

## Menu of Interventions:

# Academics



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# What's the Difference?

## Accommodations vs. Modifications vs. Interventions

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### Accommodations

**Level** the “playing field”

Without changing the curriculum content and without reducing learning/assessment expectations, accommodations are changes made to the student’s learning environment so that s/he is able to access the curriculum based on his/her individual needs.

- Accommodations make it possible for students to be successful AT BENCHMARK.

Some examples include:

- Providing extra time for a student to complete the same test/assignments as his/her peers
- Reading a test to a student
- Providing preferential seating

### Modifications

**Create** the “playing field”

Modifications involve changing instruction and/or assessment, which alters, lowers, or reduces learning/assessment expectations.

- Modifications designate a DIFFERENTIATED BENCHMARK.

Some examples include:

- Reducing the number of problems/assignments that a student must complete
- Using a different grading scale for a student
- Providing a student with film or video supplements in place of reading text

### Interventions

**Ensure** the “playing field”

Interventions are specific skill-building strategies that are implemented and monitored in order for students to learn a new skill, increase fluency in a skill, or generalize an existing skill. They include assessment, planning, and monitoring progress.

- As additions to the curriculum, interventions are designed to help students MAKE PROGRESS TOWARDS BENCHMARKS.

Some examples include:

- Providing an evidence-based one-on-one intervention to improve a student’s reading comprehension for 30 minutes twice per week.
- Working with a small group of students three times per week to increase their accuracy in completing math computation problems.
- Implementing a study skills intervention with a small group of students in order for them to learn study skills they may not have, but that are needed for them to succeed academically.

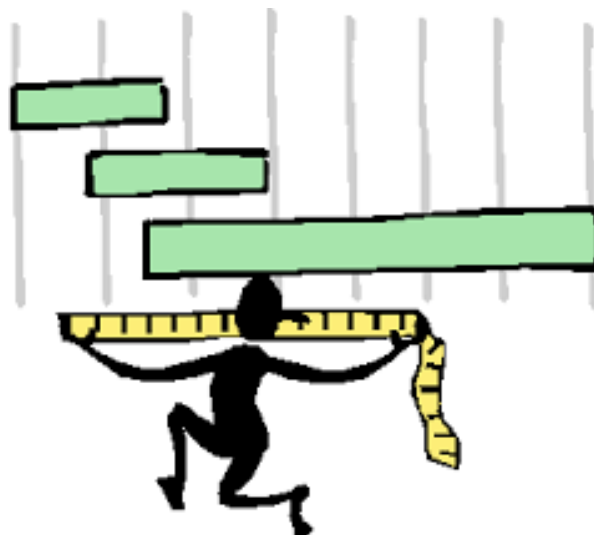
# Academic Interventions

In order for students to learn new skills, increase fluency in certain skills, and generalize existing skills, interventions are needed in addition to any necessary accommodations and modifications. Therefore, this guide provides a “menu” of evidence-based academic interventions in reading fluency, reading comprehension, writing, math fluency and computation, math problem solving, and science/social studies.

**The academic interventions provided were obtained from the following electronic and printed sources:**

- [www.interventioncentral.org](http://www.interventioncentral.org)
- Rathvon, N. (2008). *Effective school interventions, second edition*. New York: The Guilford Press.
- Wendling, B. J., & Mather, N. (2009). *Essentials of evidence-based academic interventions*. Hoboken, NJ: John Wiley & Sons.

Also, it is important to note that interventions should not only be implemented, but **progress needs to be monitored** to assess whether the intervention is effective. So be sure to collect baseline data prior to intervention implementation, and collect data throughout intervention implementation. Additional resources on progress monitoring are found in the Additional Resources section (p. 60).



An illustration of two stacks of books. The stack on the left is taller, with books in shades of pink, orange, green, yellow, cyan, light blue, red, and purple. The stack on the right is shorter, with books in shades of purple, orange, green, and white. The books are drawn with simple outlines and flat colors.

Interventions for  
**Reading Fluency**

# Error Correction & Word Drill Techniques

## Word Supply:

- 1) Before the student begins to read, tell the student, "If you come to a word that you do not know, I will help you with it. I will tell you the correct word while you listen and point to the word in the book. After that, I want you to repeat the word and continue reading. Try your best not to make mistakes."
- 2) When the student commits a reading error (e.g., substitution, omission, 5-second hesitation), immediately pronounce the correct word for the student, have the student repeat the word correctly, and then direct the student to continue reading. NOTE: To avoid too many reading interruptions, do not correct minor student errors (e.g., misreading or omitting the or a, dropping suffixes such as -s, -ed, or -ing)

(Singh, 1990)

## Sentence Repeat:

- 1) At the start of the reading session, say to the student, "If you come to a word that you do not know, I will help you with it. I will tell you the correct word while you listen and point to the word in the book. After that, I want you to repeat the word and then read the rest of the sentence. Then I want you to read the sentence again. Try your best not to make mistakes."
- 2) When the student commits a reading error (e.g., substitution, omission, 5-second hesitation), immediately pronounce the correct word for the student and have the student repeat the word correctly. Then direct the student to reread the entire sentence in which the error occurred. The student then continues reading the passage. (If the student repeats the original reading error when rereading the sentence, you should again pronounce the word correctly and have the student repeat the word. Then continue on.) NOTE: To avoid too many reading interruptions, do not correct minor student errors (e.g., misreading or omitting the or a, dropping suffixes such as -s, -ed, or -ing)

(Singh, 1990)

## 'Word Attack' Hierarchy:

In this approach, the instructor prompts the student to apply a hierarchy of word-attack skills whenever the student misreads a word. The instructor gives these cues in descending order. If the student correctly identifies the word after any cue, the instructor stops delivering cues at that point and directs the student to continue reading. NOTE: To avoid too many reading interruptions, do not correct minor student errors (e.g., misreading or omitting the or a, dropping suffixes such as -s, -ed, or -ing).

Here are the 'Word Attack' Hierarchy instructor cues:

- 1) "Try another way." This cue is given directly after a reading error and alerts the student to the fact that she or she has misread the word.
- 2) "Finish the sentence and guess the word." The student is encouraged to make use of the sentence context to discover the correct word pronunciation.
- 3) "Break the word into parts and pronounce each one." The student is directed to sound out the segments of a word independently.

- 4) Using an index card, the tutor covers over parts of the word and each the student to sound out only the part of the word that is visible. This approach teaches the student a method for reducing the amount of visual information in each word.
- 5) "What sound does ' \_\_\_ ' make?" As the tutor covers selected parts of the word with an index card, the student is directed to use phonics information to sound out the word.
- 6) "The word is \_\_\_." If the student cannot decode the word despite instructor support, the instructor supplies the word. The student is directed to repeat the word and to continue reading.

(Haring et al., 1978)

## Error Word Drill:

Helps build reading vocabulary!

When the student misreads a word during a reading session, write down the error word and date in a separate "Error Word Log".

- 1) 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.)
- 2) 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.)
- 3) 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.
- 4) 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.

