according to the four stages of learning: • *Acquisition*. The student has begun to learn how to complete the target skill correctly but is not yet accurate in the skill. Interventions should improve accuracy. • *Fluency*. The student is able to complete the target skill accurately but works slowly. Interventions should increase the student's speed of responding (fluency) as well as to maintain accuracy. • *Generalization*. The student may have acquired the target skill but does not typically use it in the full range of appropriate situations or settings. Or the student may confuse the target skill with 'similar' skills. Interventions should get the student to use the skill in the widest possible range of settings and situations, or to accurately discriminate between the target skill and 'similar' skills. • *Adaptation*. The student is not yet able to modify or adapt an existing skill to fit novel task-demands or situations. Interventions should help the student to identify key concepts or elements from previously learned skills that can be adapted to the new demands or situations.	
☐	'Can't Do/Won't Do' Check. The teacher has determined whether the student problem is primarily a skill or knowledge deficit ('can't do') or whether student motivation plays a main or supporting role in academic underperformance ('wont do'). If motivation appears to be a significant factor contributing to the problem, the intervention plan includes strategies to engage the student (e.g., high interest learning activities; rewards/incentives; increased student choice in academic assignments, etc.) (Skinner, Pappas & Davis, 2005; Witt, VanDerHeyden & Gilbertson, 2004).	

Incorporating Effective Instructional Elements

These effective 'building blocks' of instruction are well-known and well-supported by the research. They should be considered when selecting or creating any academic intervention.

Critical Item?	Intervention Element	Notes
☐	Explicit Instruction. Student skills have been broken down "into manageable and deliberately sequenced steps" and the teacher provided" overt strategies for students to learn and practice new skills" (Burns, VanDerHeyden & Boice, 2008, p.1153).	
☐	Appropriate Level of Challenge. The student experienced sufficient success in the academic task(s) to shape learning in the desired direction as well as to maintain student motivation (Burns, VanDerHeyden & Boice, 2008).	
☐	Active Engagement. The intervention ensures that the student is engaged in 'active accurate responding' (Skinner, Pappas & Davis, 2005).at a rate frequent enough to capture student attention and to optimize effective learning.	
☐	Performance Feedback. The student receives prompt performance feedback about the work completed (Burns, VanDerHeyden & Boice, 2008).	
☐	Maintenance of Academic Standards. If the intervention includes any accommodations to better support the struggling learner (e.g., preferential seating, breaking a longer assignment into smaller chunks), those accommodations do not substantially lower the academic standards against which the student is to be evaluated and are not likely to reduce the student's rate of learning (Skinner, Pappas & Davis, 2005).	

Verifying Teacher Understanding & Providing Teacher Support		
The teacher is an active agent in the intervention, with primary responsibility for putting it into practice in a busy classroom. It is important, then, that the teacher fully understands how to do the intervention, believes that he or she can do it, and knows whom to seek out if there are problems with the intervention.		
Critical Item?	Intervention Element	Notes
☐	Teacher Responsibility. The teacher understands his or her responsibility to implement the academic intervention(s) with integrity.	
☐	Teacher Acceptability. The teacher states that he or she finds the academic intervention feasible and acceptable for the identified student problem.	
☐	Step-by-Step Intervention Script. The essential steps of the intervention are written as an 'intervention script'--a series of clearly described steps—to ensure teacher understanding and make implementation easier (Hawkins, Morrison, Musti-Rao & Hawkins, 2008).	
☐	Intervention Training. If the teacher requires training to carry out the intervention, that training has been arranged.	
☐	Intervention Elements: Negotiable vs. Non-Negotiable. The teacher knows all of the steps of the intervention. Additionally, the teacher knows which of the intervention steps are 'non-negotiable' (they must be completed exactly as designed) and which are 'negotiable' (the teacher has some latitude in how to carry out those steps) (Hawkins, Morrison, Musti-Rao & Hawkins, 2008).	
☐	Assistance With the Intervention. If the intervention cannot be implemented as designed for any reason (e.g., student absence, lack of materials, etc.), the teacher knows how to get assistance quickly to either fix the problem(s) to the current intervention or to change the intervention.	

Documenting the Intervention & Collecting Data		
Interventions only have meaning if they are done within a larger data-based context. For example, interventions that lack baseline data, goal(s) for improvement, and a progress-monitoring plan are 'fatally flawed' (Witt, VanDerHeyden & Gilbertson, 2004).		
Critical Item?	Intervention Element	Notes
☐	Intervention Documentation. The teacher understands and can manage all documentation required for this intervention (e.g., maintaining a log of intervention sessions, etc.).	
☐	Checkup Date. Before the intervention begins, a future checkup date is selected to review the intervention to determine if it is successful. Time elapsing between the start of the intervention and the checkup date should be short enough to allow a timely review of the intervention but long enough to give the school sufficient time to judge with confidence whether the intervention worked.	
☐	Baseline. Before the intervention begins, the teacher has collected information about the student's baseline level of performance in the identified area(s) of academic concern (Witt, VanDerHeyden &	

	Gilbertson, 2004).	
☐	Goal. Before the intervention begins, the teacher has set a specific goal for predicted student improvement to use as a minimum standard for success (Witt, VanDerHeyden & Gilbertson, 2004). The goal is the expected student outcome by the checkup date if the intervention is successful.	
☐	Progress-Monitoring. During the intervention, the teacher collects progress-monitoring data of sufficient quality and at a sufficient frequency to determine at the checkup date whether that intervention is successful (Witt, VanDerHeyden & Gilbertson, 2004).	

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School-Wide Strategies for Managing...
READING

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The ability to read allows individuals access to the full range of a culture's artistic and scientific knowledge. Reading is a complex act. Good readers are able fluently to decode the words on a page, to organize and recall important facts in a text, to distill from a reading the author's opinions and attitudes, and to relate the content of an individual text to a web of other texts previously read. The foundation that reading rests upon is the ability to decode. Emergent readers require the support of more accomplished readers to teach them basic vocabulary, demonstrate word attack strategies, model fluent reading, and provide corrective feedback and encouragement. Newly established readers must build fluency and be pushed to exercise their reading skills across the widest possible range of settings and situations. As the act of decoding becomes more effortless and automatic, the developing reader is able to devote a greater portion of cognitive energy to understanding the meaning of the text. Reading comprehension is not a single skill but consists of a cluster of competencies that range from elementary strategies for identifying and recalling factual content to highly sophisticated techniques for inferring an author's opinions and attitudes. As researcher Michael Pressley points out, reading comprehension skills can be thought of as unfolding along a timeline. Before beginning to read a particular selection, the skilled student reader must engage prior knowledge, predict what the author will say about the topic, and set specific reading goals. While reading, the good reader self-monitors his or her understanding of the text, rereads sentences and longer passages that are unclear, and updates predictions about the text based on what he or she has just read. After completing a text, the good reader summarizes its main points (perhaps writing them down), looks back in the text to clarify any points that are unclear, and continues to think about the text and its implications for a period of time. Reading comprehension can also be thought of as a bundle of interdependent skills that range from basic to more advanced. Teachers should ensure that students understand and appropriately use simple comprehension strategies (such as looking back in a text to clarify factual information) before teaching them advanced comprehension strategies such as SQ3R ('Survey, Question, Read, Recite, Review'). Ultimately, reading is a competency that is continually honed and improved over a lifetime. The teacher's goal is to build students into independent readers whose skills improve with self-guided practice. Below are a number of instructional strategies to promote word decoding, reading decoding, and reading comprehension.

Independent Practice: Set Up Reading Centers *(Florida Center for Reading Research, 2005)*. When students have mastered a reading skill, they can work independently at reading centers to practice and become more fluent in that skill under the watchful eye of the teacher. The reading center is set up with fun and engaging activities designed to extend and reinforce literacy content presented by the teacher. Students work on independent reading-related activities individually or in pairs or groups. As examples of reading center choices, students may listen to taped books, read alone or to each other, use magnetic letters to spell a specified list of words, or create storyboards or comic strips that incorporate pictures and words. Each reading center activity is tied to specific student literacy goals. The activities in reading centers may change often to give children a chance to practice new skills and to keep the content of these centers fresh and engaging.

Reading Comprehension: Activating Prior Knowledge *(Hansen, & Pearson, 1983)*. The instructor demonstrates to students how they can access their prior knowledge about a topic to improve comprehension of an article or story. The instructor first explains the benefit of using prior knowledge. The instructor tells students that recalling their prior experiences (“their own life”) can help them to understand the content of their reading--because new facts make sense only when we connect them to what we already know. Next, the instructor demonstrates the text prediction strategy to the class by selecting a sample passage (displayed as an overhead) and using a “think-aloud” approach to illustrate the strategy steps: STEP 1: THINK ABOUT WHAT AND WHY:

The teacher connects the article to be read with the instructor's own prior knowledge about the topic. The teacher might say, for example, “I am about to read a short article about [topic]. Before I read the article, though, I should think about my life experiences and what they might tell me about [topic]. By thinking about my own life, I will better understand the article.” STEP 2: SELECT MAIN IDEAS FROM THE ARTICLE TO POSE PRIOR-KNOWLEDGE AND PREDICTION QUESTIONS. The teacher chooses up to 3 main ideas that appear in the article or story. For each key idea, the instructor poses one question requiring that readers tap their own prior knowledge of the idea (e.g., “What are your own attitudes and experiences about [idea]?”) and another that prompts them to predict how the article or story might deal with the idea (e.g., "What do you think the article will say about [idea]?"). STEP 3: HAVE STUDENTS READ THE ARTICLE INDEPENDENTLY. Once the teacher has primed students' prior knowledge by having them respond to the series of prior-knowledge and prediction questions, students read the selection independently.

Reading Comprehension: Anticipation Reading Guide *(Duffelmeyer, 1994; Merkley, 1996)*. To activate their prior knowledge of a topic, students complete a brief questionnaire on which they must express agreement or disagreement with 'opinion' questions tied to the selection to be read; students then engage in a class discussion of their responses. The instructor first constructs the questionnaire. Each item on the questionnaire is linked to the content of the article or story that the students will read. All questionnaire items use a 'forced-choice' format in which the student must simply agree or disagree with the item. After students have completed the questionnaire, the teacher reviews responses with the class, allowing students an opportunity to explain their rationale for their answers. Then students read the article or story.

Reading Comprehension: Building Comprehension of Textbook Readings Through SQ3R *(Robinson, 1946)*. Students grasp a greater amount of content from their textbook readings when they use the highly structured SQ3R ('Survey, Question, Read, Recite, Review') process. (1) SURVEY: Prior to reading a section of the textbook, the reader surveys the selection by examining charts, tables, or pictures, looking over chapter headings and subheadings, and reading any individual words or blocks of text highlighted by the publisher. (2) QUESTION: In preparation for reading, the reader next generates and writes down a series of key 'questions' about the content based on the material that he or she has surveyed. (3) READ: As the reader reads through the selection, he or she seeks answers to the questions posed. (4) RECITE: After finishing the selection, the reader attempts to recite from memory the answers to the questions posed. If stuck on a question, the reader scans the text to find the answer. (5) REVIEW: At the end of a study session, the reader reviews the list of key questions and again recites the answers. If the reader is unable to recall an answer, he or she goes back to the text to find it.

Reading Comprehension: Conversing With the Writer Through Text Annotation *(Harris, 1990; Sarkisian, Toscano, Tomkins-Tinch, & Casey, 2003)*. Students are likely to increase their retention of information when they interact actively with their reading by jotting comments in the margin of the text. Students are taught to engage in an ongoing 'conversation' with the writer by recording a running series of brief comments in the margins of the text. Students may write annotations to record their opinions of points raised by the writer, questions triggered by the reading, or vocabulary words that the reader does not know and must look up. NOTE: Because this strategy requires that students write in the margins of a book or periodical, text annotation is suitable for courses in which students have either purchased the textbook or have photocopies of the reading available on which to write.

Reading Comprehension: Mining Information from the Text Book *(Garner, Hare, Alexander, Haynes, & Vinograd, 1984)*. With ‘text lookback’ the student increases recall of information by skimming previously read material in the text in a structured manner to look that information up. First, define for the student the difference between ‘lookback’ and ‘think’ questions. ‘Lookback’ questions are those that tell us that the answer can be found right in the article, while ‘think’ questions are those that ask you to give your own opinion, belief, or ideas. When faced with a lookback question,

readers may need to look back in the article to find the information that they need. But readers can save time by first skimming the article to get to the general section where the answer to the question is probably located. To skim efficiently, the student should (1) read the text-lookback question carefully and highlight the section that tells the reader what to look for (e.g., “What does the article say are the FIVE MOST ENDANGERED SPECIES of whales today?”), (2) look for titles, headings, or illustrations in the article that might tell the reader where the information that he or she is looking for is probably located, (3) read the beginning and end sentences in individual paragraphs to see if that paragraph might contain the desired information.

Reading Comprehension: Previewing the Chapter *(Gleason, Archer, & Colvin, 2002)*. The student who systematically previews the contents of a chapter before reading it increases comprehension--by creating a mental map of its contents, activating prior knowledge about the topic, and actively forming predictions about what he or she is about to read. In the previewing technique, the student browses the chapter headings and subheadings. The reader also studies any important graphics and looks over review questions at the conclusion of the chapter. Only then does the student begin reading the selection.

Reading Comprehension: Question-Answer Relationships (QAR) *(Raphael, 1982; Raphael, 1986)*. Students are taught to identify 'question-answer relationships', matching the appropriate strategy to comprehension questions based on whether a question is based on fact, requires inferential thinking, or draws upon the reader's own experience. Students learn that answers to RIGHT THERE questions are fact-based and can be found in a single sentence, often accompanied by 'clue' words that also appear in the question. Students are informed that they will also find answers to THINK AND SEARCH questions in the text--but must piece those answers together by scanning the text and making connections between different pieces of factual information. AUTHOR AND YOU questions require that students take information or opinions that appear in the text and combine them with the reader's own experiences or opinions to formulate an answer. ON MY OWN questions are based on the students' own experiences and do not require knowledge of the text to answer. Students are taught to identify question-answer relationships in class discussion and demonstration. They are then given specific questions and directed to identify the question type and to use the appropriate strategy to answer.

Reading Comprehension: Reading Actively *(Gleason, Archer, & Colvin, 2002)*. By reading, recalling, and reviewing the contents of every paragraph, the student improves comprehension of the longer passage. The instructor teaches students to first read through the paragraph, paying particular attention to the topic and important details and facts. The instructor then directs students to cover the paragraph and state (or silently recall) the key details of the passage from memory. Finally, the instructor prompts students to uncover the passage and read it again to see how much of the information in the paragraph the student had been able to accurately recall. This process is repeated with all paragraphs in the passage.

Reading Fluency: Listening, Reading, And Receiving Corrective Feedback *(Rose & Sherry, 1984; Van Bon, Boksebeld, Font Freide, & Van den Hurk, J.M., 1991)*. The student ‘rehearses’ a text by first following along silently as a more accomplished reader (tutor) reads a passage aloud; then the student reads the same passage aloud while receiving corrective feedback as needed. The student and tutor sit side-by-side at a table with a book between them. The tutor begins by reading aloud from the book for about 2 minutes while the student reads silently. If necessary, the tutor tracks his or her progress across the page with an index finger to help the student to keep up. At the end of the 2 minutes, the tutor stops reading and asks the student to read aloud. If the student commits a reading error or hesitates for longer than 3-5 seconds, the tutor tells the student the correct word and has the student continue reading. For each new passage, the tutor first reads the passage aloud before having the student read aloud.

Reading Fluency: Paired Reading *(Topping, 1987)*. The student builds fluency and confidence as a reader by first reading aloud in unison with an accomplished reader, then signaling that he or she

is ready to read on alone with corrective feedback. The more accomplished reader (tutor) and student sit in a quiet location with a book positioned between them. The tutor says to the student, "Now we are going to read aloud together for a little while. Whenever you want to read alone, just tap the back of my hand like this [demonstrate] and I will stop reading. If you come to a word you don't know, I will tell you the word and begin reading with you again." Tutor and student begin reading aloud together. If the student misreads a word, the tutor points to the word and pronounces it. Then the student repeats the word. When the student reads the word correctly, tutor and student resume reading through the passage. When the child delivers the appropriate signal (a hand tap) to read independently, the tutor stops reading aloud and instead follows along silently as the student continues with oral reading. The tutor occasionally praises the student in specific terms for good reading (e.g., "That was a hard word. You did a nice job sounding it out!"). If, while reading alone, the child either commits a reading error or hesitates for longer than 5 seconds, the tutor points to the error-word and pronounces it. Then the tutor tells the student to say the word. When the student pronounces the error-word correctly, tutor and student resume reading aloud in unison. This tandem reading continues until the student again signals to read alone.

Reading Fluency: Repeated Reading *(Herman, 1985; Rashotte & Torgesen, 1985; Rasinski, 1990)*. The student increases fluency in decoding by repeatedly reading the same passage while receiving help with reading errors. A more accomplished reader (tutor) sits with the student in a quiet location with a book positioned between them. The tutor selects a passage in the book of about 100 to 200 words in length. The tutor directs the student to read the passage aloud. If the student misreads a word or hesitates for longer than 5 seconds, the tutor reads the word aloud and has the student repeat the word correctly before continuing through the passage. If the student asks for help with any word, the tutor reads the word aloud. If the student requests a word definition, the tutor gives the definition. When the student has completed the passage, the tutor directs the student to read the passage again. The tutor directs the student to continue rereading the same passage until either the student has read the passage a total of 4 times or the student reads the passage at the rate of at least 85 to 100 words per minute. Then tutor and student select a new passage and repeat the process.

Word Decoding: Drilling Error Words *(Jenkins & Larson, 1979)*. When students practice, drill, and receive corrective feedback on words that they misread, they can rapidly improve their vocabulary and achieve gains in reading fluency. Here are steps that the teacher or tutor will follow in the Error Word Drill: (1) When the student misreads a word during a reading session, write down the error word and date in a separate "Error Word Log". (2) At the end of the reading session, write out all error words from the reading session onto index cards. (If the student has misread more than 20 different words during the session, use just the first 20 words from your error-word list. If the student has misread fewer than 20 words, consult your "Error Word Log" and select enough additional error words from past sessions to build the review list to 20 words.) (3) Review the index cards with the student. Whenever the student pronounces a word correctly, remove that card from the deck and set it aside. (A word is considered correct if it is read correctly within 5 seconds. Self-corrected words are counted as correct if they are made within the 5-second period. Words read correctly after the 5-second period expires are counted as incorrect.) (4) When the student misses a word, pronounce the word for the student and have the student repeat the word. Then say, "What word?" and direct the student to repeat the word once more. Place the card with the missed word at the bottom of the deck. (5) Error words in deck are presented until all have been read correctly. All word cards are then gathered together, reshuffled, and presented again to the student. The drill continues until either time runs out or the student has progressed through the deck without an error on two consecutive cards.

Word Decoding: Tackling Multi-Syllabic Words *(Gleason, Archer, & Colvin, 2002)*. The student uses affixes (suffixes and prefixes) and decodable 'chunks' to decode multi-syllabic words. The instructor teaches students to identify the most common prefixes and suffixes present in multi-syllable words, and trains students to readily locate and circle these affixes. The instructor also

trains students to segment the remainder of unknown words into chunks, stressing that readers do not need to divide these words into dictionary-perfect syllables. Rather, readers informally break up the word into graphemes (any grouping of letters including one or more vowels that represents a basic sound unit—or grapheme--in English). Readers then decode the mystery word by reading all affixes and graphemes in the order that they appear in that word.

Word Decoding: Teach a Hierarchy of Strategies *(Haring, Lovitt, Eaton & Hansen, 1978)*. The student has a much greater chance of successfully decoding a difficult word when he or she uses a 'Word Attack Hierarchy'--a coordinated set of strategies that move from simple to more complex. The student uses successive strategies until solving the word. (1) When the student realizes that he or she has misread a word, the student first attempts to decode the word again. (2) Next, the student reads the entire sentence, using the context of that sentence to try to figure out the word's meaning--and pronunciation. (3) The student breaks the word into parts, pronouncing each one. (4) If still unsuccessful, the student uses an index card to cover sections of the word, each time pronouncing only the part that is visible. The student asks 'What sound does ___ make?, using phonics information to sound out the word. (5) If still unsuccessful, the student asks a more accomplished reader to read the word.

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School-Wide Strategies for Managing... MATHEMATICS

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Mathematics instruction is a lengthy, incremental process that spans all grade levels. As children begin formal schooling in kindergarten, they develop 'number sense', an intuitive understanding of foundation number concepts and relationships among numbers. A central part of number sense is the student's ability to internalize the number line as a precursor to performing mental arithmetic. As students progress through elementary school, they must next master common math operations (addition, subtraction, multiplication, and division) and develop fluency in basic arithmetic combinations ('math facts'). In later grades, students transition to applied, or 'word', problems that relate math operations and concepts to real-world situations. Successful completion of applied problems requires that the student understand specialized math vocabulary, identify the relevant math operations needed to solve the problem while ignoring any unnecessary information also appearing in that written problem, translate the word problem from text format into a numeric equation containing digits and math symbols, and then successfully solve. It is no surprise, then, that there are a number of potential blockers to student success with applied problems, including limited reading decoding and comprehension skills, failure to acquire fluency with arithmetic combinations (math facts), and lack of proficiency with math operations. Deciding what specific math interventions might be appropriate for any student must therefore be a highly individualized process, one that is highly dependent on the student's developmental level and current math skills, the requirements of the school district's math curriculum, and the degree to which the student possesses or lacks the necessary auxiliary skills (e.g., math vocabulary, reading comprehension) for success in math. Here are some wide-ranging classroom (Tier I RTI) ideas for math interventions that extend from the primary through secondary grades.

Applied Problems: Encourage Students to Draw to Clarify Understanding *(Van Essen & Hamaker, 1990; Van Garderen, 2006)*. Making a drawing of an applied, or 'word', problem is one easy heuristic tool that students can use to help them to find the solution. An additional benefit of the drawing strategy is that it can reveal to the teacher any student misunderstandings about how to set up or solve the word problem. To introduce students to the drawing strategy, the teacher hands out a worksheet containing at least six word problems. The teacher explains to students that making a picture of a word problem sometimes makes that problem clearer and easier to solve. The teacher and students then independently create drawings of each of the problems on the worksheet. Next, the students show their drawings for each problem, explaining each drawing and how it relates to the word problem. The teacher also participates, explaining his or her drawings to the class or group. Then students are directed independently to make drawings as an intermediate problem-solving step when they are faced with challenging word problems. NOTE: This strategy appears to be more effective when used in later, rather than earlier, elementary grades.

Applied Problems: Improving Performance Through a 4-Step Problem-Solving Approach *(Pólya, 1957; Williams, 2003)*. Students can consistently perform better on applied math problems if they follow an efficient 4-step plan of understanding the problem, devising a plan, carrying out the plan, and looking back. (1) UNDERSTAND THE PROBLEM. To fully grasp the problem, the student may restate the problem in his or her own words, note key information, and identify missing information. (2) DEVISE A PLAN. In mapping out a strategy to solve the problem, the student may make a table, draw a diagram, or translate the verbal problem into an equation. (3) CARRY OUT THE PLAN. The student implements the steps in the plan, showing work and checking work for each step. (4) LOOK BACK. The student checks the results. If the answer is written as an equation, the student puts the results in words and checks whether the answer addresses the question posed in the original word problem.

Math Computation: Boost Fluency Through Explicit Time-Drills *(Rhymer, Skinner, Jackson, McNeill, Smith & Jackson, 2002; Skinner, Pappas & Davis, 2005; Woodward, 2006)*. Explicit time-drills are a method to boost students' rate of responding on math-fact worksheets. The teacher hands out the worksheet. Students are told that they will have 3 minutes to work on problems on the sheet. The teacher starts the stop watch and tells the students to start work. At the end of the first minute in the 3-minute span, the teacher 'calls time', stops the stopwatch, and tells the students to underline the last number written and to put their pencils in the air. Then students are told to resume work and the teacher restarts the stopwatch. This process is repeated at the end of minutes 2 and 3. At the conclusion of the 3 minutes, the teacher collects the student worksheets. TIPS: Explicit time-drills work best on 'simple' math facts requiring few computation steps. They are less effective on more complex math facts. Also, a less intrusive and more flexible version of this intervention is to use time-prompts while students are working independently on math facts to speed their rate of responding. For example, at the end of every minute of seatwork, the teacher can call the time and have students draw a line under the item that they are working on when that minute expires.

Math Computation: Motivate With 'Errorless Learning' Worksheets *(Caron, 2007)*. Reluctant students can be motivated to practice math number problems to build computational fluency when given worksheets that include an answer key (number problems with correct answers) displayed at the top of the page. In this version of an 'errorless learning' approach, the student is directed to complete math facts as quickly as possible. If the student comes to a number problem that he or she cannot solve, the student is encouraged to locate the problem and its correct answer in the key at the top of the page and write it in. Such speed drills build computational fluency while promoting students' ability to visualize and to use a mental number line. TIP: Consider turning this activity into a 'speed drill'. The student is given a kitchen timer and instructed to set the timer for a predetermined span of time (e.g., 2 minutes) for each drill. The student completes as many problems as possible before the timer rings. The student then graphs the number of problems correctly computed each day on a time-series graph, attempting to better his or her previous score.

Math Computation: Two Ideas to Jump-Start Active Academic Responding *(Skinner, Pappas & Davis, 2005)*. Research shows that when teachers use specific techniques to motivate their classes to engage in higher rates of active and accurate academic responding, student learning rates are likely to go up. Here are two ideas to accomplish increased academic responding on math tasks. First, break longer assignments into shorter assignments with performance feedback given after each shorter 'chunk' (e.g., break a 20-minute math computation worksheet task into 3 seven-minute assignments). Breaking longer assignments into briefer segments also allows the teacher to praise struggling students more frequently for work completion and effort, providing an additional 'natural' reinforcer. Second, allow students to respond to easier practice items orally rather than in written form to speed up the rate of correct responses.

Math Homework: Motivate Students Through Reinforcers, Interesting Assignments, Homework Planners, and Self-Monitoring *(Bryan & Sullivan-Burstein, 1998)*. Improve students' rate of homework completion and quality by using reinforcers, motivating 'real-life' assignments, a

homework planner, and student self-monitoring. (1) Reinforcers: Allow students to earn a small reward (e.g., additional free time) when they turn in all homework assignments for the week. (2) 'Real-life' Assignments: Make homework meaningful by linking concepts being taught to students' lives. In a math lesson on estimating area, for example, give students the homework task of calculating the area of their bedroom and estimating the amount of paint needed to cover the walls. (3) Homework Planner: Teach students to use a homework planner to write down assignments, organize any materials (e.g., worksheets) needed for homework, transport completed homework safely back to school, and provide space for parents and teachers to communicate about homework via written school-home notes. (4) Student Self-Monitoring: Direct students to chart their homework completion each week. Have students plot the number of assignments turned in on-time in green, assignments not turned in at all in red, and assignments turned in late in yellow.

Math Instruction: Consolidate Student Learning During Lecture Through the Peer-Guided Pause *(Hawkins, & Brady, 1994)*. During large-group math lectures, teachers can help students to retain more instructional content by incorporating brief Peer Guided Pause sessions into lectures. Students are trained to work in pairs. At one or more appropriate review points in a lecture period, the instructor directs students to pair up to work together for 4 minutes. During each Peer Guided Pause, students are given a worksheet that contains one or more correctly completed word or number problems illustrating the math concept(s) covered in the lecture. The sheet also contains several additional, similar problems that pairs of students work cooperatively to complete, along with an answer key. Student pairs are reminded to (a) monitor their understanding of the lesson concepts; (b) review the correctly math model problem; (c) work cooperatively on the additional problems, and (d) check their answers. The teacher can direct student pairs to write their names on the practice sheets and collect them as a convenient way to monitor student understanding.

Math Instruction: Increase Student Engagement and Improve Group Behaviors With Response Cards *(Armendariz & Umbreit, 1999; Lambert, Cartledge, Heward & Lo, 2006)*. Response cards can increase student active engagement in group math activities while reducing disruptive behavior. In the group-response technique, all students in the classroom are supplied with an erasable tablet ('response card'), such as a chalk slate or laminated white board with erasable marker. The teacher instructs at a brisk pace. The instructor first poses a question to the class. Students are given sufficient wait time for each to write a response on his or her response card. The teacher then directs students to present their cards. If most or all of the class has the correct answer, the teacher praises the group. If more than one quarter of the students records an incorrect answer on their cards, however, the teacher uses guided questions and demonstration to steer students to the correct answer.

Math Instruction: Maintain a Supportive Atmosphere for Classroom "Math Talk" *(Cooke & Adams, 1998)*. Teachers can promote greater student 'risk-taking' in mathematics learning when they cultivate a positive classroom atmosphere for math discussions while preventing peers from putting each other down. The teacher models behavioral expectations for open, interactive discussions, praises students for their class participation and creative attempts at problem-solving, and regularly points out that incorrect answers and misunderstandings should be celebrated—as they often lead to breakthroughs in learning. The teacher uses open-ended comments (e.g., "What led you to that answer?") as tools to draw out students and encourage them to explore and apply math concepts in group discussion. Students are also encouraged in a supportive manner to evaluate each other's reasoning. However, the teacher intervenes immediately to prevent negative student comments or 'put-downs' about peers. As with any problem classroom behavior, a first offense requires that the student meet privately with the instructor to discuss teacher expectations for positive classroom behavior. If the student continues to put down peers, the teacher imposes appropriate disciplinary consequences.

Math Instruction: Support Students Through a Wrap-Around Instruction Plan *(Montague, 1997; Montague, Warger & Morgan, 2000)*. When teachers instruct students in more complex math cognitive

strategies, they must support struggling learners with a 'wrap-around' instructional plan. That plan incorporates several elements: (a) Assessment of the student's problem-solving skills. The instructor first verifies that the student has the necessary academic competencies to learn higher-level math content, including reading and writing skills, knowledge of basic math operations, and grasp of required math vocabulary. (b) Explicit instruction. The teacher presents new math content in structured, highly organized lessons. The instructor also uses teaching tools such as Guided Practice (moving students from known material to new concepts through a thoughtful series of teacher questions) and 'overlearning' (teaching and practicing a skill with the class to the point at which students develop automatic recall and control of it). (c) Process modeling. The teacher adopts a 'think aloud' approach, or process modeling, to verbally reveal his or her cognitive process to the class while using a cognitive strategy to solve a math problem. In turn, students are encouraged to think aloud when applying the same strategy—first as part of a whole-class or cooperative learning group, then independently. The teacher observes students during process modeling to verify that they are correctly applying the cognitive strategy. (d) Performance feedback. Students get regular performance feedback about their level of mastery in learning the cognitive strategy. That feedback can take many forms, including curriculum-based measurement, timely corrective feedback, specific praise and encouragement, grades, and brief teacher conferences. (e) Review of mastered skills or material. Once the student has mastered a cognitive strategy, the teacher structures future class lessons or independent work to give the student periodic opportunities to use and maintain the strategy. The teacher also provides occasional brief 'booster sessions', reteaching steps of the cognitive strategy to improve student retention.

Math Instruction: Unlock the Thoughts of Reluctant Students Through Class Journaling *(Baxter, Woodward & Olson, 2005)*. Students can effectively clarify their knowledge of math concepts and problem-solving strategies through regular use of class 'math journals'. Journaling is a valuable channel of communication about math issues for students who are unsure of their skills and reluctant to contribute orally in class. At the start of the year, the teacher introduces the journaling assignment, telling students that they will be asked to write and submit responses at least weekly to teacher-posed questions. At first, the teacher presents 'safe' questions that tap into the students' opinions and attitudes about mathematics (e.g., 'How important do you think it is nowadays for cashiers in fast-food restaurants to be able to calculate in their head the amount of change to give a customer?"). As students become comfortable with the journaling activity, the teacher starts to pose questions about the students' own mathematical thinking relating to specific assignments. Students are encouraged to use numerals, mathematical symbols, and diagrams in their journal entries to enhance their explanations. The teacher provides brief written comments on individual student entries, as well as periodic oral feedback and encouragement to the entire class on the general quality and content of class journal responses. Regular math journaling can prod students to move beyond simple 'rote' mastery of the steps for completing various math problems toward a deeper grasp of the math concepts that underlie and explain a particular problem-solving approach. Teachers will find that journal entries are a concrete method for monitoring student understanding of more abstract math concepts. To promote the quality of journal entries, the teacher might also assign them an effort grade that will be calculated into quarterly math report card grades.

Math Problem-Solving: Help Students Avoid Errors With the 'Individualized Self-Correction Checklist' *(Zrebiec Uberti, Mastropieri & Scruggs, 2004)*. Students can improve their accuracy on particular types of word and number problems by using an 'individualized self-instruction checklist' that reminds them to pay attention to their own specific error patterns. To create such a checklist, the teacher meets with the student. Together they analyze common error patterns that the student tends to commit on a particular problem type (e.g., 'On addition problems that require carrying, I don't always remember to carry the number from the previously added column.'). For each type of error identified, the student and teacher together describe the appropriate step to take to prevent the error from occurring (e.g., 'When adding each column, make sure to carry numbers when needed.'). These self-check items are compiled into a single checklist. Students are then

encouraged to use their individualized self-instruction checklist whenever they work independently on their number or word problems. As older students become proficient in creating and using these individualized error checklists, they can begin to analyze their own math errors and to make their checklists independently whenever they encounter new problem types.

Math Review: Balance Massed & Distributed Practice *(Carnine, 1997)*. Teachers can best promote students acquisition and fluency in a newly taught math skill by transitioning from massed to distributed practice. When students have just acquired a math skill but are not yet fluent in its use, they need lots of opportunities to try out the skill under teacher supervision—a technique sometimes referred to as 'massed practice'. Once students have developed facility and independence with that new math skill, it is essential that they then be required periodically to use the skill in order to embed and retain it—a strategy also known as 'distributed practice'. Teachers can program distributed practice of a math skill such as reducing fractions to least common denominators into instruction either by (a) regularly requiring the student to complete short assignments in which they practice that skill in isolation (e.g., completing drill sheets with fractions to be reduced), or (b) teaching a more advanced algorithm or problem-solving approach that incorporates--and therefore requires repeated use of--the previously learned math skill (e.g., requiring students to reduce fractions to least-common denominators as a necessary first step to adding the fractions together and converting the resulting improper fraction to a mixed number).

Math Review: Teach Effective Test-Preparation Strategies *(Hong, Sas, & Sas, 2006)*. A comparison of the methods that high and low-achieving math students typically use to prepare for tests suggests that struggling math students need to be taught (1) specific test-review strategies and (2) time-management and self-advocacy skills. Among review-related strategies, deficient test-takers benefit from explicit instruction in how to take adequate in-class notes; to adopt a systematic method to review material for tests (e.g., looking over their notes each night, rereading relevant portions of the math text, reviewing handouts from the teacher, etc.), and to give themselves additional practice in solving problems (e.g., by attempting all homework items, tackling additional problems from the text book, and solving problems included in teacher handouts). Deficient test-takers also require pointers in how to allocate and manage their study time wisely, to structure their study environment to increase concentration and reduce distractions, as well as to develop 'self-advocacy' skills such as seeking additional help from teachers when needed. Teachers can efficiently teach effective test-preparation methods as a several-session whole-group instructional module.

Math Vocabulary: Preteach, Model, and Use Standard Math Terms *(Chard, D., n.d.)*. Three strategies can help students to learn essential math vocabulary: preteaching key vocabulary items, modeling those vocabulary words, and using only universally accepted math terms in instruction. (1) Preteach key math vocabulary. Math vocabulary provides students with the language tools to grasp abstract mathematical concepts and to explain their own reasoning. Therefore, do not wait to teach that vocabulary only at 'point of use'. Instead, preview relevant math vocabulary as a regular a part of the 'background' information that students receive in preparation to learn new math concepts or operations. (2) Model the relevant vocabulary when new concepts are taught. Strengthen students' grasp of new vocabulary by reviewing a number of math problems with the class, each time consistently and explicitly modeling the use of appropriate vocabulary to describe the concepts being taught. Then have students engage in cooperative learning or individual practice activities in which they too must successfully use the new vocabulary—while the teacher provides targeted support to students as needed. (3) Ensure that students learn standard, widely accepted labels for common math terms and operations and that they use them consistently to describe their math problem-solving efforts.

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School-Wide Strategies for Managing...
WRITING
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The act of writing contains its own inner tensions. Writers must abide by a host of rules that govern the mechanics and conventions of writing yet are also expected—within the constraints of those rules-- to formulate original, even creative, thoughts. It is no wonder that many students find writing to be a baffling exercise and have little sense of how to break larger writing assignments into predictable, achievable subtasks. But of course writing can be taught and writing can be mastered. The best writing instruction places the process of written expression on a timeline: Good writers first plan their writing. Then they write. Once a draft has been created, good writers review and revise their work. While the stages of the writing process are generally sequential, good writers also find themselves jumping frequently between these stages (for example, collecting additional notes and writing new sections of a paper as part of the revision process). Depending upon their stage of development as writers, struggling student writers may benefit from the following strategies:

Content: Memorize a Story Grammar Checklist *(Reid & Lienemann, 2006)*. Students write lengthier stories that include greater detail when they use a memorized strategy to judge their writing-in-progress. These young writers are taught a simple mnemonic device with 7 elements: 'WWW, What=2, How = 2'. This mnemonic translates into a story grammar checklist: WHO the main character is; WHERE the story takes place; WHEN the story occurs; WHAT the main character(s) do or plan to do; WHAT happens next; HOW the story concludes; and HOW the character(s) feel about their experiences. Students are taught this strategy through teacher demonstration, discussion, teacher modeling; and student use of the strategy with gradually fading teacher support. When students use the 'WWW, What=2, How = 2' tactic independently, they may still need occasional prompting to use it in their writing. NOTE: Teachers can apply this intervention idea to any genre of writing (e.g., persuasive essay), distilling its essential elements into a similar short, easily memorized checklist to teach to students.

Fluency: Have Students Write Every Day *(Graham, Harris & Larsen, 2001)*. Short daily writing assignments can build student writing fluency and make writing a more motivating activity. For struggling writers, formal writing can feel much like a foreign language, with its own set of obscure grammatical rules and intimidating vocabulary. Just as people learn another language more quickly and gain confidence when they use it frequently, however, poor writers gradually develop into better writers when they are prompted to write daily--and receive rapid feedback and encouragement about that writing. The teacher can encourage daily writing by giving short writing assignments, allowing time for students to journal about their learning activities, requiring that they correspond daily with pen pals via email, or even posting a question on the board as a bell-ringer activity that students can respond to in writing for extra credit. Short daily writing tasks have the potential to lower students' aversion to writing and boost their confidence in using the written word.

Fluency: Self-Monitor and Graph Results to Increase Writing Fluency *(Rathvon, 1999)*. Students gain motivation to write through daily monitoring and charting of their own and classwide rates of writing fluency. At least several times per week, assign your students timed periods of 'freewriting' when they write in their personal journals. Freewriting periods all the same amount of time each day. After each freewriting period, direct each student to count up the number of words he or she has written in the daily journal entry (whether spelled correctly or not). Next, tell students to record their personal writing-fluency score in their journal and also chart the score on their own time-series graph for visual feedback. Then collect the day's writing-fluency scores of all students in the class, sum those scores, and chart the results on a large time-series graph posted at the front of the room. At the start of each week, calculate that week's goal of increasing total class words written by taking last week's score and increasing by five percent. At the end of each week, review the class score and praise students if they have shown good effort.

Instruction: Essentials of Good Teaching Benefit Struggling Writers *(Gersten, Baker, & Edwards,1999)*. Teachers are most successful in reaching students with writing delays when their instruction emphasizes the full writing process, provides strategy sheets, offers lots of models of

good writing, and gives students timely editorial feedback. Good instructors build their written expression lessons around the 3 stages of writing –planning, writing, and revision— and make those stages clear and explicit. Skilled instructors also provide students with 'think sheets' that outline step-by-step strategies for tackle the different phases of a writing assignment (e.g., taking concise notes from research material; building an outline; proofreading a draft). Students become stronger writers when exposed to different kinds of expressive text, such as persuasive, narrative, and expository writing. Teachers can make students more confident and self-sufficient as writers when they give them access to plentiful examples of good prose models that the student can review when completing a writing assignment. Finally, strong writing teachers provide supportive and timely feedback to students about their writing. When teachers or classmates offer writing feedback to the student, they are honest but also maintain an encouraging tone.

Motivation: Stimulate Interest With an Autobiography Assignment *(Bos & Vaughn, 2002)*. Assigning the class to write their own autobiographies can motivate hard-to-reach students who seem uninterested in most writing assignments. Have students read a series of autobiographies of people who interest them. Discuss these biographies with the class. Then assign students to write their own autobiographies. (With the class, create a short questionnaire that students can use to interview their parents and other family members to collect information about their past.) Allow students to read their finished autobiographies for the class.

Organization: Build an Outline by Talking Through the Topic *(The Writing Center, University of North Carolina at Chapel Hill, n.d./ 23 December 2006)*. Students who struggle to organize their notes into a coherent outline can tell others what they know about the topic—and then capture the informal logical structure of that conversation to create a working outline. The student studies notes from the topic and describes what he or she knows about the topic and its significance to a listener. (The student may want to audio-record this conversation for later playback.) After the conversation, the student jots down an outline from memory to capture the structure and main ideas of the discussion. This outline 'kernel' can then be expanded and refined into the framework for a paper.

Organization: 'Reverse Outline' the Draft *(The Writing Center, University of North Carolina at Chapel Hill, n.d./ 23 December 2006)*. Students can improve the internal flow of their compositions through 'reverse outlining'. The student writes a draft of the composition. Next, the student reads through the draft, jotting notes in the margins that signify the main idea of each paragraph or section. Then the student organizes the margin notes into an outline to reveal the organizational structure of the paper. This 'reverse outline' allows the student to note whether sections of the draft are repetitious, are out of order, or do not logically connect with one another.

Planning: Brainstorm to Break the 'Idea' Logjam *(The Writing Center, University of North Carolina at Chapel Hill, n.d./ 28 December 2006)*. Brainstorming is a time-tested method that can help students to generate motivating topics for writing assignments and uncover new ideas to expand and improve their compositions. Here are four brainstorming strategies to teach to students: FREEWRITING: The student sets a time limit (e.g., 15 minutes) or length limit (e.g., one hand-written page) and spontaneously writes until the limit is reached. The writer does not judge the writing but simply writes as rapidly as possible, capturing any thought that comes to mind on the topic. Later, the student reviews the freewriting to pick out any ideas, terms, or phrasing that might be incorporated into the writing assignment. LISTING: The student selects a topic based on an idea or key term related to the writing assignment. The writer then rapidly brainstorms a list of any items that might possibly relate to the topic. Finally, the writer reviews the list to select items that might be useful in the assigned composition or trigger additional writing ideas. SIMILES: The student selects a series of key terms or concepts linked to the writing assignment. The student brainstorms, using the framework of a simile: " _1_ is like _2_." The student plugs a key term into the first blank and then generates as many similes as possible (e.g., "A SHIP is like a CITY ON THE SEA."). REFERENCES: The student jots down key ideas or terms from the writing assignment. He or she then browses through various reference works (dictionaries,

encyclopedias, specialized reference works on specific subjects) looking randomly for entries that trigger useful ideas. (Writers might try a variation of this strategy by typing assignment-related search terms into GOOGLE or another online search engine.)