(Jenkins & Larson, 1979)

## References

- Haring, N. G., Lovitt, T. C., Eaton, M. D., & Hansen, C. L. (1978). *The fourth R: Research in the classroom*. Columbus, OH: Charles E. Merrill Publishing.
- Jenkins, J. & Larsen, D. (1979). Evaluation of error-correction procedures for oral reading. *Journal of Special Education*, 13, 145-156.
- Singh, N. N. (1990). Effects of two error-correction procedures on oral reading errors: Word supply versus sentence repeat. *Behavior Modification*, 14, 188-199.

Obtained from: <http://www.interventioncentral.org/academic-interventions/reading-fluency/error-correction-word-drill-techniques>



# Listening Passage Preview

The student follows along silently as an accomplished reader reads a passage aloud. Then the student reads the passage aloud, receiving corrective feedback as needed.

## Materials:

- Reading book

## Preparation:

- The individual working with the student should be trained in advance to use this approach.

## Steps for Implementation:

- 1) Sit with the student in a quiet location without too many distractions. Position the book selected for the reading session so that both you and the student can easily follow the text. (Or get two copies of the book so that you each have your own copy.)
- 2) Say to the student, "Now we are going to read together. Each time, I will read first, while you follow along silently in the book. Then you read the same part out loud."
- 3) Read aloud from the book for about 2 minutes while the student reads silently. If you are working with a younger or less-skilled reader, you may want to track your progress across the page with your index finger to help the student to keep up with you.
- 4) Stop reading and say to the student, "Now it is your turn to read. If you come to a word that you do not know, I will help you with it." Have the student read aloud. If the student commits a reading error or hesitates for longer than 3-5 seconds, tell the student the correct word and have the student continue reading.
- 5) Repeat steps 3 and 4 until you have finished the selected passage or story.

## References

- Rose, T. L., & Sherry, L. (1984). Relative effects of two previewing procedures on LD adolescents' oral reading performance. *Learning Disabilities Quarterly*, 7, 39-44.
- Van Bon, W. H. J., Bokseveld, L. M., Font Freide, T. A. M., & Van den Hurk, J. M. (1991). A comparison of three methods of reading-while-listening. *Journal of Learning Disabilities*, 24, 471-476.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-fluency/listening-passage-preview>

# Paired Reading

The student reads aloud along with an accomplished reader. At a student signal, the helping reader stops reading, while the student continues on. When the student commits a reading error, the helping reader resumes reading along with the student.

## Materials:

- Reading book

## Preparation:

- The individual working with the student should be trained in advance to use this approach.

## Steps for Implementation:

- 1) Sit with the student in a quiet location without too many distractions. Position the book selected for the reading session so that both you and the student can easily follow the text.
- 2) Say 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."
- 3) Begin reading aloud with the student. If the student misreads a word, point to the word and pronounce it. Then have the student repeat the word. When the student reads the word correctly, resume reading through the passage.
- 4) When the student delivers the appropriate signal (a hand tap), stop reading aloud and instead follow along silently as the student continues with oral reading. Be sure occasionally to praise the student in specific terms for good reading (e.g., "That was a hard word. You did a nice job sounding it out!").
- 5) If, while reading alone, the student either commits a reading error or hesitates for longer than 5 seconds, point to the error-word and pronounce it. Then tell the student to say the word. When the student pronounces the error-word correctly, begin reading aloud again in unison with the student.
- 6) Continue reading aloud with the student until he or she again signals to read alone.

**Note:** Paired reading is a highly structured but simple strategy that can easily be taught to others. If you have a number of responsible older students available you may want to create a cross-age peer tutoring program that uses paired reading as its central intervention. Or train parents to use this simple reading strategy when reading with their children at home.

## References

- Topping, K. (1987). Paired reading: A powerful technique for parent use. *Reading Teacher*, 40, 608-614.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-fluency/paired-reading>

# Reading Practice

In this very simple but effective intervention, the student reads aloud while an accomplished reader follows along silently. If the student commits a reading error, the helping reader corrects the student error.

## Materials:

- Reading book

## Preparation:

- The individual working with the student should be trained in advance to use this approach.

## Steps for Implementation:

- 1) Sit with the student in a quiet location without too many distractions. Position the book selected for the reading session so that both you and the student can easily follow the text. (Or get two copies of the book so that you each have your own copy.)
- 2) Instruct the student to begin reading out loud. Encourage him or her to "do your best reading."
- 3) Follow along silently in the text as the student reads.
- 4) If the student mispronounces a word or hesitates for longer than 5 seconds, tell the student the word. Have the student repeat the word correctly. Direct the student to continue reading aloud through the passage.
- 5) Occasionally, praise the student in specific terms for good reading (e.g., "You are doing a really great job of sounding out the words that you don't know. Good work!").

**Note:** Since assisted reading is an easy method to learn, you can train parents to read with their children on a regular basis using assisted reading practice.

## References

- Shany, M. T. & Biemiller, A. (1995). Assisted reading practice: Effects on performance for poor readers in grades 3 and 4. *Reading Research Quarterly*, 30, 382-395.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-fluency/reading-practice>

# Repeated Reading

The student reads through a passage repeatedly, silently or aloud, and receives help with reading errors.

## Materials:

- Reading book
- Stop watch (if readings are to be timed)

## Preparation:

- The individual working with the student should be trained in advance to use this approach.

## Steps for Implementation:

- 1) Sit with the student in a quiet location with few distractions. Position the book selected for the reading session so that both you and the student can easily follow the text.
- 2) Select a passage in the book of about 100 to 200 words in length.
- 3) Have the student read the passage through. (Unless you have a preference, the student should be offered the choice of reading the passage aloud or silently.)
- 4) If the student is reading aloud and misreads a word or hesitates for longer than 5 seconds, read the word aloud and have the student repeat the word correctly before continuing through the passage. If the student asks for help with any word, read the word aloud. If the student requests a word definition, give the definition.
- 5) When the student has completed the passage, have him/her read the passage again. You can choose to have the student read the passage repeatedly until either s/he has read the passage a total of 4 times (Rashotte & Torgesen, 1985) or the student reads the passage at the rate of at least 85 to 100 words per minute (Dowhower, 1987; Herman, 1985).

## Note: If you find that the student is beginning to lose interest in repeated reading, consider:

- Providing specific praise to the student for good reading.
- Allowing the student to choose high-interest books or articles to use.
- Using a stop-watch to monitor the student's reading rate during each repeated reading, and charting the results on a graph.

## References

- Dowhower, S. L. (1987). Effects of repeated reading on second-grade transitional readers' fluency and comprehension. *Reading Research Quarterly*, 22, 389-406.
- Herman, P. A. (1985). The effects of repeated readings on reading rate, speech pauses, and word recognition accuracy. *Reading Research Quarterly*, 20, 553-565.
- Rashotte, C. A. & Torgesen, J. K. (1985). Repeated reading and reading fluency in learning disabled children. *Reading Research Quarterly*, 20, 180-188.
- Rasinski, T. V. (1990). Effects of repeated reading and listening-while-reading on reading fluency. *Journal of Educational Research*, 83(3), 147-150.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-fluency/repeated-reading>

# Choral Reading or Neurological Impress Method

The neurological impress method (Heckelman, 1969, 1986) is a method for choral reading. In this method, you read aloud together with a student for 10 to 15 minutes daily. Reading aloud with the student can help him/her to practice phrasing and improve oral reading prosody.

## Materials:

- Reading book

## Preparation:

- The individual working with the student should be trained in advance to use this approach.

## Steps for Implementation:

- 1) Select a high-interest book or content-area textbook from the classroom.
- 2) Sit next to the student and read aloud as you point to the words with your index finger.
- 3) Read at a slightly faster pace than the student and encourage him/her to try and keep up with you.
- 4) When necessary, remind the student to keep his/her eyes on the words.

## Note: Utilization of Taped Books and Technology

- The student can also listen to audio books while reading along in the book, which can allow the student to use an alternative but similar method on their own.

## References

- Heckelman, R. G. (1969). A neurological-impress method of remedial-reading instruction. *Academic Therapy, 4*, 277-282.
- Heckelman, R. G. (1986). N.I.M. revisited. *Academic Therapy, 21*, 411-420.

Obtained from:

Wendling, B. J., & Mather, N. (2009). *Essentials of evidence-based academic interventions*. Hoboken, NJ: John Wiley & Sons.



Interventions for  
**Reading Comprehension**

# Advanced Story Map

Students are taught to use a basic 'Story Grammar' to map out, identify and analyze significant components of narrative text (e.g., fiction, biographies, historical accounts). Reserve at least a full instructional session to introduce this comprehension strategy.

## Materials

- Overhead transparencies of short stories or other narrative texts; transparency markers
- Student copies of Advanced Story Map Worksheet (see attachment on page 16)
- Practice narrative passages (optional) or reading/text books

## Preparation:

- Prepare overheads of sample narrative passages.

## Steps for Implementation:

- 1) Introduce the concept of a Story Grammar to students and preview main elements. Tell students that a Story Grammar can help them to better understand a story's characters and events.
- 2) Set aside at least four successive instructional days to introduce the major components of the Story Grammar: (A) Identifying important characters and their personalities and motivation, (B) Identifying main problem and significant plot developments, (C) Noting characters' attempts to solve problems, and (D) Identifying a narrative's overarching theme.  
\*Make sure the instruction of each story component is highly interactive, with clear teacher demonstration and use of examples. 'Think aloud' as you read through a story with the class to illustrate to students how you arrive at your conclusions. Elicit student discussion about the story. As you fill out sections of the Advanced Story Map Worksheet on the overhead, have students write responses on their own copies of the worksheet.
- 3) When students commit errors, direct them to the appropriate section of the narrative to reread it for the correct answer. Use guiding questions and modeling when necessary to help students to come up with an appropriate response.
- 4) After students have been introduced to the key Story Grammar elements, the group is now ready to use the Grammar to analyze a sample narrative passage. Have students read independently through a story. Pause at pre-determined points to ask the group key questions (e.g., "Who is the main character? What is she like?"). After discussion, encourage students to write their answers on the Advanced Story Map Worksheet while you fill out the same worksheet as an overhead. Give specific praise to students for appropriately identifying Story Grammar elements.
- 5) When students are able to use the Story Grammar independently, have them read through selected stories and complete the Advanced Story Map Worksheet on their own. Check students' responses and meet individually with those students requiring additional guidance and support.

### **Note: If students do not seem motivated to use the Story Grammar framework, consider:**

- Screening a video of a popular movie or television program. At key points, stop the tape, have students complete relevant sections of the Advanced Story Map Worksheet, and discuss the results. This exercise can be highly motivating and also makes clear to students that a Story Grammar is a universal tool that help us understand narratives presented in any medium.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-comprehension/advanced-story-map>

## Advanced Story Map Worksheet (Adapted from Gardill & Jitendra, 1999)

Student: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_

Story Name: \_\_\_\_\_

1. Who is the central character? \_\_\_\_\_
2. What is the main character like? (Describe his/her key qualities or personality traits).  
\_\_\_\_\_  
\_\_\_\_\_
3. Who is another important character in the story? \_\_\_\_\_
4. What is this other important character like? \_\_\_\_\_  
\_\_\_\_\_
5. Where and when does the story take place? \_\_\_\_\_  
\_\_\_\_\_
6. What is the major problem that the main character is faced with? \_\_\_\_\_  
\_\_\_\_\_
7. How does the main character attempt to solve this major problem? \_\_\_\_\_  
\_\_\_\_\_
8. What is the twist, surprise, or unexpected development that takes place in the story?  
\_\_\_\_\_  
\_\_\_\_\_
9. How is the problem solved or not solved?  
\_\_\_\_\_  
\_\_\_\_\_
10. What is the theme or lesson of the story?  
\_\_\_\_\_  
\_\_\_\_\_



# Ask-Read-Tell: Cognitive Strategy

One way to help students develop the skills needed to effectively monitor their comprehension of assigned passages is to teach them a cognitive strategy: ART: Ask-Read-Tell (McCallum et al., 2010). Whenever the student is assigned a challenging passage, s/he is trained to apply a 3-step ART sequence, which maps to the pre-reading/reading/post-reading timeline:

1. **ASK:** Before reading the text, the student looks over the title of the passage, asks what the topic is likely to be, considers what he or she already knows about that topic, and generates 2 questions that the student hopes to answer through reading.
2. **READ:** While reading, the student stops after each paragraph to query whether he or she has adequately understood that section of the passage and, if necessary, applies comprehension fix-up skills.
3. **TELL:** After reading, the student attempts to answer the 2 questions posed earlier based on the content just read. Finally, the student meets with a peer partner, and participants tell each other what questions and answers they produced.

## Materials

- Student copies of the ASK-READ-TELL (ART) Worksheet (see attachment on page 18)
- Practice narrative passages (optional) or reading/text books

## Preparation:

- Select a challenging reading passage to be the focus of the ART comprehension strategy.
- Provide each student with a copy of the ART Worksheet.

## Procedures:

This intervention is student-directed. A full explanation of the ART steps can be found on the ART Student Worksheet. When using the ASK-READ-TELL strategy, the teacher:

1. Hands out the reading passage.
2. Directs students to read the passage independently (either in-class or as a take-home assignment).
3. Instructs students to complete the pre-reading, reading, and post-reading sections of the ART Student Worksheet as part of the reading assignment.
4. Pairs students off after the assignment to compare the questions and answers that each generated from the assigned passage.

## References

- McCallum, R. S., Krohn, K. R., Skinner, C. H., Hilton-Prillhart, A., Hopkins, M. Waller, S., & Polite, F. (2010). Improving reading comprehension of at-risk high-school students: The art of reading program. *Psychology in the Schools*, 48(1), 78-86.