Proofreading: Teach A Memory Strategy *(Bos & Vaughn, 2002)*. When students regularly use a simple, portable, easily memorized plan for proofreading, the quality of their writing can improve significantly. Create a poster to be put up in the classroom summarizing the SCOPE proofreading elements: (1) SPELLING: Are my words spelled correctly; (2) CAPITALIZATION: Have I capitalized all appropriate words, including first words of sentences, proper nouns, and proper names?; (3) ORDER of words: Is my word order (syntax) correct?; (4) PUNCTUATION: Did I use end punctuation and other punctuation marks appropriately? (5) EXPRESSION of complete thoughts: Do all of my sentences contain a noun and verb to convey a complete thought? Review the SCOPE proofreading steps by copying a first-draft writing sample onto an overhead and evaluating the sample with the class using each item from the SCOPE poster. Then direct students to pair off and together evaluate their own writing samples using SCOPE. When students appear to understand the use of the SCOPE plan, require that they use this strategy to proofread all written assignments before turning them in.

Proofreading: Use Selective Proofreading With Highlighting of Errors *(Frus, n.d./18 November 2006)*. To prevent struggling writers from becoming overwhelmed by teacher proofreading corrections, focus on only 1 or 2 proofreading areas when correcting a writing assignment. Create a student 'writing skills checklist' that inventories key writing competencies (e.g., grammar/syntax, spelling, vocabulary, etc.). For each writing assignment, announce to students that you will grade the assignment for overall content but will make proofreading corrections on only 1-2 areas chosen from the writing skills checklist. (Select different proofreading targets for each assignment matched to common writing weaknesses in your classroom.) Also, to prevent cluttering the student's paper with potentially discouraging teacher comments and editing marks, underline problems in the student' text with a highlighter and number the highlighted errors sequentially at the left margin of the student paper. Then (if necessary) write teacher comments on a separate feedback sheet to explain the writing errors. (Identify each comment with the matching error-number from the left margin of the student's worksheet.) With fewer proofreading comments, the student can better attend to the teacher feedback. Also, even a heavily edited student assignment looks neat and tidy when teachers use the highlighting/numbering technique—preventing students from becoming disheartened at the site of an assignment scribbled over with corrective comments.

Spelling: Leverage the Power of Memory Through Cover-Copy-Compare *(Murphy, Hern, Williams, & McLaughlin, 1990)*. Students increase their spelling knowledge by copying a spelling word from a correct model and then recopying the same word from memory. Give students a list of 10-20 spelling words, an index card, and a blank sheet of paper. For each word on the spelling list, the student (1) copies the spelling list item onto a sheet of paper, (2) covers the newly copied word with the index card, (3) writes the spelling word again on the sheet (spelling it from memory), and (4) uncovers the copied word and checks to ensure that the word copied from memory is spelled correctly. If that word is spelled incorrectly, the student repeats the sequence above until the word copied from memory is spelled correctly--then moves to the next word on the spelling list.

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School-Wide Strategies for Managing... STUDY SKILLS / ORGANIZATION

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As students transition to middle and high school, they are expected to depend less on the teacher to manage their instruction and to put increasing energy into becoming self-managing learners. But students must master essential study and organizational skills before they can function as independent learners. Individuals with strong study and organization skills are able to break class and homework assignments into subtasks and use time efficiently to complete those assignments, save and store graded papers and handouts for later retrieval, regularly review class notes and course readings, and practice effective study techniques. Instructors can accelerate the development of students into self-managing learners by explicitly teaching and evaluating study and organization skills and by delivering structured lessons that students can easily follow and capture in notes. Here are a range of ideas that can assist students to study more effectively and become more organized:

Independent Work. Create Customized 'Common Mistakes' Checklists *(U.S. Department of Education, 2004)*. Students can develop an individualized checklist of the kinds of errors that they commonly commit on independent assignments and use this checklist to reduce or eliminate mistakes before turning in those assignments. As a class exercise, give several examples to your students of common mistakes that you find on their assignments (e.g., failure to show all work on math problems; incomplete entries on term-paper outlines). Next, have the class brainstorm a list of mistakes that they are most likely to make. Then direct each student to review the class list and create a customized checklist by selecting the 4-5 mistakes that he or she is most likely to commit. Direct students to keep their customized error checklists and use them to review their assignments before turning in.

Independent Work: Assign an Adult Advisor *(U.S. Department of Education, 2004)*. Struggling students will do a better job of managing their many academic work and study requirements when they can have informal weekly meetings with an adult advisor. The advisor can be any school staff member who has a good relationship with the student. The role of the advisor is to communicate with other members of the student's team to ensure that the student is caught up with all homework and classwork assignments and is doing a satisfactory job of preparing for tests and quizzes. The advisor should plan to meet with the student at a fixed time at the start of each week for a brief meeting (1) to review academic progress, (2) help the student to get organized for

upcoming assignments and prepare for tests, and (3) provide the student with encouragement and 'mini-skills' lessons in organization and study skills as needed.

Independent Work: Have Students Break Larger Tasks into Smaller Sub-Tasks *(U.S. Department of Education, 2004)*. Students who easily become overwhelmed when given a large assignment to do independently can boost their confidence when taught first to break that assignment down into smaller, more manageable sub-tasks. Select an upcoming assignment that students are expected to complete on their own (e.g., term paper, homework assignment with multiple math problems). Demonstrate for the class or to the individual student how to partition the larger assignment into smaller steps or 'chunks'. Have the student(s) complete the assignment independently, one sub-task at a time, using your work plan. On the next assignment, have the student(s) subdivide the task into chunks to create their own work plan while you observe and provide feedback.

Independent Work: Teach Students to Adapt Worksheets *(U.S. Department of Education, 2004)*. If students seem to struggle with the format of complex worksheets, teach them tricks to reduce the complexity or 'busyness' of the sheet. If students appear to become anxious or to lose their place when given a worksheet with a large number of math problems, for example, suggest that they fold the page or use a blank piece of paper to hide all problems except the one on which they are currently working. Or if a double-sided worksheet has a complex informational graphic (e.g., a map) on one side of the page and questions to be answered on the flip side of the worksheet, give the student an extra copy of that worksheet so that the student can look at the questions and the graphic at the same time.

Instruction: Preview & Review Lesson Objectives *(Beyda, Zentall, & Ferko, 2002; U.S. Department of Education, 2004)*. Teachers can help students to retain the key points of a lesson by previewing the important learning objectives, labeling important points during the lesson, and reviewing those points at the close of the instructional session. Open the lesson by telling students what they will be learning that day and the materials that they will need to accomplish the lesson. During the lesson, emphasize important information that students should write into their class notes. At the end of the lesson, briefly review the central points again to improve student retention.

Instruction: Signal Key Words or Concepts That Will Be on the Test *(Sprick, Borgmeier, & Nolet, 2002)*. Teachers can improve students' motivation and boost their performance on tests by writing the examinations first and then structuring course content and review activities to help students to successfully pass these tests. The instructor constructs the test in advance so that it contains the essential elements of course content that students must master. During instruction, whenever the teacher presents to the class any concept, fact, or operation that will appear on the test, the instructor announces that 'this will be on the test' as a cue to alert students to attend closely to the information. The teacher also selects review activities that allow students to practice and master course material before they are tested on that material.

Study Skills: Effective Studying Requires Preparation & Follow-Through *(University of North Dakota Learning Center, n.d.)*. Effective study habits require that the student prepare before class to more fully understand the instructional content, attend carefully during class for clues about what facts or concepts the teacher views as most important, and quickly review notes after class to fill in any missing information and to cement understanding. In preparation for the class period, the student completes any assigned reading, and looks over notes and quickly skims the reading from the previous class session. During class, the student focuses on the instructor, listening carefully to how the instructor 'cues' the class that information is important (e.g., tone of voice, repetition, notes written on the board). If the teacher announces that a particular fact, concept, or idea will appear on a future test, the student records this information in his or her notes. Within 24 hours after class, the student reviews the class notes to help him or her to capture this course information in long-term memory .The student also uses this review opportunity to additional any

additional details, to reword notes to clarify their meaning, or to check with other students or the teacher to fill in any gaps in the notes.

Study Skills: Study Actively *(University of North Dakota Learning Center, n.d.; Wright, 2002)*. Students get much more out of study sessions when they use strategies to actively review the material--such as summarizing main ideas from passages, formulating possible test questions from class notes, reciting information aloud, and studying with others. When reviewing readings from the course, the student should pause after important passages to attempt to summarize the main idea, or 'gist sentence' of each passage. While reviewing class notes, the student should attempt to identify concepts or facts from the notes that are likely to appear on an upcoming quiz or test. The student then formulates a possible test question that would be answered by the selection from his or her notes. Some students also find that they retain information more effectively during review when they occasionally read aloud sections from their course readings or class notes. Studying with others is another good method for reviewing course material, as students can motivate and encourage one another during the study session.

Study Skills: Teach a Structured Note-Taking Process *(Pauk, 1989)*. Students benefit in two ways when using a highly structured note-taking process such as the Cornell System: Not only do they recall more information from lectures because they made the effort to capture it in the form of notes, but students also have a more complete set of notes to which they can refer when studying for quizzes and tests. The Cornell Notetaking System is organized into the following steps: (1) The student draws a vertical line on blank lined note paper. The line separates the page into a left-margin section that is 2.5 inches in width and another on the right that is 6 inches in width. (2) During reading or lectures, the student jots all notes in the 6-inch section of the page. (3) After leaving class or finishing the reading, the student reduces the notes into key words or key phrases. These condensed words or phrases are jotted into the 2.5-inch left margin of the page. (4) When reviewing course material, the student looks over his or her notes and jots down possible questions from the content that might appear on a test. The student then covers the notes (6-inch section of the page) and attempts to recite answers to the questions that he or she has created--using the key words or phrases in the left margin as prompts. (5) The student reviews notes periodically (e.g., 2-3 times per week), repeating the procedure outlined in step 4.

Study Skills: Use Student Study Schedule *(Wright, 2002)*. A daily study schedule can ensure that the student makes the most efficient use of study time. Each day, the student makes a written schedule for homework and study. The study schedule should also include time for leisure activities—and the student should be sure to limit leisure activities to the time allotted. A study schedule has greater weight if the student's parent(s) monitor the student's adherence to the daily schedule.

Work Materials: Organize the Backlog of Old Papers *(Sirotowitz, Davis, & Parker, 2003)*. Students are much better organized when they can identify old papers that should be saved for later review, have a system for labeling and filing these archived papers, and stay caught up by filing papers promptly. The teacher or parent (helping adult) first assists the student in carrying out a 'paper search', rummaging through the student's backpack, school locker, bedroom, notebook, or any other location where old papers may have collected. Next, student and helping adult sort through the pile of amassed papers, deciding which should be tossed in the trash and which should be saved. (Candidate papers to save include old tests, teacher handouts, and graded homework.) Then student and adult write at the top of each saved page the subject, the approximate date that the paper was created or handed out, and any other important identifying information (e.g., the textbook chapter or page that a series of handwritten notes were drawn from or are linked to). For each subject, label a manila folder. File all old papers for that subject in the folder, organized by date or by chapter/page number (depending on which scheme seems a more useful way to group the material). Put all folders of sorted papers into a single file cabinet drawer, crate, or other easily accessible location. Then encourage the student to sort through old papers each day and

file those that are to be saved away in the appropriate folder. Also, remind the student to review the contents of folders when studying for quizzes and tests.

Work Materials: Schedule Regular 'Clean Outs' *(Gleason, Colvin, & Archer, 1991; U.S. Department of Education, 2004)*. Students are most productive when they are periodically given time and guidance to organize their work- and storage spaces to better manage the 'paperflow' of school work. Prepare a class mini-lesson to present suggestions on how your students should organize their desk or other class workspace, backpack, and/or locker. Work with your class to develop organizational tips (e.g., what does belong in a locker and what does not) and a rubric to judge the degree to which each student's work- and storage spaces are appropriately organized. Schedule time periodically for the entire class or selected students to organize their work and storage spaces under your supervision. Have students refer to the class rubric and provide teacher feedback as they organize their spaces.

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Reading Comprehension 'Fix-Up' Skills: A Toolkit

Good readers continuously monitor their understanding of informational text. When necessary, they also take steps to improve their understanding of text through use of reading comprehension 'fix-up' skills. Presented here are a series of fix-up skill strategies that can help struggling students to better understand difficult reading assignments.

- [Core Instruction] Providing Main Idea Practice through 'Partner Retell' (Carnine & Carnine, 2004). Students in a group or class are assigned a text selection to read silently. Students are then paired off, with one student assigned the role of 'reteller' and the other appointed as 'listener'. The reteller recounts the main idea to the listener, who can comment or ask questions. The teacher then states the main idea to the class. Next, the reteller locates two key details from the reading that support the main idea and shares these with the listener. At the end of the activity, the teacher does a spot check by randomly calling on one or more students in the listener role and asking them to recap what information was shared by the reteller.

- [Accommodation] Developing a Bank of Multiple Passages to Present Challenging Concepts (Hedin & Conderman, 2010; Kamil et al., 2008; Texas Reading Initiative, 2002). The teacher notes which course concepts, cognitive strategies, or other information will likely present the greatest challenge to students. For these 'challenge' topics, the teacher selects alternative readings that present the same general information and review the same key vocabulary as the course text but that are more accessible to struggling readers (e.g., with selections written at an easier reading level or that use graphics to visually illustrate concepts). These alternative selections are organized into a bank. Students are encouraged to engage in wide reading by choosing selections from the bank as a means to better understand difficult material.

- [Student Strategy] Promoting Understanding & Building Endurance through Reading-Reflection Pauses (Hedin & Conderman, 2010). The student decides on a reading interval (e.g., every four sentences; every 3 minutes; at the end of each paragraph). At the end of each interval, the student pauses briefly to recall the main points of the reading. If the student has questions or is uncertain about the content, the student rereads part or all of the section just read. This strategy is useful both for students who need to monitor their understanding as well as those who benefit from brief breaks when engaging in intensive reading as a means to build up endurance as attentive readers.

- [Student Strategy] Identifying or Constructing Main Idea Sentences (Davey & McBride, 1986; Rosenshine, Meister & Chapman, 1996). For each paragraph in an assigned reading, the student either (a) highlights the main idea sentence or (b) highlights key details and uses them to write a 'gist' sentence. The student then writes the main idea of that paragraph on an index card. On the other side of the card, the student writes a question whose answer is that paragraph's main idea sentence. This stack of 'main idea' cards becomes a useful tool to review assigned readings.

- [Student Strategy] Restructuring Paragraphs with Main Idea First to Strengthen 'Rereads' (Hedin & Conderman, 2010). The student highlights or creates a main idea sentence for each paragraph in the assigned reading. When rereading each paragraph of the selection, the student (1) reads the main idea sentence or student-generated 'gist' sentence first (irrespective of where that sentence actually falls in the paragraph); (2) reads the remainder of the paragraph, and (3) reflects on how the main idea relates to the paragraph content.

- [Student Strategy] Summarizing Readings (Boardman et al., 2008). The student is taught to summarize readings into main ideas and essential details--stripped of superfluous content. The act of summarizing longer readings can promote understanding and retention of content while the summarized text itself can be a useful study tool.

- [Student Strategy] Linking Pronouns to Referents (Hedin & Conderman, 2010). Some readers lose the connection between pronouns and the nouns that they refer to (known as 'referents')—especially when reading challenging text. The student is encouraged to circle pronouns in the reading, to explicitly identify each pronoun's referent, and (optionally) to write next to the pronoun the name of its referent. For example, the student may add the referent to a pronoun in this sentence from a biology text: *"The Cambrian Period is the first geological age that has large numbers of multi-celled organisms associated with* ***it*** *Cambrian Period."*

- [Student Strategy] Apply Vocabulary 'Fix-Up' Skills for Unknown Words (Klingner & Vaughn, 1999). When confronting an unknown word in a reading selection, the student applies the following vocabulary 'fix-up' skills:

  1. Read the sentence again.
  2. Read the sentences before and after the problem sentence for clues to the word's meaning.
  3. See if there are prefixes or suffixes in the word that can give clues to meaning.
  4. Break the word up by syllables and look for 'smaller words' within.

- [Student Strategy] Compiling a Vocabulary Journal from Course Readings (Hedin & Conderman, 2010). The student highlights new or unfamiliar vocabulary from course readings. The student writes each term into a vocabulary journal, using a standard 'sentence-stem' format: e.g., "*Mitosis* means…" or "A *chloroplast* is…". If the student is unable to generate a definition for a vocabulary term based on the course reading, he or she writes the term into the vocabulary journal without definition and then applies other strategies to define the term: e.g., look up the term in a dictionary; use Google to locate two examples of the term being used correctly in context; ask the instructor, etc.).

- [Student Strategy] Encouraging Student Use of Text Enhancements (Hedin & Conderman, 2010). Text enhancements can be used to tag important vocabulary terms, key ideas, or other reading content. If working with photocopied material, the student can use a highlighter--but should limit highlighting to important text elements such as main idea and key vocabulary terms. Another enhancement strategy is the 'lasso and rope' technique—using a pen or pencil to circle a vocabulary term and then drawing a line that connects that term to its underlined definition. If working from a textbook, the student can cut sticky notes into strips. These strips can be inserted in the book as pointers to text of interest. They can also be used as temporary labels—e.g., for writing a vocabulary term and its definition.

- [Student Strategy] Reading Actively Through Text Annotation (Harris, 1990; Sarkisian et al., 2003). Students are likely to increase their retention of information when they interact actively with their reading by jotting comments in the margin of the text. Using photocopies, the student is taught to engage in an ongoing 'conversation' with the writer by recording a running series of brief comments in the margins of the text. The student may write annotations to record opinions about points raised by the writer, questions triggered by the reading, or unknown vocabulary words.

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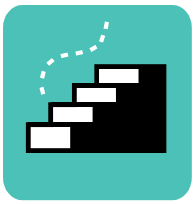
Math Review: Promote Mastery of Math Facts Through Incremental Rehearsal



Incremental rehearsal builds student fluency in basic math facts ('arithmetic combinations') by pairing unknown computation items with a steadily increasing collection of known items. This intervention makes use of repeated, or massed, practice to promote fluency and guarantees that the student will experience a high rate of success..

Materials

- Index cards and pen

Steps to Implementing This Intervention

In preparation for this intervention:

1. The tutor first writes down on an index card in ink each math fact that a student is expected to master-but without the answer. NOTE: Educators can use the A-Plus Math Flashcard Creator, an on-line application, to make and print flashcards in addition, subtraction, multiplication, and division. The web address for the flashcard creator is: *http://www.aplusmath.com/Flashcards/Flashcard_Creator.html*

2. The tutor reviews the collection of math-fact cards with the student. Any of the math facts that the student can orally answer correctly within two seconds are considered to be known problems and are separated into one pile. Math facts that the student cannot yet answer correctly within two seconds are considered 'unknown' and collected in a second pile -- the 'unknown facts' deck.

3. The tutor next randomly selects 9 cards from the pile of known math facts and sets this subset of cards aside as the 'known facts' deck. The rest of the pile of cards containing known math facts is put away ('discard deck'), not to be used further in this intervention.

During the intervention:

The tutor follows an incremental-rehearsal sequence each day when working with the student:

1. First, the tutor takes a single card from the 'unknown facts' deck. The tutor reads the math fact on the card aloud, provides the answer, and prompts the student to read off and answer the same unknown problem.

2. Next the tutor takes one math fact from the 'known facts' deck and pairs it with the unknown problem. When shown the two problems in sequence, the student is asked during the presentation of each math fact to read off the problem and answer it. The student is judged to be successful on a problem if he or she orally provides the correct answer to that problem within 2 seconds. If the student commits an error on any card or hesitates for longer than two seconds, the tutor reads the math fact on the card aloud, gives the answer, then prompts the

student to read off the same unknown problem and provide the answer. This review sequence continues until the student answers all cards within two seconds without errors.

3. The tutor then repeats the sequence--taking yet another problem from the 'known facts' deck to add to the expanding collection of math facts being reviewed ('review deck'). Each time, the tutor prompts the student to read off and answer the whole series of math facts in the review deck, beginning with the unknown fact and then moving through the growing series of known facts that follow it.

4. When the review deck has expanded to include one 'unknown' math fact followed by nine 'known' math facts (a ratio of 90 percent 'known' material to 10 percent 'unknown' material), the last 'known' math fact that was added to the student's review deck is discarded (put away with the 'discard deck'). The previously 'unknown' math fact that the student has just successfully practiced in multiple trials is now treated as a 'known' math fact and is included as the first item in the nine-card 'known facts' deck for future drills.

5. The student is then presented with a new math fact to answer, taken from the 'unknown facts' deck. With each new 'unknown' math fact, the review sequence is again repeated as described above until the 'unknown' math fact is grouped incrementally with nine math facts from the 'known facts' deck—and on and on.

Daily review sessions are discontinued either when time runs out or when the student answers an 'unknown' math fact incorrectly three times.

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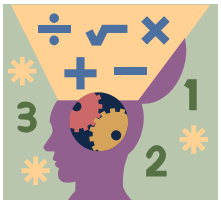
Math Computation: Increase Accuracy By Intermixing Easy and Challenging Problems



Teachers can improve accuracy and positively influence the attitude of students when completing math-fact worksheets by intermixing 'easy' problems among the 'challenging' problems. Research shows that students are more motivated to complete computation worksheets when they contain some very easy problems interspersed among the more challenging items.

Materials

- Math computation worksheets & answer keys with a mixture of difficult and easy problems

Steps to Implementing This Intervention

1. The teacher first identifies one or more 'challenging' problem-types that are matched to the student's current math-computation abilities (e.g., multiplying a 2-digit number by a 2-digit number with regrouping).

2. The teacher next identifies an 'easy' problem-type that the students can complete very quickly (e.g., adding or subtracting two 1-digit numbers).

3. The teacher then creates a a series of student math computation worksheets with 'easy' computation problems interspersed at a fixed rate among the 'challenging' problems. (NOTE: Instructions are included below for creating interspersal worksheets using a free online application from *www.interventioncentral.org*.)

    - If the student is expected to complete the worksheet independently as seat work or homework, 'challenging' and 'easy' problems should be interspersed at a 1:1 ratio (that is, every 'challenging' problem in the worksheet is followed by an 'easy' problem).

    - If the student is to have the problems read aloud and then asked to solve the problems mentally and write down only the answer, the items should appear on the worksheet at a ratio of 3:1 (that is, every third 'challenging' problem is followed by an 'easy' one).

Directions for On-Line Creation of Worksheets With a Mix of Easy and Challenging Computation Problems ('Interspersal Worksheets')

By following the directions below, teachers can use a free on-line Math Worksheet Generator to create computation worksheets with easy problems interspersed among more challenging ones:

- The teacher goes to the following URL for the Math Worksheet Generator: http://www.interventioncentral.org/htmdocs/tools/mathprobe/allmult.php

- Displayed on that Math Worksheet Generator web page is a series of math computation goals for addition, subtraction, multiplication, and division. Teachers can select up to five different problem types to appear on a student worksheet. Each problem type is selected by clicking on the checkbox next to it.

- It is simple to create a worksheet with a 1:1 ratio of challenging and easy problems (that is, with an easy problem following every challenging problem). First, the teacher clicks the checkbox next to an 'easy' problem type that the student can compute very quickly (e.g., adding or subtracting two 1-digit numbers). Next the teacher selects a 'challenging' problem type that is instructionally appropriate for the student (e.g., multiplying a 2-digit number by a 2-digit number with regrouping). Then the teacher clicks the 'Multiple Skill Computation Probe' button. The computer program will then automatically create a student computation worksheet and teacher answer key with alternating easy and challenging problems.

- It is also no problem to create a worksheet with a higher (e.g., 2:1, 3:1, or 4:1) ratio of challenging problems to easy problems. The teacher first clicks the checkbox next to an 'easy' problem type that the student can compute very quickly (e.g., adding or subtracting two 1-digit numbers). The teacher then selects up to four different challenging problem types that are instructionally appropriate to the student. Depending on the number of challenging problem-types selected, when the teacher clicks the 'Multiple Skill Computation Probe' button, the computer program will create a student computation worksheet and teacher answer key that contain 2 (or 3 or 4) challenging problems for every easy problem.

Because the computer program generates new worksheets each time it is used, the teacher can enter the desired settings and –in one sitting-- create and print off enough worksheets and answer keys to support a six- or eight-week intervention.

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Applied Math Problems: Using Question-Answer Relationships (QARs) to Interpret Math Graphics

Students must be able to correctly interpret math graphics in order to correctly answer many applied math problems. Struggling learners in math often misread or misinterpret math graphics. For example, students may:

- overlook important details of the math graphic.
- treat irrelevant data on the math graphic as 'relevant'.
- fail to pay close attention to the question before turning to the math graphic to find the answer
- not engage their prior knowledge both to extend the information on the math graphic and to act as a possible 'reality check' on the data that it presents.
- expect the answer to be displayed in plain sight on the math graphic, when in fact the graphic may require that readers first to interpret the data, then to plug the data into an equation to solve the problem.

Teachers need an instructional strategy to encourage students to be more savvy interpreters of graphics in applied math problems. One idea is to have them apply a reading comprehension strategy, Question-Answer Relationships (QARs) as a tool for analyzing math graphics. The four QAR question types (Raphael, 1982, 1986) are as follows:

- RIGHT THERE questions are fact-based and can be found in a single sentence, often accompanied by 'clue' words that also appear in the question.
- THINK AND SEARCH questions can be answered by information in the text--but require the scanning of text and the making of connections between disparate pieces of factual information found in different sections of the reading.
- AUTHOR AND YOU questions require that students take information or opinions that appear in the text and combine them with the reader's own experiences or opinions to formulate an answer.
- ON MY OWN questions are based on the students' own experiences and do not require knowledge of the text to answer.

Steps to Implementing This Intervention

Teachers use a 4-step instructional sequence to teach students to use Question-Answer Relationships (QARs) to better interpret math graphics:

1. Step 1: Distinguishing Among Different Kinds of Graphics

   Students are first taught to differentiate between five common types of math graphics: table (grid with information contained in cells), chart (boxes with possible connecting lines or arrows), picture (figure with labels), line graph, bar graph.

   Students note significant differences between the various types of graphics, while the teacher

records those observations on a wall chart. Next students are shown examples of graphics and directed to identify the general graphic type (table, chart, picture, line graph, bar graph) that each sample represents.

As homework, students are assigned to go on a 'graphics hunt', locating graphics in magazines and newspapers, labeling them, and bringing them to class to review.

2. Interpreting Information in Graphics

Over several instructional sessions, students learn to interpret information contained in various types of math graphics. For these activities, students are paired off, with stronger students matched with less strong ones.

The teacher sets aside a separate session to introduce each of the graphics categories. The presentation sequence is ordered so that students begin with examples of the most concrete graphics and move toward the more abstract. The graphics sequence in order of increasing difficulty is: Pictures > tables > bar graphs > charts > line graphs.

At each session, student pairs examine examples of graphics from the category being explored that day and discuss questions such as: "What information does this graphic present? What are strengths of this type of graphic for presenting data? What are possible weaknesses?" Student pairs record their findings and share them with the large group at the end of the session.

3. Linking the Use of Question-Answer Relations (QARs) to Graphics

In advance of this lesson, the teacher prepares a series of data questions and correct answers. Each question and answer is paired with a math graphic that contains information essential for finding the answer.

At the start of the lesson, students are each given a set of 4 index cards with titles and descriptions of each of the 4 QAR questions: RIGHT THERE, THINK AND SEARCH, AUTHOR AND YOU, ON MY OWN. (TMESAVING TIP: Students can create their own copies of these QAR review cards as an in-class activity.)

Working first in small groups and then individually, students read each teacher-prepared question, study the matching graphic, and 'verify' the provided answer as correct. They then identify the type of question being posed in that applied problem, using their QAR index cards as a reference.

4. Using Question-Answer Relationships (QARs) Independently to Interpret Math Graphics

Students are now ready to use the QAR strategy independently to interpret graphics. They are given a laminated card as a reference with 6 steps to follow whenever they attempt to solve an

applied problem that includes a math graphic:

- ✓ Read the question,
- ✓ Review the graphic,
- ✓ Reread the question,
- ✓ Choose a Question-Answer Relationship that matches the question in the applied problem
- ✓ Answer the question, and
- ✓ Locate the answer derived from the graphic in the answer choices offered.

Students are strongly encouraged NOT to read the answer choices offered on a multiple-choice item until they have first derived their own answer—to prevent those choices from short-circuiting their inquiry.

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Math Computation: Increase Accuracy and Productivity Rates Via Self-Monitoring and Performance Feedback

Students can improve both their accuracy and fluency on math computation worksheets by independently self-monitoring their computation speed, charting their daily progress, and earning rewards for improved performance.

Materials

- Collection of student math computation worksheets & matching answer keys (NOTE: Educators can use a free online application to create math computation worksheets and answer keys at http://www.interventioncentral.org/htmdocs/tools/mathprobe/addsing.php)

- Student self-monitoring chart

Steps to Implementing This Intervention

In preparation for this intervention:

- the teacher selects one or more computation problem types that the student needs to practice. Using that set of problem types as a guide, the teacher creates a number of standardized worksheets with similar items to be used across multiple instructional days. (A Math Worksheet Generator that will create these worksheets automatically can be accessed at http://www.interventioncentral.org).

- the teacher prepares a progress-monitoring chart. The vertical axis of the chart extends from 0 to 100 and is labeled 'Correct Digits' The horizontal axis of the chart is labeled 'Date'.

- the teacher creates a menu of rewards that the student can choose from on a given day if the student was able to exceed his or her previously posted computation fluency score.

At the start of the intervention, the teacher meets with the student. The teacher shows the student a sample math computation worksheet and answer key. The teacher tells the student that the student will have the opportunity to complete similar math worksheets as time drills and chart the results. The student is told that he or she will win a reward on any day when the student's number of correctly computed digits on the worksheet exceeds that of the previous day.

During each day of the intervention:

1. The student is given one of the math computation worksheets previously created by the teacher, along with an answer key. The student first consults his or her progress-monitoring chart and notes the most recent charted computation fluency score previously posted. The student is encouraged to try to exceed that score.

2. When the intervention session starts, the student is given a pre-selected amount of time (e.g., 5 minutes) to complete as many problems on the computation worksheet as possible. The student sets a timer for the allocated time and works on the computation sheet until the timer rings.

3. The student then uses the answer key to check his or her work, giving credit for each correct digit in an answer. (A 'correct digits' is defined as a digit of the correct value that appears in the correct place-value location in an answer. In this scoring method, students can get partial credit even if some of the digits in an answer are correct and some are incorrect.).

4. The student plots his or her computational fluency score on the progress-monitoring chart and writes the current date at the bottom of the chart below the plotted data point. The student is allowed to select a choice from the reward menu if he or she exceeds his or her most recent, previously posted fluency score.

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Combining Cognitive & Metacognitive Strategies to Assist Students With Mathematical Problem Solving

Solving an advanced math problem independently requires the coordination of a number of complex skills. The student must have the capacity to reliably implement the specific steps of a particular problem-solving process, or cognitive strategy. At least as important, though, is that the student must also possess the necessary metacognitive skills to analyze the problem, select an appropriate strategy to solve that problem from an array of possible alternatives, and monitor the problem-solving process to ensure that it is carried out correctly.

The following strategies combine both cognitive and metacognitive elements (Montague, 1992; Montague & Dietz, 2009). First, the student is taught a 7-step process for attacking a math word problem (cognitive strategy). Second, the instructor trains the student to use a three-part self-coaching routine for each of the seven problem-solving steps (metacognitive strategy).

In the cognitive part of this multi-strategy intervention, the student learns an explicit series of steps to analyze and solve a math problem. Those steps include:

1. Reading the problem. The student reads the problem carefully, noting and attempting to clear up any areas of uncertainly or confusion (e.g., unknown vocabulary terms).
2. Paraphrasing the problem. The student restates the problem in his or her own words.
3. 'Drawing' the problem. The student creates a drawing of the problem, creating a visual representation of the word problem.
4. Creating a plan to solve the problem. The student decides on the best way to solve the problem and develops a plan to do so.
5. Predicting/Estimating the answer. The student estimates or predicts what the answer to the problem will be. The student may compute a quick approximation of the answer, using rounding or other shortcuts.
6. Computing the answer. The student follows the plan developed earlier to compute the answer to the problem.
7. Checking the answer. The student methodically checks the calculations for each step of the problem. The student also compares the actual answer to the estimated answer calculated in a previous step to ensure that there is general agreement between the two values.

The metacognitive component of the intervention is a three-part routine that follows a sequence of 'Say', 'Ask, 'Check'. For each of the 7 problem-solving steps reviewed above:

- The student first self-instructs by stating, or 'saying', the purpose of the step ('Say').
- The student next self-questions by 'asking' what he or she intends to do to complete the step ('Ask').
- The student concludes the step by self-monitoring, or 'checking', the successful completion of the step ('Check').

While the Say-Ask-Check sequence is repeated across all 7 problem-solving steps, the actual content of the student self-coaching comments changes across the steps.

Table 1 shows how each of the steps in the word problem cognitive strategy is matched to the three-part Say-Ask-Check sequence:

Table 1: 'Say-Ask-Check' Metacognitive Prompts Tied to a Word-Problem Cognitive Strategy (Montague, 1992)		
Cognitive Strategy Step	Metacognitive 'Say-Ask-Check' Prompt Targets	Sample Metacognitive 'Say-Ask-Check' Prompts
1. Read the problem.	'Say' (Self-Instruction) Target: *The student reads and studies the problem carefully before proceeding.* *'Ask' (Self-Question) Target: Does the student fully understand the problem?* *'Check' (Self-Monitor) Target: Proceed only if the problem is understood.*	Say: "I will read the problem. I will reread the problem if I don't understand it." Ask: "Now that I have read the problem, do I fully understand it?" Check: "I understand the problem and will move forward."
2. Paraphrase the problem.	'Say' (Self-Instruction) Target: *The student restates the problem in order to demonstrate understanding.* *'Ask' (Self-Question) Target: Is the student able to paraphrase the problem?* *'Check' (Self-Monitor) Target: Ensure that any highlighted key words are relevant to the question.*	Say: "I will highlight key words and phrases that relate to the problem question." "I will restate the problem in my own words." Ask: "Did I highlight the most important words or phrases in the problem?" Check: "I found the key words or phrases that will help to solve the problem."
3. 'Draw' the problem.	'Say' (Self-Instruction) Target: *The student creates a drawing of the problem to consolidate understanding.* *'Ask' (Self-Question) Target: Is there a match between the drawing and the problem?* *'Check' (Self-Monitor) Target: The drawing includes in visual form the key elements of the math problem.*	Say: "I will draw a diagram of the problem." Ask: "Does my drawing represent the problem?" Check: "The drawing contains the essential parts of the problem."
4. Create a plan to solve the problem.	'Say' (Self-Instruction) Target: *The student generates a plan to solve the problem.* *'Ask' (Self-Question) Target: What plan will help the student to solve this problem?* *'Check' (Self-Monitor) Target: The plan is appropriate to solve the problem.*	Say: "I will make a plan to solve the problem." Ask: "What is the first step of this plan? What is the next step of the plan?" Check: "My plan has the right steps to solve the problem."
5. Predict/estimate the	'Say' (Self-Instruction) Target: *The student uses estimation or other strategies to predict or*	Say: "I will estimate what the answer will be."

Answer.	*estimate the answer.* *'Ask' (Self-Question) Target: What estimating technique will the student use to predict the answer?* *'Check' (Self-Monitor) Target: The predicted/estimated answer used all of the essential problem information.*	Ask: "What numbers in the problem should be used in my estimation?" Check: "I did not skip any important information in my estimation."
6. Compute the answer.	'Say' (Self-Instruction) Target: *The student follows the plan to compute the solution to the problem.* *'Ask' (Self-Question) Target: Does the answer agree with the estimate?* *'Check' (Self-Monitor) Target: The steps in the plan were followed and the operations completed in the correct order.*	Say: "I will compute the answer to the problem." Ask: "Does my answer sound right?" "Is my answer close to my estimate?" Check: "I carried out all of the operations in the correct order to solve this problem."
7. Check the answer.	'Say' (Self-Instruction) Target: *The student reviews the computation steps to verify the answer.* *'Ask' (Self-Question) Target: Did the student check all the steps in solving the problem and are all computations correct?* *'Check' (Self-Monitor) Target: The problem solution appears to have been done correctly.*	Say: "I will check the steps of my answer." Ask: "Did I go through each step in my answer and check my work?" Check: ""

Students will benefit from close teacher support when learning to combine the 7-step cognitive strategy to attack math word problems with the iterative 3-step metacognitive Say-Ask-Check sequence. Teachers can increase the likelihood that the student will successfully acquire these skills by using research-supported instructional practices (Burns, VanDerHeyden, & Boice, 2008), including:

- Verifying that the student has the necessary foundation skills to solve math word problems
- Using explicit instruction techniques to teach the cognitive and metacognitive strategies
- Ensuring that all instructional tasks allow the student to experience an adequate rate of success
- Providing regular opportunities for the student to be engaged in active accurate academic responding
- Offering frequent performance feedback to motivate the student and shape his or her learning.

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Sentence Combining: Teaching Rules of Sentence Structure by Doing

Students with poor writing skills often write sentences that lack 'syntactic maturity' (Robinson & Howell, 2008). That is, these writers' sentences often follow a simple, stereotyped format. In public schools, grammar skills have traditionally been taught in isolation to give students the advanced writing knowledge required to master a diverse range of sentence structures. However, isolated grammar instruction appears to have little or no positive impact in helping poor writers become better writers (Graham & Perin, 2007). A promising alternative is to use sentence combining (Graham & Perin, 2007; Strong, 1986). In this approach, students are presented with kernel sentences and given explicit instruction in how to weld these kernel sentences into more diverse sentence types either by using connecting words to combine multiple sentences into one or by isolating key information from an otherwise superfluous sentence and embedding that important information into the base sentence.

In a simple demonstration of sentence combining, a student may generate these two sentences in her composition on the American Revolution: *The American army had few supplies in the winter of 1776. The American army had few trained military leaders.*

The instructor might meet with the student and have the student recopy the two sentences in this format:

> The American army had few supplies in the winter of 1776.
> The American army had few trained military leaders. (and)

The student would be encouraged to combine the two shorter sentences into a more comprehensive sentence by using the connecting word (coordinating conjunction) '*and'* to combine objects: *The American army had few supplies and few trained military leaders in the winter of 1776.*

Formatting Sentence Combining Examples

These simple formatting conventions are used in sentence-combining exercises (Saddler, 2005; Strong, 1986):

- In each example, the base clause (sentence) appears first. Any sentence(s) to be combined or embedded with the base clause appear below that base clause.

  Example: Base clause: The dog ran after the bus.
  Sentence to be embedded: The dog is yellow.
  Student-generated solution: *The yellow dog ran after the bus.*

- 'Connecting words' to be used as a sentence-combining tool appear in parentheses at the end of a sentence that is to be combined with the base clause.

  Example: Base clause: The car stalled.
  Sentence to be combined: The car ran out of gas. (because)
  Student-generated solution: *The car stalled because it ran out of gas.*

- The element(s) of any sentence to be embedded in the base clause are underlined.

  Example: Base clause: The economic forecast resulted in strong stock market gains.
  Sentence to be embedded: The economic forecast was upbeat.
  Student-generated solution: *The upbeat economic forecast resulted in strong stock market gains.*

Using Sentence Combining in Instruction

Teachers who use sentence combining in their writing instruction should follow a direct-instruction approach (Saddler, 2005). The instructor fosters a learning atmosphere that encourages students to take risks when participating in sentence-combining activities. When first introducing sentence-combining to the class, the instructor explains that using varied sentence structures helps writers to better convey meaning. The instructor tells students that there are often multiple correct ways to combine sentences. The instructor completes several sentence-combining examples in front of the group, using a think-aloud approach to show his or her thinking process in successfully combining sentences. Students should then complete sentence-combining examples in pairs or groups, with the instructor circulating through the class to check for student understanding. Eventually, students work independently on sentence combining tasks to demonstrate mastery. They may then be asked to look in their own writing for examples in which they could combine sentences to improve

A listing of types and examples of sentence-combining appears below in Table 1. When creating lessons on sentence combining, instructors should review the potential types of sentence-combining in Table 1 and decide the order in which those types might be presented to their class.

Table 1: Sentence-combining types and examples (Saddler, 2005; Strong, 1986)

Type of Sentence	Sentence Combining Example
Multiple (Compound) Sentence Subjects or Objects: Two or more subjects can be combined with a conjunction (e.g., *or*, *and*). Two or more direct or indirect objects can be combined with a conjunction (e.g., *or*, *and*).	• Skyscrapers in the city were damaged in the hurricane. Bridges in the city were damaged in the hurricane. *Skyscrapers and bridges in the city were damaged in the hurricane.* • When they travel, migratory birds need safe habitat. When they travel, migratory birds need regular supplies of food. *When they travel, migratory birds need safe habitat and regular supplies of food.*
Adjectives & Adverbs: When a sentence simply contains an adjective or adverb that modifies the noun or verb of another sentence, the adjective or adverb from the first sentence can be embedded in the related sentence.	• Dry regions are at risk for chronic water shortages. Overpopulated regions are at risk for chronic water shortages. *Dry and overpopulated regions are at risk for chronic water shortages.* • Health care costs have risen nationwide. Those health care costs have risen quickly. *Health care costs have risen quickly nationwide.*

Connecting Words: One or more sentences are combined with connecting words. Coordinating conjunctions (e.g., *and, but*) link sentences on an equal basis. Subordinating conjunctions (e.g., *after, until, unless, before, while, because*) link sentences with one of the sentences subordinate or dependent on the other.	• The house was falling apart. No one seemed to care. (but) *The house was falling apart, but no one seemed to care.* • The glaciers began to melt. The earth's average temperature increased. (because) *The glaciers began to melt because the earth's average temperature increased.*
Relative Clauses: Sentence contains an embedded, subordinate clause that modifies a noun.	• The artist was the most popular in the city. The artist painted watercolors of sunsets. (who) *The artist who painted watercolors of sunsets was the most popular in the city.*
Appositives: Sentence contains two noun phrases that refer to the same object. When two sentences refer to the same noun, one sentence be reduced to an appositive and embedded in the other sentence.	• The explorer paddled the kayak across the raging river. The explorer was <u>an expert in handling boats</u>. *The explorer, an expert in handling boats, paddled the kayak across the raging river.*
Possessive Nouns: A sentence that describes possession or ownership can be reduced to a possessive noun and embedded in another sentence.	• Some historians view the Louisiana Purchase as the most important expansion of United States territory. The Louisiana Purchase was <u>President Jefferson's</u> achievement. *Some historians view President Jefferson's Louisiana Purchase as the most important expansion of United States territory.*

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Guided Notes: Increasing Student Engagement During Lecture and Assigned Readings

Description: The student is given a copy of notes summarizing content from a class lecture or assigned reading. Blanks are inserted in the notes where key facts or concepts should appear. As information is covered during lecture or in a reading assignment, the student writes missing content into blanks to complete the guided notes.