Obtained from:

[http://www.interventioncentral.org/sites/default/files/pdfs/pdfs\\_blog/cognitive\\_strategy\\_reading\\_comprehension\\_ART\\_1.pdf](http://www.interventioncentral.org/sites/default/files/pdfs/pdfs_blog/cognitive_strategy_reading_comprehension_ART_1.pdf)



### ASK-READ-TELL (ART): Student Worksheet (McCallum et al., 2010)

Name: \_\_\_\_\_ Passage/Page Numbers: \_\_\_\_\_ Date: \_\_\_\_\_

**Directions:** Use the checklist below to guide your reading of this passage. Check off each step when completed.

#### Step 1: Goal Before Reading: I look at the title of the passage and ASK myself these questions:

- What is the **main topic** of the passage? What does it discuss?
- What **information** do I **already know** about this topic?

Based on the title, what are **two** questions about this passage's topic that I would like to have answered in my reading?:

1. \_\_\_\_\_ ?
2. \_\_\_\_\_ ?

#### Step 2: Goal While Reading: I READ the passage carefully for full understanding:

- While reading, I stop after each paragraph to ask, "Did I **understand** what I just read?"
- If I **do** understand the paragraph, I mark it with a plus sign (+) and continue reading.  
If I **do not** understand the paragraph, I mark it with a minus (-) sign and:
  - reread the paragraph;
  - slow my reading;
  - focus my *full* attention on what I am reading;
  - underline any words that I do not know and try to figure them out from the reading (context).

#### Step 3: Goal After Reading: I TELL what I learned from the passage:

- Based on my reading, here are answers to my **two** questions from Step 1:

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

- When I meet with my peer partner, we **TELL** each other **what we learned** from the passage, sharing our questions and answers. Then we talk about any other interesting information from the reading.

# Main-Idea Maps

This simple strategy teaches students to create a graphic organizer containing the main ideas of an expository passage. Reserve at least a full instructional session to introduce this comprehension strategy.

## Materials:

- Overhead transparencies of practice expository passages, transparency markers
- Student copies of practice expository passages (optional) or reading/textbooks
- Main Idea Graphic Organizer Sheet (see attachment on page 20)

## Preparation:

- Prepare overheads of sample passages

## Steps for Implementation:

- 1) Introduce the strategy by telling students that we can draw pictures, or Main Idea Maps, that help us to understand how the ideas of a multi-paragraph passage fit together. Present these three steps for mapping out the main ideas of an expository:
  1. Locating the Main Ideas of Paragraphs.
    - Read through a short (2-6 paragraph) practice expository passage with students. On a blank overhead transparency or chart paper, begin building a graphic organizer by writing the title of the passage in the center. Draw a box around the title. (If the passage has no title, query the class and make up a suitable title based on their suggestions.) Tell students that some paragraphs have summary sentences that state the main idea or "gist" of the paragraph or passage. Other paragraphs have implied main ideas, which the reader must figure out, based on key facts or ideas that they contain. Go through each paragraph in the practice passage and identify the paragraph's main idea. Demonstrate how to summarize that main idea as a single, succinct phrase.
  2. Building the Main Idea Graphic Organizer.
    - As you summarize each paragraph's main idea, write the number of the paragraph and main-idea summary phrase on the graphic organizer.
  3. Adding Key Facts.
    - When you have written the main idea for all of the paragraphs onto the graphic organizer, return to the passage. For each paragraph, pull out 2-3 important facts, ideas, or supporting details. On the graphic organizer, write these key pieces of additional information under the main-idea phrase for that paragraph. Then draw a box around the main-idea and supporting details and move on to the next paragraph.
- 2) Demonstrate how the completed Main Idea Graphic Organizer can be a useful method to summarize and review the content of expository passages. Give students new practice passages and have them create their own graphic organizers. Provide feedback and encouragement as needed.

## References

- Berkowitz, S. J. (1986). Effects of instruction in text organization on sixth-grade students' memory for expository reading. *Reading Research Quarterly*, 21, 161-178.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-comprehension/main-idea-maps>

## Main Idea Graphic Organizer (adapted from Berkowitz, 1986)

The diagram is a graphic organizer with a central box labeled "Title:" containing two horizontal lines. Six other boxes, labeled "Main Idea 1:" through "Main Idea 6:", are arranged around the central box. Each main idea box contains a horizontal line at the top and three bullet points below. Lines connect the bottom corners of the main idea boxes to the central title box: Main Idea 1 and 2 connect to the top corners, Main Idea 3 and 6 connect to the left and right sides, and Main Idea 4 and 5 connect to the bottom corners.

**Main Idea 1:**  
\_\_\_\_\_  
•  
•  
•

**Main Idea 2:**  
\_\_\_\_\_  
•  
•  
•

**Main Idea 3:**  
\_\_\_\_\_  
•  
•  
•

**Main Idea 4:**  
\_\_\_\_\_  
•  
•  
•

**Main Idea 5:**  
\_\_\_\_\_  
•  
•  
•

**Main Idea 6:**  
\_\_\_\_\_  
•  
•  
•

**Title:**  
\_\_\_\_\_  
\_\_\_\_\_

# Mental Imagery: Improving Text Recall

By constructing "mental pictures" of what they are reading and closely studying text illustrations, students increase their reading comprehension. Reserve at least a full instructional session to introduce this comprehension strategy.

## Materials:

- Overhead transparencies of sample passages taken from expository or narrative texts, transparency markers
- Student copies of practice expository or narrative passages (optional) or reading/textbooks

## Preparation:

- Prepare overheads of sample expository or narrative passages.

## Steps for Implementation:

- 1) Tell students that they can remember more of what they read by making pictures in their mind of what they are reading, and carefully studying pictures or illustrations that appear in their reading or text books.
- 2) Using a "think-aloud" approach, read through a short sample narrative or expository passage. Pause at several points to tell the class what "mental pictures" come to your mind as you read; ask students to describe their own mental imagery as they react to the same passage. As you come across pictures or illustrations in the passage, study them and reflect aloud on what clues they give you about the passage's meaning.
- 3) Read aloud from additional passages. Stop at key points in the passage and call on students to relate their mental imagery evoked by the passage or to give their interpretation of the significance of illustrations or pictures.
- 4) When students are able to use mental imagery independently, use a prompt at the start of reading assignments to cue them to use the strategy. For example: "Now we are going to read about what life is like in a country village in Zimbabwe. Remember to make pictures in your head about what you are reading and study the pictures carefully."

**Note:** As your students become better at using mental imagery and text illustrations to comprehend their reading, prompt them to engage in critical discussions about the strengths or drawbacks of a particular book, chapter, or article. How clearly does the author write? Is it easy or difficult to form mental pictures of the passage's content, and why? How would they grade the author on the quality and clarity of his or her illustrations?

## References

- Gambrell, L. B. & Bales, R. B. (1986). Mental imagery and the comprehension-monitoring performance of fourth- and fifth-grade poor readers. *Reading Research Quarterly*, 21, 454-464.
- Gambrell, L. B. & Jawitz, P. B. (1993). Mental imagery, text illustrations, and children's story comprehension and recall. *Reading Research Quarterly*, 23, 265-273.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-comprehension/mental-imagery-improving-text-recall>

# Question-Generation

Students are taught to boost their comprehension of expository passages by: (1) Locating the main idea or key ideas in the passage, and (2) Generating questions based on that information.

## Materials:

- Overhead transparencies of practice reading passages, transparency markers
- Student copies of practice reading passages (optional) or reading/text books

## Preparation:

- Prepare overheads of sample passages.

## Steps for Implementation:

### 1) Introduce this strategy to the class:

- **Locating Explicit Main Idea.** Tell students that some passages have summary sentences that state the main idea or "gist" of the paragraph or passage. Using examples of passages with explicit main ideas, train students to identify and underline main-idea sentences.
- **Finding Key Facts.** In some passages, the main idea is implied rather than explicitly stated. Readers must first identify the key facts or ideas of the passage before they can summarize the passage's main idea. Using examples of passages with implied main ideas, locate and circle key facts or ideas. Describe to students how you distinguished this central information from less important details. Have students practice this skill on additional practice passages.
- **Writing a "Gist" Sentence.** Show students a passage with an implied main idea. Circle all key ideas or facts. Demonstrate how to write a "gist" sentence (one that is built from the identified key ideas and summarizes the paragraph's main idea). Emphasize that the reader may have link information from different sections of the passage to build a gist sentence. Have students practice this skill on additional practice passages.
- **Generating Questions.** Tell students that careful readers often construct questions about what they are reading to help them learn. Put up a list of 'signal words' that can be used as question-starters: e.g., who, what, where, when, why, how. Using sample passages, show students how to convert explicit main-idea sentences or reader-created "gist" sentences into questions. Point out that these questions can be a good study tool because they are linked to answers that the student has already located in the passage.

### 2) Give students selected practice passages and instruct them to apply the full question-generation strategy. Provide feedback and encouragement as needed.

## References

- Davey, B., & McBride, S. (1986). Effects of question-generation training on reading comprehension. *Journal of Educational Psychology, 78*, 256-262.
- Rosenshine, B., Meister, C., & Chapman, S. (1996). Teaching students to generate questions: A review of the intervention studies. *Review of Educational Research, 66*, 181-221.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-comprehension/question-generation>

# Repeated Reading and Oral/Written Retell

Readers can increase their comprehension of informational text by making a conscious effort to recall details. Teachers can combine repeated reading and oral or written retell as a way to increase student recall of text details (Schisler, Joseph, Konrad, & Alber-Morgan, 2010).

## Materials:

- Tutor and student copies of an informational passage of at least 200 words.
- Stopwatch
- Lined paper (for written-retell procedure)

## Steps for Implementation:

1. Give the student a copy of the passage and say, "Read this passage aloud. Do your best reading. If you come to a word you don't know, try your best to read it. I will help you if needed. Begin reading."
2. While the student reads the passage aloud, follow along silently. Whenever the student misreads a word or hesitates for at least 3 seconds, use the phrase-drill error correction technique: (1) Point to the error word, (2) read that word aloud correctly, and (3) read the entire sentence containing the error word. Then prompt the student to read the full sentence with the error word 3 times before continuing on in the passage.
3. When the student completes the first reading of the passage, say, "Read this passage aloud again. Like before, do your best reading. If you come to a word you don't know, do your best to read it. I will help you if needed. Begin reading." Again follow along silently and again uses the phrase-drill error correction technique for any misread words or hesitations of 3 seconds or longer.
4. When the student has read the passage twice, direct the student to use either the oral or written retell method as described below:

**Oral retell:** Start the timer and tell the student, "Tell me about the passage you just read. Tell me everything you remember. You will have 3 minutes--I will tell you when the time is up. Begin." At the end of the 3 minutes, tell the student to stop. If the student pauses during the 3 minutes, say, "Tell me more about what you read", and repeat this prompt as needed until either the student has no more details to share or the 3-minute period ends.

**Written retell:** Give the student a lined sheet of paper and a pen or pencil. Start the timer and tell the student, "Write about the passage you just read. Write down everything you remember. You will have 3 minutes--I will tell you when the time is up. Begin." At the end of the 3 minutes, tell the student to stop. If the student pauses during the 3 minutes, say, "Write more about what you read", and repeat this prompt as needed until either the student has no more details to share or the 3-minute period ends. Collect the sheet of paper.

## References

- Schisler, R., Joseph, L. M., Konrad, M., & Alber-Morgan, S. (2010). Comparison of the effectiveness and efficiency of oral and written retellings and passage review as strategies for comprehending text. *Psychology in the Schools*, 47(2) 135-152.

# Text Lookback

## Materials

- Overhead transparencies of short (100-200 word) passages from expository text and teacher-prepared text and lookback/think questions, transparency markers
- Student copies of expository text passages and text-lookback/think questions

## Preparation:

- Create at least 3 lookback questions and one think question for each expository text passage selected

## Steps for Implementation:

- 1) **Introduce the text-lookback strategy** by telling students, *"People cannot always remember everything that they read. However, if we read an article or book chapter, and are asked a 'fact' question about it that we cannot answer, we can always look back in the article to find the information that we need."*
- 2) **Describe for the class the difference between lookback and think questions.** An example of an explanation that you might use is: *"When we are asked questions about an article, sometimes the answer can be found directly in the article and sometimes it cannot be found directly. Lookback questions are those that tell us that the answer can be found right in the article. For example, if a question uses phrases such as 'in the article' or 'in the author's words,' these phrases would be clues that the question is a lookup question and that we can find the answer in the article. Think questions are those that ask you to give your own opinion, beliefs, or ideas. Our answers to these questions are based on our own ideas or thoughts about the topic. For example, if a question uses phrases such as 'in your opinion' or 'what do you think,' these phrases would be clues that the question is a think question and that the answer cannot be found in the article."*
- 3) **Read aloud through the sample expository passage.** Then read the series of 4 text-lookback/think questions to the class. As you read each question, highlight for students the word clues that indicate whether the question is a think or text-lookback question.
- 4) Tell students that they must reread carefully to find the answer to a text-lookback question. **However, they 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, the student should: (1) Read the text-lookback question carefully and underline 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, and (3) Look at the beginning and end sentences in individual paragraphs to see if that paragraph might contain the desired information.
- 5) **"Thinking aloud," demonstrate for students how to skim** the example article to locate efficiently the answer to each text-lookback question.
- 6) **Present additional example articles with text-lookback questions and monitor student mastery of the technique.** Assign students to use the strategy independently when, under your supervision, they can distinguish reliably between think and text-lookback questions and are able to find the answers to text-lookback questions in the text.

## References

- Garner, R., Hare, V.C., Alexander, P., Haynes, J., & Vinograd, P. (1984). Inducing use of a text lookback strategy among unsuccessful readers. *American Educational Research Journal*, 21, 789-798.

Obtained from: <http://interventioncentral.org/academic-interventions/reading-comprehension/text-lookback>





**Interventions for  
Writing**

# Cover-Copy-Compare: Spelling or Sight Words

This intervention promotes the acquisition of spelling or sight words. The student is given a sheet containing words to practice. The student studies each word on the sheet, covers the word briefly and copies it from memory, then compares the student-copied word to the original correct model (Joseph et al., 2011; Skinner, McLaughlin & Logan, 1997).