Purpose: Guided notes promote active engagement during lecture or independent reading, provide full and accurate notes for use as a study guide, and help students to identify the most important information covered (Heward, 2001).

Materials: Guided notes

Preparation: The instructor identifies the lecture content or assigned reading that will be covered in the guided notes.

Intervention Steps: Guided notes can be prepared and implemented through these steps:

1. A set of notes is prepared that contains the essential information to be covered in the lecture content or assigned reading.

2. The instructor reviews the notes and highlights or underlines the key facts, concepts, or information that the student will be responsible for writing into the final version of the guided notes.

3. Using a word processor, the instructor replaces the segments of notes identified in the previous step with blanks.

4. Prior to handing out copies of the guided notes in class, the instructor ensures that students understand their responsibility to attend to content covered in the lecture or the reading and to fill in each of the blanks in the guided notes with the appropriate concepts, definitions, or other content.

5. During lecture or while reviewing assigned readings in class, the instructor displays the guided notes (via overhead projector, computer projector, or smartboard) and fills in blanks with appropriate facts or concepts as they are presented.

Adjusting/Troubleshooting: Here are recommendations for using guided notes and addressing issues that might arise:

Keep guided note entries brief. Shorter guided note entries promote student understanding of content as well as or better than longer entries (Konrad, Joseph & Eveleigh, 2009). Also, short entries can increase student motivation to write in responses.

Distribute entry items throughout the guided notes. Guided notes help to promote active student engagement during lecture or reading (Heward, 2001). When entry items are distributed evenly throughout the guided notes, they require higher rates of active student responding (Konrad, Joseph & Eveleigh, 2009), which can both promote mastery of content and increase levels of on-task behavior.

Verify student completion of notes. To ensure that students are actively engaged in completing guided notes, the instructor can occasionally collect and review them for accuracy and completeness (on a random and unpredictable

schedule).. As an incentive, those students correctly completing their guided notes can be assigned bonus grade points (Konrad, Joseph & Eveleigh, 2009). Or students can periodically pair off and compare their guided note entries for completeness while the instructor circulates through the room conducting spot-checks of individual students' guided notes.

Have students tally notes-review sessions. Guided notes are a powerful tool for reviewing course content. Students can be encouraged to write a checkmark on the cover of a set of completed guided notes each time that they review them (Lazarus, 1996). These tallies assist students to monitor whether they have adequately reviewed those notes in preparation for quizzes and tests.

Fade the use of guided notes. As the class becomes more proficient at note-taking, the instructor can gradually 'fade' the use of guided notes by providing less pre-formatted notes-content and requiring that students write a larger share of the notes on their own (Heward, 1996).

Give students responsibility for creating guided notes. The classroom teacher generally is responsible for preparing guided notes. Instructors of older students, however, may discover that they can hand some responsibility to their students to prepare guided-notes. For example, as a cooperative-learning exercise, a group of students might be assigned a chapter-section from a biology text and asked to compose a set of guided notes based on its content. The teacher can then review and edit the notes as needed.

Jim's Hints for Using...Guided Notes

Accommodating Diverse Learners. Students who have difficulty keeping up with even the modest writing requirements of guided notes may benefit from being assigned a peer helper from the class with whom they can meet at the end of the lecture. The peer helper reviews the student's notes to ensure that each section contains complete and accurate information about the day's lecture content.

As another accommodation for students of diverse abilities, the instructor might prepare several versions of guided notes. Students who find note-taking most challenging would be given a version of guided-notes that requires relatively little writing, while more skilled note-takers could have a version of notes that call for the student to record and synthesize a greater amount of lecture information.

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Homework Contracts: Tapping the Power of Parents

Students who regularly complete and turn in homework assignments perform significantly better in school than those of similar ability who do not do homework (Olympia et al., 1994). Homework is valuable because it gives students a chance to practice, extend, and entrench the academic skills taught in school. Parents can be instrumental in encouraging and motivating their children to complete homework. This homework contract intervention (adapted from Miller & Kelly, 1994) uses goal-setting, a written contract, and rewards to boost student completion (and accuracy) of homework. Students also learn the valuable skills of breaking down academic assignments into smaller, more manageable subtasks and setting priorities for work completion.

Materials:

•Copy of Daily Homework Planner

Preparation:

Train Parents to Be Supportive 'Homework Coaches'. Parents are often very committed to helping their child successfully complete homework. To ensure that parents have positive interactions with students around homework, though, the school should sponsor one or more parent workshops to offer tips on how to be 'homework coaches'. In particular, parents should be offered strategies for listening in a careful and non-judgmental manner to their child, to avoid nagging about homework, and to brainstorm with their child about possible solutions for common homework difficulties (e.g., writing down all homework assignments correctly). Additionally, they should be taught the essentials for setting up and following through with a simple reward system at home (Miller & Kelly, 1994). At this introductory workshop, parents would also be trained in the steps of the homework contract (described below).

Steps in Implementing This Intervention:

1. *The Parent Creates a Homework Reward System for the Child*. The parent should put together a short menu of reasonable daily and weekly rewards that the child can earn for successfully completing homework. Good choices for daily rewards are those that do not cost a lot of money, and do not take much time to deliver. While weekly rewards should be somewhat larger than daily rewards, they should still be affordable and not require a great deal of the parent's time. Because any rewards that the parent chooses must appeal to the child, the parent should consult the child in the selection of rewards.

2. *The Parent Negotiates the Homework Contract Program With the Child*. Before starting the homework contract, the parent should meet with the child to introduce the program and to set up a reward system (see Step 1). Together, they agree on the percentage of homework goals the child must complete each day (e.g., 80%) to earn the daily homework reward. They also agree on the number of times in a week that the student must earn the daily reward in order to be eligible for the weekly reward (e.g., 3 times in a week).

3. *The Parent and Child Fill Out the Daily Homework Planner*. Each day when the student has assigned homework, the parent and student sit down with a copy of the Daily Homework Planner [web page; pdf document]. Together they preview the homework assignment for all subject areas. Then they break the assignment into manageable 'chunks' or subtasks. A description of each subtask is written into the Daily Homework Planner in enough detail so that both parent and student know what must be done to complete that homework chunk. A description for a math subtask, for example, might read "Complete 20 multiplication problems from pg. 40 of math book, then use

answer key to check work". The parent and child might write on the homework contract that the child will reserve 30 minutes to complete that subtask.

4. *The Parent Checks the Child's Homework Completion and Delivers Any Earned Rewards.* When the student has finished his or her homework, the parent and student hold a brief follow-up conference. They go through the Daily Homework Planner sheet, circling Y[es] or N[o] to indicate whether each subtask was completed within the time set aside for it.

    a. If the student earned the daily reward, the parent has the student choose an item from the reward menu. (Daily rewards should be given immediately if possible.)

    b. If the student also earned the weekly reward, the student can also select an item from the weekly reward menu (to be delivered in a timely manner but when convenient to the parent).

5. *Fade the Reward System.* As the child shows that he or she is able to complete daily homework assignments on a regular basis, the parent may want to start 'fading' the reward system. First, the parent may stop the daily rewards but continue the weekly rewards. Then the weekly rewards can be stretched out to biweekly and eventually monthly rewards. In the final stage of fading, the parent can stop giving out regular rewards altogether. Instead, the child's motivation can be kept high by the parent 'surprising' him or her occasionally with an unexpected reward.

Troubleshooting

The parent cannot or will not use the homework contract. If a parent is unable or unwilling to use the homework contract with a student, the intervention can be used in school instead. At the end of the school day, for example, the teacher or other staff member might meet with the child to preview all homework assignments and assist the student in filling out the Daily Homework Planner. If the student brings the Contract sheet and completed homework back to school the next day, the teacher can give him or her the earned daily (and perhaps weekly) reward.

Jim's Hints for Using...Homework Contracts: Tapping the Power of Parents

Identify Other People To Help the Parent With the Homework Contract . If the student attends an afterschool program where he or she completes homework, personnel from that program may be willing to set up and use the homework contract with the child. Or if there is a responsible older sibling in the home, he or she may be willing to administer a homework contract system. The parent would still be expected to deliver any rewards that the student may have earned.

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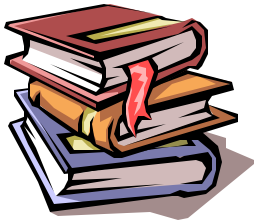
Daily Homework Planner (Adapted from Miller & Kelly, 1994)

Student: _____ Date: _____



Before starting my homework, do I:

- have all the materials that I need?
- know what homework has been assigned in all subjects?
- have a quiet place to work?

Task	Academic Subject	Description of Work Goal Set by Student	Time Needed to Complete	Goal Successfully Achieved?
1				Y N
2				Y N
3				Y N
4				Y N
5				Y N

- *Daily reward:* The student will earn the daily reward by completing at least _____ % of the homework goals for that day.
- *Weekly reward:* The student will earn the weekly reward by meeting the daily homework goals for _____ days of the week.
- *Percentage of Goals* Achieved Today (Number of Goals Achieved/Number of Goals Set)_____%
- Circle those days that the student has met the daily homework goal for this week:

S M T W Th F *S*

Parent Signature _____

Documenting Tier 1 (Classroom) Interventions: A Sample Form

When general-education students begin to struggle with academic or behavioral issues, the classroom teacher will typically select and implement one or more evidence-based intervention strategies to assist those students. But a strong intervention plan needs more than just well-chosen interventions. It also requires 4 additional components (Witt, VanDerHeyden, & Gilbertson, 2004): (1) student concerns should be clearly and specifically defined; (2) one or more methods of formative assessment should be used to track the effectiveness of the intervention; (3) baseline student data should be collected prior to the intervention; and (4) a goal for student improvement should be calculated before the start of the intervention to judge whether that intervention is ultimately successful. If a single one of these essential 4 components is missing, the intervention is to be judged as fatally flawed (Witt, VanDerHeyden, & Gilbertson, 2004) and as not meeting minimum RTI standards.

Teachers need a standard format to use in documenting their 'Tier 1' (classroom) intervention plans. The attached form, *Tier 1/Classroom Intervention Planning Sheet*, is designed to include all of the essential RTI elements of an effective intervention plan. The form includes space to document:

- *Definition of up to two student academic or behavioral problems*. The most significant step in selecting an effective classroom intervention is to correctly identify the target student concern(s) in clear, specific, measureable terms (Bergan, 1995). The teacher selects no more than two student concerns to address on the intervention plan.
- *Intervention description.* The teacher describes the evidence-based intervention(s) that will be used to address the identified student concern(s).
- *Intervention delivery.* The teacher writes down details necessary for implementing the intervention in the classroom (e.g., where and when the intervention will be used; the adult-to-student ratio; how frequently the intervention will take place; the length of time each session of the intervention will last; materials needed for the intervention, etc.
- *Checkup date.* The teacher notes the date at which the intervention will be reviewed to determine whether it has been sufficiently effective. NOTE: For academic interventions, it is advisable to allow at least 4 instructional weeks before deciding whether the intervention has been effective.
- *Assessment data.* For each intervention, the teacher selects the type(s) of classroom data that will be collected formatively throughout the intervention period to judge its effectiveness. For each data source, in turn, the teacher collects baseline data on student performance—and calculates an outcome goal that the student is expected to attain if the intervention is successful. (During the period in which the intervention is in effect, the teacher collects ongoing data to judge student performance and attaches that data to the classroom intervention documentation form.)

While a Tier 1/classroom intervention documentation form is a helpful planning tool, schools should remember that teachers will need other resources and types of assistance as well to be successful in selecting and using Tier 1 interventions. For example, teachers should have access to an 'intervention menu' that contains evidence-based strategies to address the most common academic and behavioral concerns and should be able to get coaching support as they learn how to implement new classroom intervention ideas. A future blog entry will review necessary Tier 1 teacher supports in greater detail.

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Tier 1/Classroom Intervention Planning Sheet

Teacher/Team: _____ Date: _____ Student: _____

Student Problem Definition #1: _____

Student Problem Definition #2: _____

[Optional] Person(s) assisting with intervention planning process: _____

Interventions: Essential Elements (Witt et al., 2004)

- Clear problem-definition(s)
- Baseline data
- Goal for improvement
- Progress-monitoring plan

Intervention Description	Intervention Delivery	Check-Up Date	Assessment Data
Describe each intervention that you plan to use to address the student's concern(s).	List key details about delivery of the intervention, such as:; (1) where & when the intervention will be used; (2) the adult-to-student ratio; (3) how frequently the intervention will take place; (4) the length of time each session of the intervention will last;.	Select a date when the data will be reviewed to evaluate the intervention.	Note what classroom data will be used to establish baseline, set a goal for improvement, and track the student's progress during this intervention.
			Type(s) of Data to Be Used: Baseline | Goal by Check-Up
			Type(s) of Data to Be Used: Baseline | Goal by Check-Up
		.	Type(s) of Data to Be Used: Baseline | Goal by Check-Up

Witt, J. C., VanDerHeyden, A. M., & Gilbertson, D. (2004). Troubleshooting behavioral interventions. A systematic process for finding and eliminating problems. *School Psychology Review, 33*, 363-383.

School-Wide Strategies for Managing...DEFIANCE / NON-COMPLIANCE

Students who are defiant or non-compliant can be among the most challenging to teach. They can frequently interrupt instruction, often do poorly academically, and may show little motivation to learn. There are no magic strategies for managing the behaviors of defiant students. However, research shows that certain techniques tend to work best with these children and youth: (1) Give the student positive teacher recognition. Even actions as simple as greeting the student daily at the classroom door or stopping by the student's desk to ask 'How are you doing?' can over time turn strained relationships into positive ones. (2) Monitor the classroom frequently and intervene proactively to redirect off-task students before their mild misbehaviors escalate into more serious problems. (3) Avoid saying or doing things that are likely to anger or set off a student. Speak calmly and respectfully, for example, rather than raising your voice or using sarcasm. (4) When you must intervene with a misbehaving student, convey the message to the student that you will not tolerate the problem behavior—but that you continue to value and accept the student. (5) Remember that the ultimate goal of any disciplinary measure is to teach the student more positive ways of behaving. Punishment generally does not improve student behaviors over the long term and can have significant and lasting negative effects on school performance and motivation. (6) Develop a classroom 'crisis response plan' to be implemented in the event that one or more students display aggressive behaviors that threaten their own safety or the safety of others. Be sure that your administrator approves this classroom crisis plan and that everyone who has a part in the plan knows his or her role. One final thought: While you can never predict what behaviors your students might bring into your classroom, you will usually achieve the best outcomes by remaining calm, following pre-planned intervention strategies for misbehavior, and acting with consistency and fairness when intervening with or disciplining students. Here are other ideas for managing defiant or non-compliant students:

•Allow the Student a 'Cool-Down' Break (Long, Morse, & Newman, 1980). Select a corner of the room (or area outside the classroom with adult supervision) where the target student can take a brief 'respite break' whenever he or she feels angry or upset. Be sure to make cool-down breaks available to all students in the classroom, to avoid singling out only those children with anger-control issues. Whenever a student becomes upset and defiant, offer to talk the situation over with that student once he or she has calmed down and then direct the student to the cool-down corner. (E.g., "Thomas, I want to talk with you about what is upsetting you, but first you need to calm down. Take five minutes in the cool-down corner and then come over to my desk so we can talk.")

•Ask Open-Ended Questions (Lanceley, 2001). If a teacher who is faced with a confrontational student does not know what triggered that student's defiant response, the instructor can ask neutral, open-ended questions to collect more information before responding. You can pose 'who', 'what', 'where', 'when', and 'how' questions to more fully understand the problem situation and identify possible solutions. Some sample questions are "What do you think made you angry when you were talking with Billy?" and "Where were you when you realized that you had misplaced your science book?" One caution: Avoid asking

'why"'questions (e.g., "Why did you get into that fight with Jerry?") because they can imply that you are blaming the student.

•Assign a Reflective 'Processing' Essay After Misbehavior (Boynton & Boynton, 2005; Mayer & Ybarra, 2004; Walker, Colvin, & Ramsey, 1995). The student who gets into a conflict must write and submit to the teacher a brief 'process' plan outlining how they will improve their behavior. At minimum, the plan would state: (1) the role the student played in the conflict, (2) the part that other participants may have taken in the incident, (3) the student's suggestions for finding the best resolution to the problem, and (4) how the student can act in the future to prevent the conflict from recurring. NOTE: Some teachers use a pre-printed structured questionnaire containing these 4 items for the student to complete.

•Do Not Get Entangled in Arguments (Walker & Walker, 1991). The careful teacher avoids being dragged into arguments or unnecessary discussion when disciplining students. When you must deliver a command to, confront, or discipline a student who is defiant or confrontational, be careful not to get 'hooked' into a discussion or argument with that student. If you find yourself being drawn into an exchange with the student (e.g., raising your voice, reprimanding the student), immediately use strategies to disengage yourself (e.g., by moving away from the student, repeating your request in a business-like tone of voice, imposing a pre-determined consequence for noncompliance).

•Emphasize the Positive in Teacher Requests (Braithwaite, 2001). When an instructor's request has a positive 'spin', that teacher is less likely to trigger a power struggle and more likely to gain student compliance. Whenever possible, avoid using negative phrasing (e.g., "If you don't return to your seat, I can't help you with your assignment"). Instead, restate requests in positive terms (e.g., "I will be over to help you on the assignment just as soon as you return to your seat").

•Expand the Range of Classroom Behavior Interventions (Sprick, Borgmeier, & Nolet, 2002). The teacher who has developed an array of in-class consequences for minor misbehaviors can prevent students from being sent to the principal's office or to in-school detention. First, list those common misbehaviors that you believe should typically be handled in the classroom (e.g. being late to class, talking out). When finished, categorize your list of misbehaviors into 3 groups: 'Level 1' (mild) misbehaviors, 'Level 2' (medium) misbehaviors, and 'Level 3' (more serious) misbehaviors. Then, list next to each level of problem behaviors a range of in-class consequences that you feel appropriately match those types of misbehavior. For example, you may decide that a 'soft' reprimand would be a choice to address Level 1 misbehaviors, while a phone call to the parent would be a choice for Level 3 misbehaviors. NOTE: In-class consequences are intended for minor misbehaviors. You should notify an administrator whenever students display behaviors that seriously disrupt learning or pose a risk to the safety of that student or to others.

•Give Praise That is Specific and Does Not Embarrass the Student (Sprick, Borgmeier, & Nolet, 2002). Defiant students can respond well to adult praise but only when it is sincere and specific, and is not embarrassing. Ideally, the teacher should deliver praise as soon as possible after the positive behavior. Praise should be specific and descriptive—because vague, general praise can sound fake and does not give the student any useful information about how their behavior meets or exceeds the teacher's

expectations. For older students who tend to dislike being praised in a highly public manner, the teacher can use a more indirect or low-key approach (e.g., writing a note of praise on the student's graded assignment, praising the student in a private conversation, calling the student's parent to praise the student).

•Give Problem Students Frequent Positive Attention (Sprick, Borgmeier, & Nolet, 2002). Teachers should make an effort to give positive attention or praise to problem students at least three times more frequently than they reprimand them. The teacher gives the student the attention or praise during moments when that student is acting appropriately--and keeps track of how frequently they give positive attention and reprimands to the student. This heavy dosing of positive attention and praise can greatly improve the teacher's relationship with problem students.

•Have the Student Participate in Creating a Behavior Plan (Walker, Colvin, & Ramsey, 1995). Students can feel a greater sense of ownership when they are invited to contribute to their behavior management plan. Students also tend to know better than anyone else what triggers will set off their problem behaviors and what strategies they find most effective in calming themselves and avoiding conflicts or other behavioral problems.

•Increase 'Reinforcement' Quality of the Classroom (Dunlap & Kern, 1996; Mayer & Ybarra, 2004). If a student appears to be defiant or non-compliant in an effort to escape the classroom, the logical solution is to make the classroom environment and activities more attractive and reinforcing for that student. Unfortunately, the student who fails repeatedly at academics can quickly come to view school as punishment. Some ideas to increase motivation to remain in the classroom are to structure lessons or assignments around topics of high interest to the target student, to increase opportunities for cooperative learning (which many students find reinforcing), and to adjust the target student's instruction so that he or she experiences a high rate of success on classwork and homework.

•Keep Responses Calm, Brief, and Businesslike (Mayer, 2000; Sprick, Borgmeier, & Nolet, 2002). Because teacher sarcasm or lengthy negative reprimands can trigger defiant student behavior, instructors should respond to the student in a 'neutral', business-like, calm voice. Also, keep responses brief when addressing the non-compliant student. Short teacher responses give the defiant student less control over the interaction and can also prevent instructors from inadvertently 'rewarding' misbehaving students with lots of negative adult attention.

•Listen Actively (Lanceley, 1999; Long, Morse, & Newman, 1980). The teacher demonstrates a sincere desire to understand a student's concerns when he or she actively listens to and then summarizes those concerns. Many students lack effective negotiation skills in dealing with adults. As a result, these students may become angry and defensive when they try to express a complaint to the teacher-even when that complaint is well founded. The instructor can show that he or she wants to understand the student's concern by summing up the crucial points of that concern (paraphrasing) in his or her own words. Examples of paraphrase comments include 'Let me be sure that I understand you correctly…', 'Are you telling me that…?', 'It sounds to me like these are your concerns:…' When teachers engage in 'active

listening' by using paraphrasing, they demonstrate a respect for the student's point of view and can also improve their own understanding of the student's problem.