## Materials:

- Cover-Copy-Compare Worksheet (attached on page 27)
- Cover-Copy-Compare Log (attached on page 28)

## Steps for Implementation:

- 1) **Create a Cover-Copy-Compare wordlist.** The teacher selects up to 10 spelling or sight words for the student to practice during the session and writes those words as correct models into the left column of the Cover-Copy-Compare Worksheet. The teacher then pre-folds the sheet using as a guide the vertical dashed line ('fold line') dividing the left side of the student worksheet.
- 2) Have the student follow these self-directed steps for each word:
  - Study the spelling or sight word (model) that appears in the left column of the sheet.
  - **Cover.** Fold the left side of the page over at the pre-folded vertical crease to hide the original word.
  - **Copy** the word from memory, writing it in the first response blank under the 'Student Response' section of the Cover-Copy-Compare worksheet.
  - **Compare.** Uncover the original correct model and compare it to the student response. If the student has written the spelling/sight word CORRECTLY, the student moves to the next item on the list and repeats these procedures. If the student has written the spelling/sight word INCORRECTLY, the student draws a line through the incorrect response and repeats the process again for that word.
  - Continue until all words on the sheet have been copied and checked against the correct models.
- 3) Log the words mastered by the student. Formulate an objective standard for judging that the student using Cover-Copy-Compare has 'mastered' a particular spelling or sight word (e.g., when the student is able to copy a word from memory without error on three successive occasions). You can then apply this standard for mastery to identify and log items mastered in each session, using the Cover-Copy-Compare log sheet.

## References

- Joseph, L. M., Konrad, M., Cates, G., Vajcner, T., Eveleigh, E., & Fishley, K. M. (2011). A meta-analytic review of the cover-copy-compare and variations of this self-management procedure. *Psychology in the Schools*, 49(2), 122-136.
- Skinner, C. H., McLaughlin, T. F., & Logan, P. (1997). Cover, copy, and compare: A self-managed academic intervention effective across skills, students, and settings. *Journal of Behavioral Education*, 7, 295-306.

Obtained from: <http://interventioncentral.org/academic-interventions/writing/how-master-spelling-or-sight-words-cover-copy-compare>



**Worksheet: Cover-Copy-Compare** Student:

Date:

Spelling Words/Sight Words/Math Facts	Student Response
1.	1a.
	1b.
2.	2a.
	2b.
3.	3a.
	3b.
4.	4a.
	4b.
5.	5a.
	5b.
6.	6a.
	6b.
7.	7a.
	7b.
8.	8a.
	8b.
9.	9a.
	9b.
10.	10a.
	10b.

Fold Line



### Cover-Copy-Compare Log: Mastered Items

Student: \_\_\_\_\_ School Yr: \_\_\_\_\_ Classroom/Course: \_\_\_\_\_

Type of CCC Worksheet: \_\_\_ Math Facts \_\_\_ Spelling Words \_\_\_ Sight Words

List Name/Description: \_\_\_\_\_

**Cumulative Mastery Log:** During the intervention, log each mastered item below with date of mastery.

Item 01:	Date:	Item 11:	Date:
Item 02:	Date:	Item 12:	Date:
Item 03:	Date:	Item 13:	Date:
Item 04:	Date:	Item 14:	Date:
Item 05:	Date:	Item 15:	Date:
Item 06:	Date:	Item 16:	Date:
Item 07:	Date:	Item 17:	Date:
Item 08:	Date:	Item 18:	Date:
Item 09:	Date:	Item 19:	Date:
Item 10:	Date:	Item 20:	Date:

# Sentence Combining: Teaching Sentence Structure by Doing

In this approach, students are presented with sentences and given explicit instruction in how to weld these 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.

To demonstrate an example of sentence combining, a student may generate these two sentences in his/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.* You 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.

**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.

**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.

**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.

## Steps for Implementation:

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.

1. When first introducing sentence-combining to the class, explain that using varied sentence structures helps writers to better convey meaning. Tell your students that there are often multiple correct ways to combine sentences.
2. Complete several sentence-combining examples in front of the group, using a think-aloud approach to show his/her thinking process in successfully combining sentences.
3. Students should then complete sentence-combining examples in pairs or groups, while you circulate through the class to check for student understanding.
4. 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.

Here is a list of types and examples of sentence-combining (Saddler, 2005; Strong, 1986). When creating lessons on sentence combining, you should review the potential types of sentence-combining below and decide the order in which those types might be presented to your class.

Type of Sentence	Sentence Combining Example
<p><b>Multiple (Compound) Sentence Subjects or Objects:</b> 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).</p>	<ul style="list-style-type: none"> <li>• <b>Base Clause:</b> Skyscrapers in the city were damaged in the hurricane.</li> <li>• <b>Sentence to Be Embedded:</b> <u>Bridges</u> in the city were damaged in the hurricane.</li> <li>• <b>Solution:</b> Skyscrapers and bridges in the city were damaged in the hurricane.</li> <li>• <b>Base Clause:</b> When they travel, migratory birds need safe habitat.</li> <li>• <b>Sentence to Be Embedded:</b> When they travel, migratory birds need <u>regular supplies of food</u>.</li> <li>• <b>Solution:</b> When they travel, migratory birds need safe habitat and regular</li> </ul>
<p><b>Adjectives &amp; Adverbs:</b> 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.</p>	<ul style="list-style-type: none"> <li>• <b>Base Clause:</b> Dry regions are at risk for chronic water shortages.</li> <li>• <b>Sentence to Be Embedded:</b> Overpopulated regions are at risk for chronic water shortages.</li> <li>• <b>Solution:</b> Dry and overpopulated regions are at risk for chronic water shortages.</li> <li>• <b>Base Clause:</b> Health care costs have risen nationwide.</li> <li>• <b>Sentence to Be Embedded:</b> Those health care costs have also risen <u>quickly</u>.</li> <li>• <b>Solution:</b> Health care costs have risen quickly nationwide.</li> </ul>
<p><b>Connecting Words:</b> 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</p>	<ul style="list-style-type: none"> <li>• <b>Base Clause:</b> The house was falling apart.</li> <li>• <b>Sentence to Be Combined:</b> No one seemed to care. (but)</li> <li>• <b>Solution:</b> The house was falling apart, but no one seemed to care.</li> <li>• <b>Base Clause:</b> The glaciers began to melt.</li> <li>• <b>Sentence to Be Combined:</b> The earth's average temperature increased. (because)</li> </ul>

Type of Sentence	Sentence Combining Example
<p>sentences with one of the sentences subordinate or dependent on the other.</p> <p><b>Relative Clauses: Sentence contains an embedded, subordinate clause that modifies a noun.</b> Sentence contains an embedded, subordinate clause that modifies a noun.</p> <p><b>Appositives:</b> 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.</p> <p><b>Possessive Nouns:</b> A sentence that describes possession or ownership can be reduced to a possessive noun and embedded in another sentence.</p>	<ul style="list-style-type: none"> <li>• <b>Solution:</b> The glaciers began to melt because the earth's average temperature increased.</li> <li>• <b>Base Clause:</b> The artist was the most popular in the city.</li> <li>• <b>Sentence to Be Combined:</b> The artist painted watercolors of sunsets. (who)</li> <li>• <b>Solution:</b> The artist who painted watercolors of sunsets was the most popular in the city.</li> </ul> <ul style="list-style-type: none"> <li>• <b>Base Clause:</b> The explorer paddled the kayak across the raging river.</li> <li>• <b>Sentence to Be Embedded:</b> The explorer <u>was an expert in handling boats.</u></li> <li>• <b>Solution:</b> The explorer, an expert in handling boats, paddled the kayak across the raging river.</li> </ul> <ul style="list-style-type: none"> <li>• <b>Base Clause:</b> Some historians view the Louisiana Purchase as the most important expansion of United States territory.</li> <li>• <b>Sentence to Be Embedded:</b> The Louisiana Purchase was <u>President Jefferson's achievement.</u></li> <li>• <b>Solution:</b> Some historians view President Jefferson's Louisiana Purchase as the most important expansion of United States territory.</li> </ul>

## References

- Graham, S., & Perin, D. (2007). *Writing next: Effective strategies to improve writing of adolescents in middle and high schools-A report to Carnegie Corporation of New York.* Washington, DC Alliance for Excellent Education.
- Robinson, L. K., & Howell, K. W. (2008). Best practices in curriculum-based evaluation & written expression. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology* (p. 439-452). Bethesda, MD: National Association of School Psychologists.
- Saddler, B. (2005). Sentence combining: A sentence-level writing intervention. *The Reading Teacher*, 58, 468-471.
- Strong, W. (1986). *Creative approaches to sentence combining.* Urbana, OL: ERIC Clearinghouse on Reading and Communication Skill & National Council of Teachers of English.

Obtained from: <http://interventioncentral.org/academic-interventions/writing/sentence-combining-teaching-rules-sentence-structure-doing>

# Writing Power: Cognitive Strategy Instruction in Expository Writing

Students will learn five writing sub-processes (Plan, Organize, Write, Edit/Editor, Review/Revise) with the support of “think sheets” linked to each process. “Think sheets” can be individualized depending on the target writing text structure, students’ level of writing skills, and your preference.

## Materials:

- Overhead projector and transparencies of four passages
- Transparencies and printed copies of the six “think sheets”:
  - **Plan think sheet** (“For whom am I writing?”, “Why am I writing this?”, brainstorm background knowledge; example on p. 34)
  - **Organize think sheet** (having a text structure map or set of questions related to the target text structure. For example: an explanation think sheet would list questions such as “What is being explained?”, “What materials/things do I need?”, “What is the setting?”, and “What are the steps?”)
  - **Write think sheet** (lined sheets of paper for translating ideas from the Plan and Organize think sheets into a first draft)
  - **Edit think sheet** (listing questions such as, “What do I like best?”, “Why?”, “What parts are not clear?”, “Why not?”, “What do I need to add?”, and “What questions do I have for my editor?”)
  - **Editor think sheet** (with a list of instructions parallel to the questions on the think sheet, such as: “read your classmate’s paper,” “star the parts you like best,” “place question marks by places that are not clear,” and “list your suggestions about what needs to be added”)
  - **Revise think sheet** (sheet of lined paper for listing the suggestions made by the author and reader during the editing step)
- Posterboard displaying the acronym POWER (Plan, Organize, Write, Edit/Editor, Revise)

## Steps for Implementation:

### Text Analysis, Modeling, & Guided Practice:

1. Explain to the students that they will be learning a set of strategies for planning and writing. Explain that they will have the opportunity to practice the strategies in pairs so that they can give and receive feedback from their classmates.
2. Display the chart and tell the students that they can remember the strategies by using the acronym “POWER,” which stands for the five parts in the writing process: plan, organize, write, edit/editor, and revise.
3. Using the overhead projector, display a transparency of a mock example of the first target text structure while you lead a think-aloud discussion of the features of the text structure (e.g., key words such as “first” and “second” that indicate the location of steps), and the quality of the writing sample (e.g., did the writer address, “What is being explained?”, “Who or what materials are involved?”, “Where does it take place?”, and “What are the steps?”).
4. Using the overhead projector and transparency, introduce the Plan Think Sheet. Explain to students that it will help them remember ideas from their own knowledge and experiences, consider strategies related to identifying their audience and purpose for writing, and develop a plan for grouping their ideas into categories. Stress that all of the think sheets are just note-taking tools to help them record their ideas for later reference.



5. Invite students to discuss about the writing process as you use the Plan Think Sheet to construct a class paper on a topic related to the target text structure. As instruction proceeds, have students assume increasing responsibility for self-questions and planning strategies, while you act as scribe to record their ideas on the Plan Think Sheet and guide students' strategy use.
6. Introduce the other think sheets in a similar way by modeling and thinking aloud while performing the writing process. E.g., demonstrate how the Organize Think Sheet can help students organize their ideas into text structure categories and use the target text structure as a map to plan their compositions.

#### Collaborative and Independent Practice:

7. **Planning:** Have students create plans for their papers and complete the Plan Think Sheet.
8. **Organizing:** Have students complete a pattern guide, or graphic organizer, to help them organize their ideas (Organize Think Sheet). There are a number of pattern guides to choose from including:
  - Story: includes the key story elements of Who?, When?, Where?, What happened?, and How did it end?
  - Compare/contrast: includes information about the topics being compared, the characteristics on which the topics are compared, and how the topics are alike and different
  - Explanation: includes the steps for completing a process
  - Problem/solution: identifies the problem, explains the cause of the problem, and states the solution
9. **Writing:** Have the students complete a first draft. Depending on the needs of the students, you may demonstrate how to use the information from the planning and organizing stages to complete the draft. The "think aloud" technique is helpful in this stage to verbalize your thought process. To provide support for initial writing, have students work in groups or pairs until they are ready to write on their own.
10. **Editing:** Students self-evaluate and peer edit in this stage.
  1. Self-evaluation: students reread and evaluate their drafts, starring sections of the assignment that they like best and putting question marks in the margins by the unclear parts. The students then think of two questions to ask peer editors.
  2. Peer editing: the writer reads his draft to the peer editor, who listens and summarizes the assignment. Suggestions are then shared with the writer, and together they brainstorm ways to improve the assignment. Editing guides and scoring rubrics are helpful.
11. **Revising:** During the final stage, students incorporate changes and improvements as they rewrite their assignments.

### **References**

- Englert, C. S., Raphael, T. E., Anderson, L. M., Anthony, H. M., & Stevens, D. D. (1991). Making writing strategies and self-talk visible: Writing instruction in regular and special education classrooms. *American Educational Research Journal*, 28, 337-372.
- Raphael, T. E., & Englert, C. S. (1990). Writing and reading: Partners in constructing meaning. *Reading Teacher*, 43, 388-400.