•Offer the Student a Face-Saving Out (Thompson & Jenkins, 1993). Students sometimes blunder into potential confrontations with their teachers; when this happens, the teacher helps the student to avoid a full-blown conflict in a manner that allows the student to save face. Try this face-saving de-escalation tactic: Ask the defiant student, "Is there anything that we can work out together so that you can stay in the classroom and be successful?" Such a statement treats the student with dignity, models negotiation as a positive means for resolving conflict, and demonstrates that the instructor wants to keep the student in the classroom. It also provides the student with a final chance to resolve the conflict with the teacher and avoid other, more serious disciplinary consequences. Be prepared for the possibility that the student will initially give a sarcastic or unrealistic response (e.g., "Yeah, you can leave me alone and stop trying to get me to do classwork!"). Ignore such attempts to hook you into a power struggle and simply ask again whether there is any reasonable way to engage the student's cooperation. When asked a second time, students will often come up with workable ideas for resolving the problem. If the student continues to be non-compliant, however, simply impose the appropriate consequences for that misbehavior.

•Proactively Interrupt the Student's Anger Early in the Escalation Cycle (Long, Morse, & Newman, 1980; Walker, Colvin, & Ramsey, 1995). The teacher may be able to 'interrupt' a student's escalating behaviors by redirecting that student's attention or temporarily removing the student from the setting. If the student is showing only low-level defiant or non-compliant behavior, you might try engaging the student in a high-interest activity such as playing play an educational computer game or acting as a classroom helper. Or you may want to briefly remove the student from the room ('antiseptic bounce') to prevent the student's behavior from escalating into a full-fledged confrontation. For example, you might send the student to the main office on an errand, with the expectation that-by the time the child returns to the classroom-he or she will have calmed down.

•Project Calmness When Approaching an Escalating Student (Long, Morse, & Newman, 1980; Mayer, 2000; Walker, Colvin, & Ramsey, 1995). A teacher's chances of defusing a potential confrontation with an angry or defiant student increase greatly if the instructor carefully controls his or her behavior when first approaching the student. Here are important tips: Move toward the student at a slow, deliberate pace, and respect the student's private space by maintaining a reasonable distance. If possible, speak privately to the student, using a calm and respectful voice. Avoid body language that might provoke the student, such as staring, hands on hips, or finger pointing. Keep your comments brief. If the student's negative behaviors escalate despite your best efforts, move away from the student and seek additional adult assistance or initiate a crisis-response plan.

•Relax Before Responding (Braithwaite, 2001). Educators can maintain self-control during a tense classroom situation by using a brief, simple stress-reduction technique before responding to a student's provocative remark or behavior. When provoked, for example, take a deeper-than-normal breath and release it slowly, or mentally count to 10. As an added benefit, this strategy of conscious relaxation allows

the educator an additional moment to think through an appropriate response--rather than simply reacting to the student's behavior.

•Reward Alternative (Positive) Behaviors (Mayer & Ybarra, 2004; Walker, Colvin, & Ramsey, 1995). The instructor can shape positive behaviors by selectively calling on the student or providing other positive attention or incentives only when the student is showing appropriate social and academic behaviors. The teacher withholds positive attention or incentives when the student misbehaves or does not engage in academics.

•State Teacher Directives as Two-Part Choice Statements (Walker, 1997). When a student's confrontational behavior seems driven by a need for control, the teacher can structure verbal requests to both acknowledge the student's freedom to choose whether to comply and present the logical consequences for non-compliance (e.g., poor grades, office disciplinary referral, etc.). Frame requests to uncooperative students as a two-part statement. First, present the negative, or non-compliant, choice and its consequences (e.g., if a seatwork assignment is not completed in class, the student must stay after school). Then state the positive behavioral choice that you would like the student to select (e.g., the student can complete the seatwork assignment within the allotted work time and not stay after school). Here is a sample 2-part choice statement, 'John, you can stay after school to finish the class assignment or you can finish the assignment now and not have to stay after class. It is your choice.'

•Use a 'Buddy Teacher' for Brief Student Breaks (Boynton & Boynton, 2005). Sending a mildly non-compliant student on a short visit to a neighboring classroom can give both the teacher and student a needed break. Arrange with an instructor in a nearby room for either of you to send a student to the other's room whenever you need a short respite from the student. Set aside a seating area in each classroom for student visitors. NOTE: These timeouts should be used only sparingly and should NOT be used if the student appears to find the breaks rewarding or to seek them as a way to avoid work.

•Use Non-Verbal and Para-Verbal Behaviors to Defuse Potential Confrontations (Braithwaite, 2001; Long, Morse, & Newman, 1980; Walker, Colvin, & Ramsey, 1995). When interacting with defiant or confrontational students, teachers can use non-verbal and para-verbal techniques such as non-threatening body language, soft tone of voice, or strategic pauses during speech, to reduce tensions. For example, if a student is visibly agitated, you may decide to sit down next to the student at eye level (a less threatening posture) rather than standing over that student. Or you might insert a very brief 'wait time' before each response to the student, as these micro-pauses tend to signal calmness, slow a conversation down and help to prevent it from escalating into an argument.

•Use 'Soft' Reprimands (Sprick, Borgmeier, & Nolet, 2002). The teacher gives a brief, gentle signal to direct back to task any students who is just beginning to show signs of misbehavior or non-compliance. These 'soft' reprimands can be verbal (a quiet word to the student) or non-verbal (a significant look). If a soft reprimand is not sufficient to curb the student's behaviors, the teacher may pull the student aside for a private problem-solving conversation or implement appropriate disciplinary consequences.

•Validate the Student's Emotion by Acknowledging It (Lanceley, 1999). When the teacher observes that a student seems angry or upset, the instructor labels the emotion that seems to be driving that student's behavior. 'Emotion labeling' can be a helpful tactic in deescalating classroom confrontations because it prompts the student to acknowledge his or her current feeling-state directly rather than continuing to communicate it indirectly through acting-out behavior. A teacher, for example, who observes a student slamming her books down on her desk and muttering to herself after returning from gym class might say to the student, "You seem angry. Could you tell me what is wrong?" Once a powerful emotion such as anger is labeled, the teacher and student can then talk about it, figure out what may have triggered it, and jointly find solutions that will mitigate it. Emotion labeling should generally be done in a tentative manner ("John, you sound nervous…", "Alice, you appear frustrated…"), since one can never know with complete certainty what feelings another person is experiencing.

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School-Wide Strategies for Managing...HYPERACTIVITY

Hyperactive students tend to have a very high energy level, act impulsively and can be behaviorally distracting. They may fidget, play with objects, tap pencils so loudly against their desk that kids from across the room look over at them, or blurt out answers to teacher questions before the instructor is even finished asking them. When working with students who are hyperactive or impulsive, teachers should keep in mind that these students are very often completely unaware that others view their behavior as distracting or annoying. Teachers working with such children can greatly increase their own effectiveness by clearly communicating behavioral expectations to students, by encouraging and rewarding students who behave appropriately, and by being consistent and fair when responding to problem student behaviors. Here are teacher ideas for managing impulsive or hyperactive students who display problem motor or verbal behaviors:

•Adopt a 'Silent Signal' (U.S. Department of Education, 2004). You can redirect overactive students in a low-key manner by using a silent signal. Meet privately with the student and identify for the student those motor or verbal behaviors that appear to be most distracting. With the student's help, select a silent signal that you can use to alert the student that his or her behavior has crossed the threshold and now is distracting others. Role-play several scenarios with the student in which you use the silent signal and the student then controls the problem behavior. When you are able to successfully use the 'silent signal' during instruction, be sure to praise the student privately for responding appropriately and promptly to your signal.

•Allow Discretionary Motor Breaks (U.S. Department of Education, 2004). When given brief 'movement' breaks, highly active students often show improvements in their behaviors. Permit the student to leave his or her seat and quietly walk around the classroom whenever the student feels particularly fidgety. Or, if you judge that motor breaks within the classroom would be too distracting, consider giving the student a discretionary pass that allows him or her to leave the classroom briefly to get a drink of water or walk up and down the hall.

•Encourage Acceptable Outlets for Motor Behavior (U.S. Department of Education, 2004). If the student distracts other students by playing with objects, substitute an alternative motor behavior that will not distract others. Give the student a soft 'stress ball' and encourage the student to squeeze it whenever he or she feels the need for motor movement. Or if the setting is appropriate, allow the student to chew gum as a replacement motor behavior.

•Have the Student Monitor Motor Behaviors and Call-Outs (DuPaul & Stoner, 2002). Students can often change problem behaviors when they pay attention to those behaviors. Have the student monitor his or her motor behaviors or call-outs. First, choose a class period or part of the day when you want the student to monitor distracting behaviors. Next, meet privately with the student to discuss which of that student's behaviors are distracting. Then, together with the student, design a simple distractible behavior-rating form with no more than 3 items (For a student who calls out frequently, for example, a useful rating item might be "How well did I observe the rule today of raising my hand and being called on before giving an answer? Poor – Fair – Good".) Have the student rate his or her behaviors at the end of each class period. Make an

effort to praise the student (a) for being accurate in rating behaviors, and (b) for any improvements that you see in the student's behaviors over time.

•Ignore Low-Level Motor Behaviors (Sprick, Borgmeier & Nolet, 2002; U.S. Department of Education, 2004). Selective ignoring can be an effective teacher response to minor fidgeting or other motor behaviors. If the student's 'fidgety' behaviors are relatively minor and do not seriously derail classroom instruction, the teacher should simply not pay attention to them.

•Remove Unnecessary Items From the Student's Work Area (U.S. Department of Education, 2004). Students who tend to distract themselves and others by playing with objects behave better when their work area is uncluttered. Take away (or direct the student to put away) any items that the student does not need for the work assignment but might be tempted to play with (e.g., extra pens, paper clips).

•Schedule Group 'Stretch Breaks' (Brock, 1998). You can increase the focus of your entire class and appropriately channel the motor behaviors of fidgety students by scheduling brief 'stretch breaks.' At their simplest, stretch breaks consist of having students stand next to their desks, stretch their arms, take a deep breath, and exhale slowly before resuming their seats. Or you can be creative, having students take part in different movements during each break (e.g., "OK class. It's time for a stretch break. Stand by your desk, arms over your head. Then take 3 steps back and 3 steps forward…"). NOTE: When using stretch breaks, be sure that you select movements that all of your students are physically able to accomplish without difficulty.

•Seat the Student Next to Distraction-Resistant Peers (Kerr & Nelson, 1998). One useful strategy for managing low-level motor behaviors is to seat the student next to peers who can generally ignore those behaviors. Rearrange seating in the classroom so that the student is sitting near peers who are good behavior models and are not readily distracted by that student's minor fidgety movements or playing with objects.

•Select a 'Supportive Peer' (DuPaul & Stoner, 2002). Handpick a classmate who has a good relationship with the student but is not easily drawn off-task and appoint that student as a 'helper peer'. Meet privately with the student and the helper peer. Tell the peer that whenever he or she notices that the student's verbal or motor behavior has risen to the level of distracting others, the peer should give the student a brief, quiet, non-judgmental signal (e.g., a light tap on the shoulder) to control the behavior. Role-play several scenarios so that the peer knows when he or she can ignore the student's low-level motor behaviors and when the peer should use a signal to alert the student to more distracting behaviors.

•Structure Instructional Activities to Allow Interaction and Movement (DuPaul & Stoner, 2002; Sprick, Borgmeier & Nolet, 2002; U.S. Department of Education, 2004). Students with high energy levels may be more likely to engage in distracting behavior when they are forced to sit through long periods of lecture or independent seatwork. Instead, offer students frequent opportunities for more movement by designing instruction to actively engage them as learners (e.g., cooperative learning). An additional advantage of less formal, more spontaneous learning activities is that when the overactive child does happen to display motor behaviors in this relaxed setting, those behaviors are less likely to distract peers.

•Use 'Response Cost' (DuPaul & Stoner, 2002; Martens & Meller, 1990). A strategy to reduce distracting verbal or motor behaviors is to use 'response cost': first awarding points or tokens and then deducting those points or tokens whenever the behavior distracts other students. Here is a simple version that you can use in your classroom: Award the student a certain number of 'behavior points' (e.g., 5) at the start of each class period and write a series of tally marks on the blackboard that corresponds to this number. Privately inform the student that each time that he or she engages in verbal or motor behaviors that obviously distract other students (e.g., cause them to comment on the behavior), you will silently go to the board and erase one point from the student's total. At the end of each class period, the student is allowed to keep any 'behavior points' that remain. Let the student know that he or she can collect points across multiple days and eventually redeem a certain number of collected 'behavior points' for prizes or privileges (e.g., extra free time).

•Use Brief Reminders About Appropriate Behavior and Conduct (DuPaul & Stoner, 2002; Sprick, Borgmeier & Nolet, 2002). Provide students with brief reminders of expected behaviors at the 'point of performance', when they will most benefit from it. Consider using structured prompts such as the following for students who tend to blurt out answers: "When I ask this question, I will give the class 10 seconds to think of your best answer. Then I will call on one student." Or you can remind students who have difficulty moving through hallways as part of a group, "Remember to keep hands to self and to walk quietly on the right as we walk to art class."

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School-Wide Strategies for Managing...OFF-TASK / INATTENTION

Students who have chronic difficulties paying attention in class face the risk of poor grades and even school failure. Inattention may be a symptom of an underlying condition such as Attention Deficit Hyperactivity Disorder. However, teachers should not overlook other possible explanations for student off-task behavior. It may be, for example, that a student who does not seem to be paying attention is actually mismatched to instruction (the work is too hard or too easy) or preoccupied by anxious thoughts. Or the student may be off-task because the teacher's lesson was poorly planned or presented in a disorganized manner. It is also important to remember that even children with ADHD are influenced by factors in their classroom setting and that these students' level of attention is at least partly determined by the learning environment. Teachers who focus on making their instruction orderly, predictable, and highly motivating find that they can generally hold the attention of most of their students most of the time. Here are some ideas to consider to boost rates of student attending and on-task behavior:

•Capture Students' Attention Before Giving Directions (Ford, Olmi, Edwards, & Tingstrom, 2001; Martens & Kelly, 1993). Gain the student's attention before giving directions and use other strategies to ensure the student's full understanding of them. When giving directions to an individual student, call the student by name and establish eye contact before providing the directions. When giving directions to the whole class, use group alerting cues such as 'Eyes and ears on me!' to gain the class's attention. Wait until all students are looking at you and ready to listen before giving directions. When you have finished giving directions to the entire class, privately approach any students who appear to need assistance. Quietly restate the directions to them and have them repeat the directions back to you as a check for understanding.

•Class Participation: Keep Students Guessing (Heward, 1994). Students attend better during large-group presentations if they cannot predict when they will be required to actively participate. Randomly call on students, occasionally selecting the same student twice in a row or within a short time span. Or pose a question to the class, give students 'wait time' to formulate an answer, and then randomly call on a student.

•Employ Proximity Control (Ford, Olmi, Edwards, & Tingstrom, 2001; Gettinger & Seibert, 2002; U.S. Department of Education, 2004). Students typically increase their attention to task and show improved compliance when the teacher is in close physical proximity. During whole-group activities, circulate around the room to keep students focused. To hold an individual student's attention, stand or sit near the student before giving directions or engaging in discussion.

•Give Clear Directions (Gettinger & Seibert, 2002; Gettinger, 1988). Students will better understand directions when those directions are delivered in a clear manner, expressed in language the student understands, given at a pace that does not overwhelm the student, and posted for later review. When giving multi-step directions orally, write those directions on the board or give to students as a handout to consult as needed. State multi-step directions one direction at a time and confirm that the student is able to comply with each step before giving the next direction.

•Give Opportunities for Choice (Martens & Kelly, 1993; Powell & Nelson, 1997). Allowing students to exercise some degree of choice in their instructional activities can boost attention span and increase academic engagement. Make a list of 'choice' options that you are comfortable offering students during typical learning activities. During independent seatwork, for example, you might routinely let students choose where they sit, allow them to work alone or in small groups, or give them 2 or 3 different choices of assignment selected to be roughly equivalent in difficulty and learning objectives.

•Instruct at a Brisk Pace (Carnine, 1976; Gettinger & Seibert, 2002). When students are appropriately matched to instruction, they are likely to show improved on-task behavior when they are taught at a brisk pace rather than a slow one. To achieve a brisk pace of instruction, make sure that you are fully prepared prior to the lesson and that you minimize the time spent on housekeeping items such as collecting homework or on transitions from one learning activity to another.

•Make the Activity Stimulating (U.S. Department of Education, 2004). Students require less conscious effort to remain on-task when they are engaged in high-interest activities. Make instruction more interesting by choosing a specific lesson topic that you know will appeal to students (e.g., sports, fashion). Or help students to see a valuable 'real-word' pay-off for learning the material being taught. Another tactic is to make your method of instruction more stimulating. Students who don't learn well in traditional lecture format may show higher rates of engagement when interacting with peers (cooperative learning) or when allowed the autonomy and self-pacing of computer-delivered instruction.

•Pay Attention to the On-Task Student (DuPaul & Ervin, 1996; Martens & Meller, 1990). Teachers who selectively give students praise and attention only when those students are on-task are likely to find that these students show improved attention in class as a result. When you have a student who is often off-task, make an effort to identify those infrequent times when the student is appropriately focused on the lesson and immediately give the student positive attention. Examples of teacher attention that students will probably find positive include verbal praise and encouragement, approaching the student to check on how he or she is doing on the assignment, and friendly eye contact.

•Provide a Quiet Work Area (U.S. Department of Education, 2004). Distractible students benefit from a quiet place in the classroom where they can go when they have more difficult assignments to complete. A desk or study carrel in the corner of the room can serve as an appropriate workspace. When introducing these workspaces to students, stress that the quiet locations are intended to help students to concentrate. Never use areas designated for quiet work as punitive 'time-out' spaces, as students will then tend to avoid them.

•Provide Attention Breaks (DuPaul & Ervin, 1996; Martens & Meller, 1990). If students find it challenging to stay focused on independent work for long periods, allow them brief 'attention breaks'. Contract with students to give them short breaks to engage in a preferred activity each time that they have finished a certain amount of work. For example, a student may be allowed to look at a favorite comic book for 2 minutes each time that he has completed five problems on a math worksheet and checked his answers. Attention breaks can refresh the student –and also make the learning task more reinforcing.

•Reduce Length of Assignments (DuPaul & Ervin, 1996; U.S. Department of Education, 2004). Students' attention may drift when completing overly long assignments. For new material, trim assignments to the minimum length that you judge will ensure student understanding. When having students practice skills or review previously taught material, break that review into a series of short assignments rather than one long assignment to help to sustain interest and engagement.

•Schedule Challenging Tasks for Peak Attention Times (Brock, 1998). Many students with limited attention can focus better in the morning, when they are fresh. Schedule those subjects or tasks that the student finds most difficult early in the day. Save easier subjects or tasks for later in the day, when the student's attention may start to wane.

•Select Activities That Require Active Student Responding (Gettinger & Seibert, 2002; Heward, 1994). When students are actively engaged in an activity, they are more likely to be on-task. Avoid long stretches of instructional time in which students sit passively listening to a speaker. Instead, program your instructional activities so that students must frequently 'show what they know' through some kind of active [visible] response. For example, you might first demonstrate a learning strategy to students and then divide the class into pairs and have students demonstrate the strategy to each other while you observe and evaluate.

•Transition Quickly (Gettinger & Seibert, 2002; Gettinger, 1988). When students transition quickly between educational activities and avoid instructional 'dead time', their attention is less likely to wander. Train students to transition appropriately by demonstrating how they should prepare for common academic activities, such as group lecture and independent seatwork. Have them practice these transitions, praising the group for timely and correct performance. Provide additional 'coaching' to individual students as needed. During daily instruction, verbally alert students several minutes before a transition to another activity is to occur.

•Use Advance Organizers (U.S. Department of Education, 2004). One strategy to improve on-task behavior is to give students a quick overview of the activities planned for the instructional period or day. This 'advance organizer' provides students with a mental schedule of the learning activities, how those activities interrelate, important materials needed for specific activities, and the amount of time set aside for each activity. All students benefit when the teacher uses advance organizers. However inattentive students especially benefit from this overview of learning activities, as the advance organizer can prompt, mentally prepare, and focus these students on learning right when they most need it.

•Use Preferential Seating (U.S. Department of Education, 2004). Seating the student near the teacher is one tried-and-true method to increase on-task behavior. Preferential seating simply means that you seat the student in a location where he or she is most likely to stay focused on what you are teaching. Remember that all teachers have an 'action zone', a part of the room where they tend to focus most of their instruction. Once you have analyzed your 'action zone' as a teacher, place the student's seat somewhere within that zone. Of course, the ideal seating location for any particular student will vary, depending on the unique qualities of the target student and of your classroom. When selecting preferential seating, consider

whether the student might be self-conscious about sitting right next to the teacher. Also, try to select a seat location that avoids other distractions. For example, you may want to avoid seating the student by a window or next to a talkative classmate.

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Choice: Allowing the Student to Select Task Sequence

Description: The student is assigned several tasks to complete during a work period and given the opportunity to select the assignment that he or she will do first.

Purpose: Allowing the student choice in the sequence of academic tasks can increase rates of compliance and active academic engagement. The power of allowing the student to select the sequence of academic tasks appears to be in the exercise of choice, which for 'biologic reasons' may serve as a fundamental source of reinforcement (Kern & Clemens, 2007; p. 72).

Materials: Student work assignments

Preparation: The instructor selects 2 to 3 separate academic tasks that the student is to complete during an independent work period and prepares all necessary work materials.

Intervention Steps: The use of choice for student assignments can be prepared and implemented through these steps:

1. Meet individually with the student just before the independent work period. Present and explain to the student each of the 2 or 3 assignments selected for the work period. Ask if the student has questions about any of the assignments.
2. Direct the student to select the assignment he or she would like to do first. [Optional] Write the number '1' at the top of the assignment chosen by the student.
3. Tell the student to begin working on the assignments. NOTE: The student is allowed to switch between assignments during the work period.
4. If the student stops working or gets off-task during the work period, prompt the student to return to the task and provide encouragement until the student resumes working.

Adjusting/Troubleshooting: Here are recommendations for using student selection of task sequence as an intervention strategy and addressing issues that might arise:

Provide the student with support during independent work. The student who has chosen the sequence of tasks to work on is more likely to remain engaged in those tasks if there are adequate classroom supports in place for independent work. Prior to beginning independent work, for example, the student should fully understand the assigned tasks and possess all necessary skills to complete them, have all work materials required, and know how to request assistance from the instructor or peers when needed.

Consider grouping assignments to ensure a similar level of reinforcement. Research into student choice of task sequence has often either limited assignments in the choice pool to those that the student had previously failed to perform (e.g., Kern, Mantagna, Vorndran, Bailin, & Hilt, 2001) or developed assignment choices that are similar in format and content (e.g., Ramsey, Jolivette, Patterson,, & Kennedy, 2010). It is unclear whether allowing a student to select task sequence would be as effective if that student were to find

one of the assignments much more reinforcing than the other(s). If possible, then, the instructor will probably want to select assignments that are of roughly similar apparent reinforcing value-whether negative, positive, or neutral.

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Effective Teacher Commands: Establishing Classroom Control

As classroom managers, teachers regularly use commands to direct students to start and stop activities. Instructors find commands to be a crucial tool for classroom management, serving as instructional signals that help students to conform to the teacher's expectations for appropriate behaviors. Teachers frequently dilute the power of their classroom commands, however, by:

Effective Teacher Commands...

- Are brief
- Are delivered one at a time Use specific language so that the student clearly understands the request
- Avoid an authoritarian, "Do it my way or else!" tone of voice
- Avoid strong negative emotion or sarcasm
- Are stated as directives rather than as questions
- Avoid long explanations or justifications (and present any explanation before the command rather than after it).
- Allow the student a short but reasonable amount of time to comply without additional teacher comments or directives

- presenting commands as questions or polite requests. Commands have less impact when stated as questions or requests, because the student may believe that he or she has the option to decline. The teacher who attempts, for example, to quiet a talkative student by saying, "Tanya, could you mind keeping your voice down so that other students can study?" should not be surprised if the student replies, "No, thank you. I would prefer to talk!"

- stating commands in vague terms. A student may ignore a command such as "Get your work done!" because it does not state specifically what behaviors the teacher expects of the student.

- following up commands with excessive justifications or explanations. Because teachers want to be viewed as fair, they may offer long, drawn-out explanations for why they are requiring the class or an individual student to undertake or to stop a behavior. Unfortunately, students can quickly lose the thread the explanation and even forget the command that preceded it! Using Effective Commands Teachers can reduce problems with student compliance and make their commands more forceful by following research-based guidelines (Walker & Walker, 1992):

Using Effective Commands Teachers can reduce problems with student compliance and make their commands more forceful by following research-based guidelines (Walker & Walker, 1992):

Effective teacher commands:

- are brief. Students can process only so much information. Students tend to comply best with brief commands because they are easy to understand and hard to misinterpret.

- are delivered one task or objective at a time. When a command contains multi-step directions, students can mishear, misinterpret, or forget key steps. A student who appears to be noncompliant may simply be confused about which step in a multi-step directive to do first!

- are delivered in a matter-of-fact, businesslike tone. Students may feel coerced when given a command in an authoritarian, sarcastic, or angry tone of voice. For that reason alone, they may resist the teacher's directive. Teachers will often see greater student compliance simply by giving commands in a neutral or positive manner.

- are stated as directives rather than questions. Perhaps to be polite, teachers may phrase commands as questions (e.g., "Could we all take out our math books now?"). A danger in using 'question-commands' is that the student may believe that he or she has the option to decline! Teachers should state commands as directives, saving questions for those situations in which the student exercises true choice.

- avoid long explanations or justifications. When teachers deliver commands and then tack lengthy explanations onto them, they diminish the force of the directive. If the instructor believes that students should know why they are being told to do something, the teacher should deliver a brief explanation prior to the command.

- give the student a reasonable amount of time to comply. Once the teacher has given a command, he or she should give the student a reasonable timespan (e.g., 5-15 seconds) to comply. During that waiting period, the instructor should resist the temptation to nag the student, elaborate on the request, or other wise distract the student.

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Good Behavior Game: A Tier 1 (Classroom) Whole-Group Method for Enhancing Student Attending & Work Completion

The Good Behavior Game is an approach to the management of classrooms behaviors that rewards children for displaying appropriate on-task behaviors during instructional times.

The class is divided into two teams and a point is given to a team for any inappropriate behavior displayed by one of its members. The team with the fewest number of points at the Game's conclusion each day wins a group reward. If both teams keep their points below a preset level, then both teams share in the reward.

The program was first tested in 1969; several research articles have confirmed that the Game is an effective means of increasing the rate of on-task behaviors while reducing disruptions in the classroom (Barrish, Saunders, & Wolf, 1969; Harris & Sherman, 1973; Medland & Stachnik, 1972).

The process of introducing the Good Behavior Game into a classroom is a relatively simple procedure. There are five steps involved in putting the Game into practice.

Steps in Implementing This Intervention:

1. *Decide when to schedule the Game.* The teacher first decides during what period(s) of the school day the Game will be played. As a rule of thumb, instructors should pick those times when the entire class is expected to show appropriate academic behaviors. Blocks of time devoted to reading, math, content instruction, and independent seatwork would be most appropriate for putting the Game into effect.

2. *Clearly define the negative behaviors that will be scored during the Game*. Teachers who have used the Good behavior Game typically define three types of negative behavior that will be scored whenever they appear during the Game. Those behaviors are:
    - leaving one's seat,
    - talking out, and
    - engaging in disruptive behavior.

    Out-of-seat behavior is defined as any incident in which a student leaves his or her seat without first getting permission from the teacher. Related behaviors, such as "scootching" one's seat toward another desk are usually scored as out-of-seat. Instructors often build in certain exceptions to this rule. For example, in some classrooms, children can take a pass to the bathroom, approach the teacher's desk for additional help, or move from one work site to another in the room without permission as long as these movements are conducted quietly and are a part of the accepted classroom routine. Children who leave their seats intending to complete an allowed activity but find that they cannot (e.g., walking toward the teacher's desk and then noticing that another student is already there) are not scored as being out of their seat if they quickly and quietly return to their desk.

Talking-out behavior is defined as any incident of talking out loud without the permission of the instructor. Permission is gained by raising one's hand and first being recognized by the teacher before speaking. Any type of unauthorized vocalization within the hearing of the instructor is scored as talking out, including shouts, nonsense noises (e.g., growling, howling, whistling), whispers, and talking while one's hand is raised.

Disruptive behavior consists of any movement or act that is judged by the teacher to be disruptive of classroom instruction. For example, knocking on a table, looking around the room, tearing up paper, passing notes, or playing with toys at one's desk would all be scored as disruptive behaviors. A good rule of thumb would be to regard as disruptive behavior any action that does not fall under another category but is perceived by the teacher as annoying or distracting.

3. *Decide upon suitable daily and (perhaps) weekly rewards for teams winning the Game.* Teachers will need to choose rewards that they feel will effectively motivate students to take part in the Game. Most often, instructors use free time as a daily reward, since children often find it motivating. To cite a single example, one teacher's reward system included giving her daily 4th-grade Game winners the privilege of wearing a "victory tag," putting a star next to their names on a "Winner's Chart," lining up first for lunch, and getting 30 minutes of time at the end of the day to work on fun, educationally related topics. When choosing rewards, instructors are advised to consider using reinforcers that fit naturally into the context and mission of a classroom. For example, allowing winners to play quietly together at the end of the school day may help to promote social skills, but dispensing material rewards (e.g., comic books) to winners would probably be less likely to contribute directly to educational and social goals. Of course, if both teams win on a given day or a given week, the members of those teams all receive the same rewards.

4. *Introduce the Game to the class.* Once behaviors have been selected and clearly defined by the teacher, the next step is to introduce the Game to the class. Ideally, time should be set aside for an initial group discussion. The teacher mentions that the class will be playing a game and presents a schedule clearly setting forth the instructional times during which the game will be in effect. The teacher next divides the classroom into two teams. For ease of recording, it is usually recommended that the instructor divide the class down the center of the room into roughly equal halves. Some teachers have used three teams successfully as well. To build a sense of team spirit, students may be encouraged to name their groups. The children are informed that certain types of behavior (i.e., leaving one's seat or talking without permission, and engaging in disruptive behaviors) will earn points for the team to which they belong. Students are also told that both teams can win if they earn no more than a certain number of points (e.g., 4 points maximum per day). If both teams happen to exceed 4 points, then the team with the lowest total at the end of the day is the winner. In case of a tie, both teams earn the reward. The instructor is the final judge of whether a behavior is to be scored. (As an option, students can also be told that the team with the fewest number of points at the end of the week will win an additional reward.)It is a good idea when introducing the Game to students to clearly review examples of acceptable and unacceptable behaviors. After all, it is important that all children know the rules before the Game begins. To more effectively illustrate those rules, children may be recruited to demonstrate acceptable and unacceptable behaviors, or the teacher may describe a

number of behaviors and ask the class to decide with a show of hands whether such behaviors are to be scored or not.

5. *Put the Game into effect.* The instructor is now ready to start the Game. During those times that the game is in effect in the classroom, the teacher continues to carry out his or her usual instructional practices. The only alteration in the routine is that the instructor is also noting and publicly recording any negative points incurred by either team. Instructors might want to post scores on the blackboard or on a large piece of paper visible to everyone in the room. If working with children in a small group, the instructor can record negative behaviors on a small note pad and later transfer them to the blackboard. Teachers can also choose to publicly announce when another point has been earned as a reminder to the class about acceptable behavior. It is helpful to keep a weekly tally of points for each team, especially if teams are competing for weekly as well as daily rewards. Care should be taken to be as consistent as possible in scoring negative behaviors. Winning teams should be praised as well as rewarded for their efforts, with that praise tied when possible to specifically observed behaviors. Instructors may want to alter the Game somewhat as necessary (e.g., changing rewards or more carefully defining acceptable and unacceptable behaviors with students). Obviously, any alteration of the Game, no matter how small, should be shared with the classroom before being put into effect.

Troubleshooting: How to Deal With Common Problems in Using the 'Good Behavior Game'

Q: What should I do if a small number of students try to sabotage the game for other children by deliberately acting out and earning penalty points for their team?

If a small number of students are earning a large number of points during the Game, consider forming them into a separate team. While not the norm, occasionally a single student or small group of children may be tempted to undermine the Game by deliberately incurring a large number of penalty points for their teams. (Such children may find the resulting negative social attention of other members of their team to be its own reward!) A simple remedy for this problem is to modify the Game by making those disruptive students into a separate team. The Game will continue unchanged, except that your room will now have three teams rather than two competing for rewards.

Q: I have used the Good Behavior Game for a while and have found it to be effective. But lately it doesn't seem to have the same impact on my students. What do you recommend?

If the Good Behavior Game appears to be losing effectiveness over time, be sure that you are consistently noting and assigning team points for inappropriate behaviors and that you are avoiding verbal arguments with students. It is very important that points be assigned consistently when you witness inappropriate behavior; otherwise, the Game may not bring about the expected behavioral improvement among your students. Teachers using the Game sometimes find it helpful to have another adult familiar with the Good Behavior Game observe them and offer feedback about their consistency in assigning points and success in avoiding negative verbal exchanges with students.

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Creating Reward Menus That Motivate: Tips for Teachers

Rewards are often central to effective school interventions. As possible incentives that students can earn for appropriate school performance or conduct, these reinforcers (or 'rewards') often serve as the motivational 'engine' that drives successful interventions.

Choosing rewards to use as incentives for a student intervention may seem simple and straightforward. A reinforcer, however, probably will not be successful unless it passes three important tests:

- Acceptability Test. Does the teacher approve of using the reinforcer with this child? Are parent(s) likely to approve the use of the reinforcer with their child?

- Availability Test. Is the reinforcer typically available in a school setting? If not, can it be obtained with little inconvenience and at a cost affordable to staff or parents?

- Motivation Test. Does the child find the reinforcer to be motivating?

Reward systems are usually most powerful when a student can select from a range of reward choices ('reward menu'). Offering students a menu of possible rewards is effective because it both gives students a meaningful choice of reinforcers and reduces the likelihood that the child will eventually tire of any specific reward.

However, some children (e.g., those with Attention-Deficit Hyperactivity Disorder) may lose interest in specific reward choices more quickly than do their typical peers. Teachers will want to regularly update and refresh reward menus for such children to ensure these reinforcers retain their power to positively shape those students' behaviors.

Creating a 'Reward Deck.' A Reward Deck is an idea that can help teachers to quickly select and regularly update student reward menus. This strategy involves 5 steps:

1. The teacher reviews a list of reward choices typically available in school settings. (Instructors can use the comprehensive sampling of possible school rewards that appears in the next section: Jackpot! Ideas for Classroom Rewards.). From this larger list, the teacher selects only those rewards that she or he approves of using, believes would be acceptable to other members of the school community (e.g., administration, parents), and finds feasible and affordable.

2. The teacher writes out acceptable reward choices on index cards-- to create a master 'Reward Deck'

3. Whenever the teacher wants to create a reward menu for a particular student, he or she first 'screens' reward choices that appear in the master Reward Deck and temporarily removes any that seem inappropriate for that specific case. (For example, the teacher may

screen out the reward 'pizza party' because it is too expensive to offer to a student who has only minor difficulties with homework completion.)

4. The teacher then sits with the child and presents each of the reward choices remaining in the Reward Deck. For each reward option, the child indicates whether he or she (a) likes the reward a lot, (b) likes the reward a little, or (c) doesn't care for the reward. The teacher sorts the reward options into three piles that match these rating categories. The teacher can then assemble that child's Reward Menu using the student's top choices ("like a lot"). If the instructor needs additional choices to fill out the rest of the menu, he or she can pull items from the student's "like a little" category as well.

5. (Optional but recommended) Periodically, the instructor can meet with the student and repeat the above procedure to 'refresh' the Reward Menu quickly and easily.

Behavior Contracts

The behavior contract is a simple positive-reinforcement intervention that is widely used by teachers to change student behavior. The behavior contract spells out in detail the expectations of student and teacher (and sometimes parents) in carrying out the intervention plan, making it a useful planning document. Also, because the student usually has input into the conditions that are established within the contract for earning rewards, the student is more likely to be motivated to abide by the terms of the behavior contract than if those terms had been imposed by someone else.

Steps in Implementing This Intervention

The teacher decides which specific behaviors to select for the behavior contract. When possible, teachers should define behavior targets for the contract in the form of positive, pro-academic or pro-social behaviors. For example, an instructor may be concerned that a student frequently calls out answers during lecture periods without first getting permission from the teacher to speak. For the contract, the teacher's concern that the student talks out may be restated positively as "The student will participate in class lecture and discussion, raising his hand and being recognized by the teacher before offering an answer or comment." In many instances, the student can take part in selecting positive goals to increase the child's involvement in, and motivation toward, the behavioral contract.

The teacher meets with the student to draw up a behavior contract. (If appropriate, other school staff members and perhaps the student's parent(s) are invited to participate as well.) The teacher next meets with the student to draw up a behavior contract. The contract should include:

- a listing of student behaviors that are to be reduced or increased. As stated above, the student's behavioral goals should usually be stated in positive, goal-oriented terms. Also, behavioral definitions should be described in sufficient detail to prevent disagreement about student compliance. The teacher should also select target behaviors that are easy to observe and verify. For instance completion of class assignments is a behavioral goal that can be readily evaluated. If the teacher selects the goal that a child "will not steal pens from other students", though, this goal will be very difficult to observe and confirm.

- a statement or section that explains the minimum conditions under which the student will earn a point, sticker, or other token for showing appropriate behaviors. For example, a contract may state that "Johnny will add a point to his Good Behavior Chart each time he arrives at school on time and hands in his completed homework assignment to the teacher."

- the conditions under which the student will be able to redeem collected stickers, points, or other tokens to redeem for specific rewards. A contract may state, for instance, that "When Johnny has earned 5 points on his Good Behavior Chart, he may select a friend, choose a game from the play-materials shelf, and spend 10 minutes during free time at the end of the day playing the game."

- bonus and penalty clauses (optional). Although not required, bonus and penalty clauses can provide extra incentives for the student to follow the contract. A bonus clause usually offers the student some type of additional 'pay-off' for consistently reaching behavioral targets. A penalty clause may prescribe a penalty for serious problem behaviors; e.g., the student disrupts the class or endanger the safety of self or of others.

- areas for signature. The behavior contract should include spaces for both teacher and student signatures, as a sign that both parties agree to adhere to their responsibilities in the contract. Additionally, the instructor may want to include signature blocks for other staff members (e.g., a school administrator) and/or the student's parent(s).

Hints for Using Behavior Contracts

Behavior contracts can be useful when the student has behavioral problems in school locations other than the classroom (e.g., art room, cafeteria). Once a behavior contract has proven effective in the classroom, the instructor can meet with the student to extend the terms of the contract across multiple settings. Adults in these other school locations would then be responsible for rating the student's behaviors during the time that the student is with them.

For example, a goal may be stated in the contract that a student "will participate in class activities, raising his hand, and being recognized by the classroom or specials teacher before offering an answer or comment." Art, gym, or library instructors would then rate the student's behaviors in these out-of-class settings and share these ratings with the classroom teacher.

Troubleshooting: How to Deal With Common Problems in Using Behavior Contracts

Q: What do I do if I find that the behavior contract fails to work?

There may be several possible explanations why a behavior contract is ineffective:

Students may not be invested in abiding by the terms of the contract because they did not have a significant role in its creation. If this is the case, students should be consulted and their input should be incorporated into a revised contract.

The rewards that can be earned through the contract may not sufficiently motivate students to cause them to change their behavior. The teacher should review the list of rewards with students, note those rewards that students indicate they would find most appealing, and revise the reward list to include choices selected by the students.

Points and rewards may not be awarded frequently enough to motivate the student. Each person reacts in his or her own way to reward systems such as behavior contracts; some must have rewards delivered at a frequent rate in order for those rewards to have power sufficient to shape these students' behavior. The instructor can try altering the contract to increase the rate at which

points and rewards are given to see if these changes increase student motivation to follow the behavior contract. (NOTE: Once the behavior contract proves effective, the teacher can gradually cut back the rate of rewards to a level that is more easily managed.)

Q: How do I respond if the student starts to argue with me about the terms of the contract?

It is not unusual--especially when a behavior contract is first introduced--for the teacher and student to have honest disagreements about the interpretation of its terms. If this occurs, the teacher will probably want to have a conference with the student to clarify the contract's language and meaning. Occasionally, though, students may continue to argue with the instructor about alleged unfairness in how the teacher enforces the contract--even after the teacher has attempted to clarify the contract's terms. If the student becomes overly antagonistic, the teacher may simply decide to suspend the contract because it is not improving the student's behavior. Or the instructor may instead add a behavioral goal or penalty clause to the contract that the student will not argue with the teacher about the terms or enforcement of the contract.

Hints for Using Behavior Contracts

Effective Dates: From 10/20/99 to 12/20/99

Mrs. Jones, the teacher, will give Ricky a sticker to put on his 'Classroom Hero' chart each time he does one of the following:

- turns in completed homework assignment on time
- turns in morning seatwork assignments on time and completed
- works quietly through the morning seatwork period (from 9:30 to 10:00 a.m.) without needing to be approached or redirected by the teacher for being off-task or distracting others

When Ricky has collected 12 stickers from Mrs. Jones, he may choose one of the following rewards:

- 10 minutes of free time at the end of the day in the classroom
- 10 minutes of extra playground time (with Mr. Jenkins' class)
- choice of a prize from the 'Surprise Prize Box'

Bonus: If Ricky has a perfect week (5 days, Monday through Friday) by earning all 3 possible stickers each day, he will be able to draw one additional prize from the 'Surprise Prize Box'.

Penalty: If Ricky has to be approached by the teacher more than 5 times during a morning period because he is showing distracting behavior, he will lose a chance to earn a 'Classroom Hero' sticker the following day.

The student, Ricky, helped to create this agreement. He understands and agrees to the terms of this behavior contract.

Student Signature: _____

The teacher, Mrs. Jones, agrees to carry out her part of this agreement. Ricky will receive stickers when be fulfills his daily behavioral goals of completing homework and classwork, and will also be allowed to collect his reward when he has earned enough stickers for it. The teacher will also be sure that Ricky gets his bonus prize if he earns it..

Teacher Signature: _____

The parent(s) of Ricky agree to check over his homework assignments each evening to make sure that he completes them. They will also ask Ricky daily about his work completion and behavior at school. The parent(s) will provide Ricky with daily encouragement to achieve his behavior contract goals. In addition, the parent(s) will sign Ricky's 'Classroom Hero' chart each time that he brings it home with 12 stickers on it.

Parent Signature: _____

Response Effort

The amount of effort that a person must put forth to successfully complete a specific behavior has a direct impact on the frequency that the person will engage in that behavior. As the 'response effort' required to carry out a behavior increases, a person is generally less likely to show that behavior; conversely, as the response effort decreases, a person will be more likely to engage in that behavior. To use one example, a student will probably read more frequently if a book is stored in his or her school desk than if the child must walk to a different floor of the school building and get access to a locked cabinet whenever the student wants to read a book.

As a behavior-management tool, response effort seems like simple common sense: We engage less in behaviors that we find hard to accomplish. Teachers often forget, however, that response effort can be a useful part of a larger intervention plan. To put it simply, teachers can boost the chances that a student will take part in desired behaviors (e.g., completing homework or interacting appropriately with peers) by making these behaviors easy and convenient to take part in. However, if teachers want to reduce the frequency of a behavior (e.g., a child's running from the classroom), they can accomplish this by making the behavior more difficult to achieve (e.g., seating the child at the rear of the room, far from the classroom door).

Steps in Implementing This Intervention

The teacher selects either an undesirable behavior to decrease or a desirable behavior to increase. By varying response effort required to complete a behavior, the teacher can influence the frequency of a child's targeted behavior, making it likely to appear more often or less often. First, however, the teacher must select a behavioral target to increase or decrease.

(Optional) If necessary, the teacher breaks the behavioral target into more manageable sub-steps. Some school behavioral goals are global and consist of many sub-steps. For instance, a goal that "the student will complete all school assignments during seatwork time" could be further sub-divided into: (1) The student will organized her work materials prior to starting seatwork, (2) If she encounters a work item that she does not understand, the student will use independent problem-solving skills prior to approaching the teacher for help; and several other key sub-steps. Breaking larger behavior goals into smaller steps will make it easier for the teacher to decide how to manipulate the response effort required to carry out each sub-step.

The teacher chooses ways to alter the response effort required to complete each selected behavior or behavior sub-step. This final step is best demonstrated through examples:

Increasing response effort to reduce the rate of an undesirable behavior. Putting a physical barrier between a student and an activity, imposing a wait-time before a student can take part in an activity are examples of an increase in response effort.

Example: A teacher finds that one of her students sits down at a computer in her room whenever he can find an opportunity to use a spelling-word program that presents lessons in a game-like format. While the teacher is happy to see that the student enjoys using the academic software, she finds that his frequent use of the computer interferes with his completion of other important school

work. She has already broken down the student's behavior, "using the computer", into two sub-steps, "sitting down at the computer" and "starting the spelling software program". While observing the student, though, the teacher notes that the computer is left on in the classroom during the entire school day, making it very convenient for the student to use it at inappropriate times. The teacher decides to increase the response effort needed to use the computer by leaving it turned off when not in use. The student must now switch on the computer and wait for it to boot up before he can use it, a procedure that takes about 2 minutes. Several days later, the teacher notes that the student's rate of unauthorized computer use has dropped significantly because the 'effort' (increased wait-time) to use the computer has increased.

Reducing response effort to increase the rate of a desirable behavior. Putting instructional supplies within convenient reach and having an older peer help a child to organize study materials are examples of a decrease in response effort.
Example: The instructor wants to encourage children in his classroom to read more. After analyzing the current opportunities that children have for getting and reading books in school, the instructor realizes both that students do not have comfortable places to read in the classroom and that, with the current schedule they can get the the school library only once per week. The teacher creates a reading corner in his room, with an old but serviceable couch, reading lamps, and a shelf with paperback titles popular with his class. The teacher also arranges with the school's library media specialist to allow his students to drop by daily to check out books. By creating both a more comfortable reading location and easier access to books, the teacher is able to lower the threshold of effort needed to read. As a result, his students read more in the classroom.

Troubleshooting: How to Deal With Common Problems in Using Response Effort

Q: I like the concept of response effort as a behavior management approach, but I am not sure just how it would fit into my classroom routine. Is response effort only used alone or can it be combined with other intervention ideas?

Creative teachers will probably find many uses for response effort, both alone and in combination with other interventions. Here is one idea: A teacher might identify an activity that she wants to reduce (e.g., student playing with small toys stored in his desk). If the teacher already has a token/reward system in place for this student, she may forbid the student from playing with toys during the school day but allow the student to redeem a certain number of points or tokens to buy opportunities to play with his toys during free periods. By redefining the undesirable activity to the status of a reward that must be purchased, the teacher has increased the response effort needed for the student to access the activity. It is likely that the student's frequency of playing with toys will drop as a result.

'Defensive Behavior Management': Advance Planning, Connecting With the Student, and Defusing Crisis Situations

Description: 'Defensive behavior management' (Fields, 2004) is a teacher-friendly six-step approach to avert student-teacher power struggles that emphasizes providing proactive instructional support to the student, elimination of behavioral triggers in the classroom setting, relationship-building, strategic application of defusing techniques when needed, and use of a 'reconnection' conference after behavioral incidents to promote student reflection and positive behavior change.

Purpose: When students show non-compliant, defiant, and disruptive behaviors in the classroom, the situation can quickly spin out of control. In attempting to maintain authority, the teacher may instead fall into a power struggle with the student, often culminating in the student being removed from the classroom. The numerous negative consequences of chronic student misbehavior include classwide lost instructional time, the acting-out student's frequent exclusion from instruction, and significant teacher stress (Fields, 2004). Defensive management can prevent these negative outcomes.

Materials: No specialized materials are needed.

Preparation: Preparation steps are included in the intervention itself (see below).

Intervention Steps: Defensive behavior management is implemented through these steps:

1. Understanding the Problem and Using Proactive Strategies to Prevent It. The teacher collects information--through direct observation and perhaps other means--about specific instances of student problem behavior and the instructional components and other factors surrounding them. The teacher analyzes this information to discover specific 'trigger' events that seem to set off the problem behavior(s). Examples of potential triggers include lack of skills; failure to understand directions; fatigue because of work volume; reluctance to demonstrate limited academic skills in the presence of peers or adults; etc.).

   As the teacher identifies elements in the classroom environment that appear to trigger student non-compliance or defiance, the instructor adjusts instruction to provide appropriate student support to prevent behavioral episodes (e.g., providing the student with additional instruction in a skill; repeating directions and writing them on the board; 'chunking' larger work assignments into smaller segments; restructuring academic tasks to reduce the likelihood of student embarrassment in front of peers).

2. Promoting Positive Teacher-Student Interactions. Early in each class session, the teacher makes a point to engage in at least one positive verbal interaction with the student. Throughout the class period, the teacher continues to interact in positive ways with the student (e.g., brief conversation, smile, thumbs up, praise comment after a student remark in large-group discussion, etc.). In each interaction, the teacher adopts a genuinely accepting, polite, respectful tone.

3. Scanning for Warning Indicators. During the class session, the teacher monitors the target student's behavior for any behavioral indicators suggesting that the student is becoming frustrated or angry. Examples of behaviors that precede non-compliance or open defiance may include stopping work; muttering or complaining; becoming

argumentative; interrupting others; leaving his or her seat; throwing objects, etc.).

4. Exercising Emotional Restraint. Whenever the student begins to display problematic behaviors, the teacher makes an active effort to remain calm. To actively monitor his or her emotional state, the teacher tracks physiological cues such as increased muscle tension and heart rate, as well as fear, annoyance, anger, or other negative emotions. The teacher also adopts calming or relaxation strategies that work for him or her in the face of provocative student behavior--such as taking a deep breath or counting to 10 before responding.

5. Using Defusing Tactics. If the student begins to escalate to non-compliant, defiant, or confrontational behavior (e.g., arguing, threatening, other intentional verbal interruptions), the teacher draws from a range of possible deescalating strategies to defuse the situation. Such strategies can include private conversation with the student while maintaining a calm voice, open-ended questions, paraphrasing the student's concerns, acknowledging the student's emotions, etc.

6. Reconnecting with the Student. Soon after any in-class incident of student non-compliance, defiance, or confrontation, the teacher makes a point to meet with the student individually to discuss the behavioral incident, identify the triggers in the classroom environment that may have led to the problem, and brainstorm with the student to create a written plan to prevent the reoccurrence of such an incident. Throughout this conference, the teacher maintains a supportive, positive, polite, and respectful tone.

Adjusting/Troubleshooting: Here are recommendations for using defensive management as an intervention strategy and addressing issues that might arise:

Consider adopting defensive behavior management across classrooms. Particularly in middle and high schools, students who are chronically non-compliant or defiant often display those maladaptive behaviors across instructional settings. If all teachers who work with a challenging student use the defensive management approach, there is a greater likelihood that the student will find classrooms more predictable and supportive—and that teachers will experience greater success with that student.

Do not use defensive management to respond to physically aggressive behaviors or other serious safety concerns. While the defensive-management process can work quite effectively to prevent or minimize verbal outbursts and non-compliance, the teacher should not attempt on his or her own to manage serious physical aggression using this classroom-based approach. Instead, teachers should respond to any episodes of student physical aggression by immediately notifying building administration.

Reference

Fields, B. (2004). Breaking the cycle of office referrals and suspensions: Defensive management. *Educational Psychology in Practice, 20*, 103-115.

Intervention Integrity: Methods to Track the Quality with Which Interventions Are Carried Out

As schools implement academic and behavioral interventions, they strive to implement those interventions with consistency and quality in classrooms that are fluid and fast-evolving instructional environments. On the one hand, teachers must be prepared to improvise moment by moment to meet classroom needs that suddenly arise: for example, reordering their lesson plans on the fly to maintain student engagement, spending unanticipated extra time answering student questions, or responding to sudden behavior problems. On the other hand, it is a basic expectation that specific RTI interventions will be carefully planned and carried out as designed.

So how can a school ensure that interventions are implemented with consistency even in the midst of busy and rapidly shifting instructional settings? The answer is for the school to find efficient ways to track 'intervention integrity'. After all, if the school lacks basic information about whether an intervention was done right, it cannot have confidence in the outcome of that intervention. And uncertainty about the quality with which the intervention was conducted will prevent the school from distinguishing truly 'non-responding' students from cases in which the intervention did not work simply because it was done incorrectly or inconsistently.

There are three general sources of data that can provide direct or indirect information about intervention integrity: (1) work products and records generated during the intervention, (2) teacher self-reports and self-ratings, and (3) direct structured observation of the intervention as it is being carried out. Each of these approaches has potential strengths and drawbacks.

- *Work products and records generated during the intervention*. Often student work samples and other records generated naturally as part of the intervention can be collected to give some indication of intervention integrity (Gansle & Noell, 2007). If student work samples are generated during an intervention, for example, the teacher can collect these work samples and write onto them the date, start time, and end time of the intervention session. Additionally, the teacher can keep a simple intervention contact log to document basic information for each intervention session, including the names of students attending the session (if a group intervention); date; and start time and end time of the intervention session.

  An advantage of using work products and other records generated as a natural part of the intervention is that they are easy to collect. However, such work products and records typically yield only limited information on intervention integrity such as whether interventions occurred with the expected frequency or whether each intervention session met for the appropriate length of time. (The Intervention Contact Log is an example of a documentation tool that would track frequency, length of session, and group size for group interventions—although the form can also be adapted as well for individual students.)

- *Teacher self-reports and self-ratings.* As another source of data, the teacher or other educators responsible for the intervention can periodically complete formal or informal self-ratings to provide information about whether the intervention is being carried out with integrity. Teacher self-ratings can be done a variety of ways. For example, the instructor may be asked at the end of each intervention session to complete a brief rating scale (e.g., 0 = intervention did not occur; 4 = intervention was carried out completely and correctly). Or the teacher may periodically (e.g., weekly) be emailed an intervention integrity self-rating to complete.

  One advantage of teacher self-ratings is that they are easy to complete, a definite advantage in classrooms

where time is a very limited resources. A second advantage of self-ratings, as with any form of self-monitoring of behaviors is that they may prompt teachers to higher levels of intervention compliance (e.g., Kazdin, 1989). A limitation of teacher self-reports and self-ratings, though, is that they tend to be biased in a positive direction (Gansle & Noell, 2007), possibly resulting in an overly optimistic estimate of intervention integrity. (The attached *Intervention Contact Log* includes a teacher self-rating component to be completed after each intervention session.)

- *Direct observation of the intervention steps*. The most direct way to measure the integrity of any intervention is through observation. First, the intervention is divided into a series of discrete steps to create an observation checklist. An observer would then visit the classroom with checklist in hand to watch the intervention being implemented and to note whether each step of the intervention is completed correctly (Roach & Elliott, 2008).

  The direct observation of intervention integrity yields a single figure: 'percentage of intervention steps correctly completed'. To compute this figure, the observer (1) adds up the number of intervention steps correctly carried out during the observation, (2) divides that sum by the total number of steps in the intervention, and (3) multiplies the quotient by 100 to calculate the percentage of steps in the intervention that were done in an acceptable manner. For example, a teacher conducts a 5-step reading fluency intervention with a student. The observer notes that 4 of the 5 steps were done correctly and that one was omitted. The observer divides the number of correctly completed steps (4) by the total number of possible steps (5) to get a quotient of .80. The observer then multiples the quotient by 100 (.80 X 100), resulting in an intervention integrity figure of 80 percent.

  The advantage of directly observing the steps of an intervention is that it gives objective, first-hand information about the degree to which that intervention was carried out with integrity. However, this approach does have several drawbacks. The first possible hurdle is one of trust: Teachers and other intervention staff may believe that the observer who documents the quality of interventions will use the information to evaluate global job performance rather than simply to give feedback about the quality of a single intervention (Wright, 2007).

  A second drawback of direct observations tied to an intervention checklist is that this assessment approach typically assigns equal weight to all intervention steps—when in actual fact some steps may be relatively unimportant while others may be critical to the success of the intervention (Gansle & Noell, 2007). Schools can construct interventions more precisely at the design stage to improve the ability of intervention-integrity checklists to distinguish the relative importance of various intervention elements. When first developing a step-by-step intervention script, schools should review the research base to determine which of the steps comprising a particular intervention are essential and which could be considered optional or open to interpretation by the interventionist. The teacher would then clearly understand which intervention steps are 'negotiable' or 'non-negotiable' (Hawkins, Morrison, Musti-Rao, & Hawkins, 2008). Of course, the intervention integrity checklist would also distinguish between the critical and non-critical intervention elements.(The *attached Intervention Script Builder* is a form that guides schools to break an intervention down into its constituent steps and to identify specific steps as 'negotiable' or 'non-negotiable' The form also has an 'Intervention Check' column that an independent observer can use to observe an intervention and verify that each step is correctly carried out.)

As schools develop procedures to measure the quality with which interventions are implemented, the majority will probably come to rely on an efficient mix of different data sources to verify intervention integrity-- including products generated during interventions, teacher self-ratings, and direct observations. (Schools can use the attached form

Selecting Methods to Track Intervention Integrity to brainstorm various ways to collect intervention integrity data on a particular student.)

Let's consider an intervention integrity example: The integrity of a small-group time-drill math computation intervention (Rhymer et al., 2002) could be measured concurrently in several ways. The teacher might maintain an intervention contact log (*record generated during the intervention*) that documents group size as well as the frequency and length of intervention sessions. As a part of each contact log entry, the teacher may be asked to rate the degree to which she was able to implement the intervention that day (*teacher self-rating*). The teacher could also collect examples of student worksheets (*work products*): saving at least one computation-drill worksheet per student from each intervention session and recording on each worksheet the date, start time, and end time for the computation time drill. These work products would supply at least indirect evidence that the intervention was being administered according to research recommendations (Rhymer et al., 2002) for math time drills. And finally, an observer might drop into the class at least once per week (*direct observation*) to observe the math time drill intervention using a step-by-step integrity checklist customized for that intervention. Collectively, these various direct and indirect measures would assure the school that the intervention plan is being implemented with sufficient integrity to inspire confidence in the outcome.

References

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Intervention Script Builder

Student Name: _____ Grade: _____

Teacher/Team: _____ Intervention Start Date: _____/_____/____

Description of the Target Academic or Behavior Concern: _____

Intervention Check	Intervention Preparation Steps: Describe any preparation (creation or purchase of materials, staff training, etc.) required for this intervention.	Negotiable? (Hawkins et al., 2008)
This step took place Y__ N__	1. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	2. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	3. _____	❑ Negotiable Step ❑ Non-Negotiable Step
Intervention Check	Intervention Steps: Describe the steps of the intervention. Include enough detail so that the procedures are clear to all who must implement them.	Negotiable? (Hawkins et al., 2008)
This step took place Y__ N__	4. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	5. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	6. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	7. _____	❑ Negotiable Step ❑ Non-Negotiable Step
This step took place Y__ N__	8. _____	❑ Negotiable Step ❑ Non-Negotiable Step

Research Citation(s) / References: List the published source(s) that make this a 'scientifically based' intervention.

_____

Intervention Quality Check: How will data be collected to verify that this intervention is put into practice as it was designed? (Select at least one option.)

- ❑ Classroom Observation: Number of observations planned? _____

  Person responsible for observations?: _____

- ❑ Teacher Intervention Rating Log: How frequently will the teacher rate intervention follow-through?

  Daily___ Weekly ___

- ❑ Teacher Verbal Report: Who will check in with the teacher for a verbal report of how the

  intervention is progressing? _____

  Approximately when during the intervention period will this verbal 'check in' occur? _____

- ❑ Intervention Checklist: Select either the classroom teacher/team or an outside observer to use the completed *Intervention Script* Builder as a checklist to rate the quality of the intervention. Check the appropriate set of directions below:

  ___*Teacher Directions*: Make copies of this intervention script. Once per week, review the steps in the intervention script and note (Y/N) whether each step was *typically* followed. Then write any additional notes about the intervention in the blank below

  ___ *Independent Observer Directions*: Make copies of this intervention script. At several points during the intervention, make an appointment to observe the intervention in action. While observing the intervention, go through the steps in the intervention script and note (Y/N) whether each step was typically followed. Then write any additional notes about the intervention in the space below

  Intervention Observation Notes: _____

  _____

  _____

Reference
Hawkins, R. O., Morrison, J. Q., Musti-Rao, S., & Hawkins, J. A. (2008). Treatment integrity for academic interventions in real- world settings. *School Psychology Forum, 2*(3), 1-15.

Intervention Contact Log

Staff Member(s) Implementing Intervention: _____

Classroom/Location: _____ Intervention Description: _____

Students in Group: (Note: Supplemental intervention groups generally should be capped at 6-7 students.)

A. _____ D. _____ G. _____

B. _____ E. _____ H. _____

C. _____ F. _____ I. _____

AM AM
Date: _____ Time Start: ___ : ____ Time End: ___ : ____ Students Absent _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

AM AM
Date: _____ Time Start: ___ : ____ Time End: ___ : ____ Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

AM AM
Date: _____ Time Start: ___ : ____ Time End: ___ : ____ Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

AM AM
Date: _____ Time Start: ___ : ____ Time End: ___ : ____ Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

AM AM
Date: _____ Time Start: ___ : ____ Time End: ___ : ____ Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

AM AM
Date: _____ Time Start: ___ : ____ Time End: ___ : ____ Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

AM AM
Date: _____ Time Start: ___ : ____ Time End: ___ : ____ Students Absent: _____

To what degree were you able to carry out the intervention as designed? Comments: _____

1 2 3 | 4 5 6 | 7 8 9
Not at all | Somewhat | Fully

Selecting Methods to Track Intervention Integrity

Student Name: _____ Date: _____

Directions: Schools can use three general sources of data to obtain direct or indirect information about intervention integrity: (1) work products and records generated during the intervention, (2) teacher self-reports and self-ratings, and (3) direct classroom observation of the intervention as it is being carried out. Use this form to select an efficient combination of methods to measure the overall integrity with which an intervention is being implemented.

Work products and records generated during the intervention. Student work samples and other records such as intervention contact logs generated naturally as part of the intervention can be collected to give some indication of intervention integrity (Gansle & Noell, 2007). What work products or other intervention records can be collected to help to track the integrity of the intervention?

Type of Work Product/ Other Intervention Documentation	Person(s) Responsible	Frequency of Data Collection
_____	_____	_____
_____	_____	_____
_____	_____	_____

Teacher self-reports and self-ratings. The teacher or other educators responsible for the intervention can periodically complete formal or informal self-ratings to provide information whether the intervention is being carried out with integrity (Gansle & Noell, 2007).. Teacher self-ratings can be done a variety of ways. At the end of each intervention session, for example, the instructor may complete a brief rating scale (e.g., 0 = intervention did not occur; 4 = intervention was carried out completely and correctly). Or the teacher may periodically be emailed a short, open-ended intervention integrity questionnaire. What method(s) of teacher self-reports/self-ratings will be used to track the integrity of this intervention?

Type of Teacher Self-Report or Self-Rating	Person(s) Responsible	Frequency of Data Collection
_____	_____	_____
_____	_____	_____
_____	_____	_____

Direct observation of the intervention steps. The intervention is divided into a series of discrete steps to create an observation checklist. An observer then visits the classroom with checklist in hand to watch the intervention being implemented and to note whether each step of the intervention is completed correctly (Roach & Elliott, 2008). The direct observation of intervention integrity yields a single figure: 'percentage of intervention steps correctly completed'. To compute this figure, the observer (1) adds up the number of intervention steps correctly carried out during the observation, (2) divides that sum by the total number of steps in the intervention, and (3) multiplies the quotient by 100 to calculate the percentage of steps in the intervention that were done in an acceptable manner.

Who will be responsible for creating an intervention-integrity checklist containing the essential steps of the intervention?	Who will use the intervention-integrity checklist to conduct observations of the intervention?	How often or on what dates will classroom observations of the intervention be conducted?
_____	_____	_____

Gansle, K. A., & Noell, G. H. (2007). The fundamental role of intervention implementation in assessing response to intervention. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Response to intervention: The science and practice of assessment and intervention* (pp. 244-251). New York: Springer Publishing.

Roach, A. T., & Elliott, S. N. (2008). Best practices in facilitating and evaluating intervention integrity. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.195-208).