Obtained from:

Rathvon, N. (2008). *Effective school interventions, second edition*. New York: The Guilford Press.

# Plan Think Sheet

Author's Name \_\_\_\_\_ Date \_\_\_\_\_

Topic: \_\_\_\_\_

**WHO:** Who am I writing for?

**WHY:** Why am I writing this?

**WHAT:** What do I already know about my topic? (Brainstorm)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**HOW:** How do I group my ideas?

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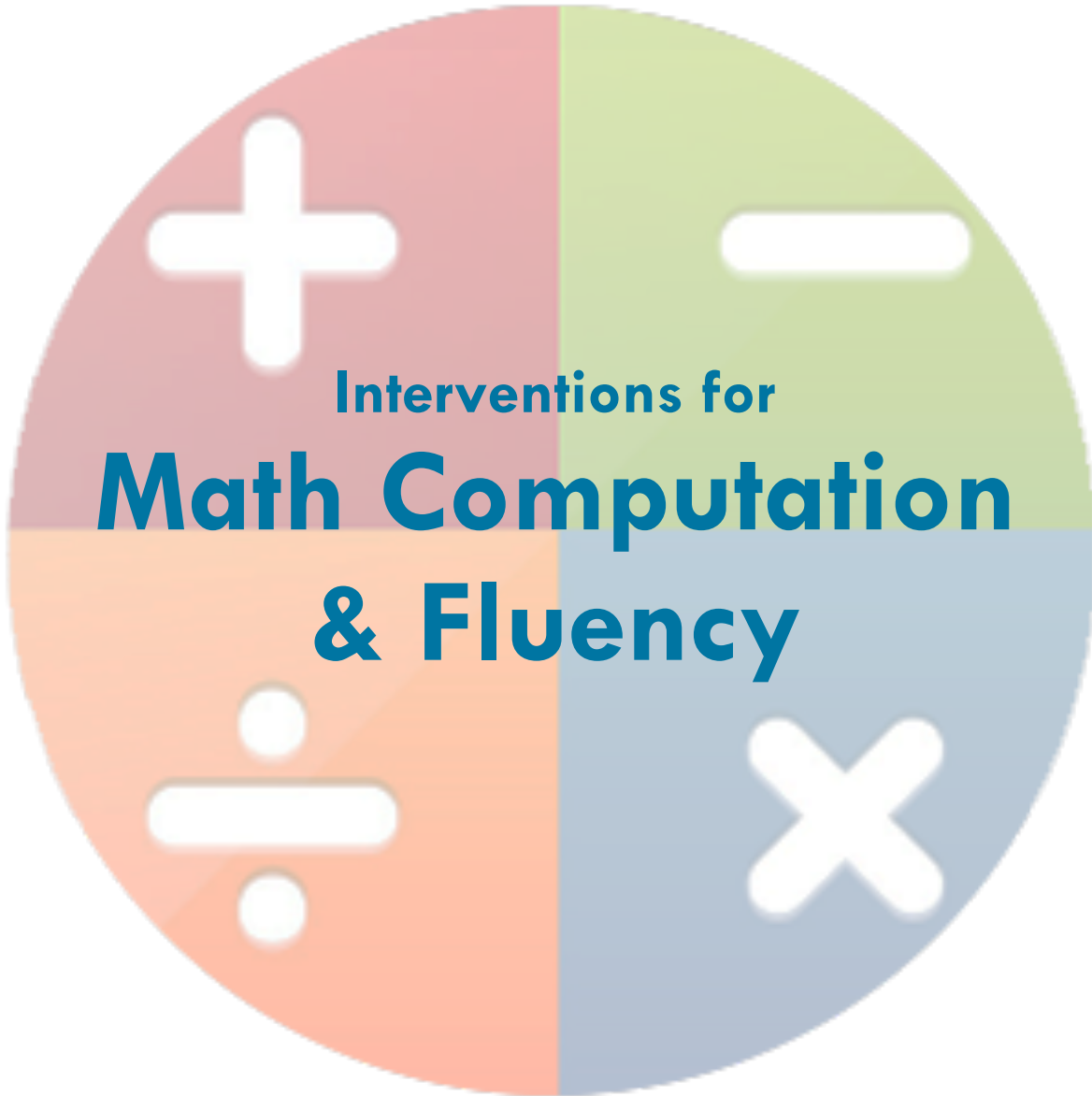
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# Master Math Facts: Cover-Copy-Compare

This intervention promotes the acquisition of math facts. The student is given a sheet containing math facts to practice. The student studies each math fact with answer that appears on the sheet, covers the fact briefly and copies it from memory, then compares the student-copied math fact and answer to the original correct model (Joseph et al., 2011; Skinner, McLaughlin & Logan, 1997).

## Materials:

- Cover-Copy-Compare Worksheet (p. 27 horizontal, pg. 36 vertical)
- Cover-Copy-Compare Log (p. 28)

## Steps for Implementation:

- 1) Create a Cover-Copy-Compare math fact sheet. Select up to 10 math facts for the student to practice during the session and writes those facts (including number sentence and answer) as correct models into the left column of the Cover-Copy-Compare Worksheet. Then pre-fold the sheet using as a guide the vertical dashed line ('fold line') dividing the left side of the student worksheet.
- 2) Have the student follow these self-directed steps for each math fact:
  - Study the correctly completed math fact (model) that appears in the left column of the sheet.
  - **Cover.** Fold the left side of the page over at the pre-folded vertical crease to hide the original math fact.
  - **Copy** from memory the math fact and answer, writing it in the first response blank under the 'Student Response' section of the Cover-Copy-Compare worksheet.
  - **Compare.** Uncover the original correct model and compare it to the student response. If the student has written the math fact and answer CORRECTLY, the student moves to the next item on the list and repeats these procedures. If the student has written the math fact INCORRECTLY, the student draws a line through the incorrect response, then repeats the same procedure with that same math fact.
  - Continue until all math facts on the sheet have been copied and checked against the correct models.
- 3) Log the items mastered by the student. Formulate an objective standard for judging that the student using Cover-Copy-Compare has 'mastered' a particular math fact (e.g., when the student is able to copy that fact with answer from memory without error on three successive occasions). You can then apply this standard for mastery to identify and log items mastered in each session, using the Cover-Copy-Compare Log Sheet.

## References

- Joseph, L. M., Konrad, M., Cates, G., Vajcner, T., Eveleigh, E., & Fishley, K. M. (2011). A meta-analytic review of the cover-copy-compare and variations of this self-management procedure. *Psychology in the Schools*, 49(2), 122-136.
- Skinner, C. H., McLaughlin, T. F., & Logan, P. (1997). Cover, copy, and compare: A self-managed academic intervention effective across skills, students, and settings. *Journal of Behavioral Education*, 7, 295-306.

Obtained from: <http://interventioncentral.org/academic-interventions/math-facts/how-master-math-facts-cover-copy-compare>



**Worksheet: Cover-Copy-Compare** Student: \_\_\_\_\_

Date: \_\_\_\_\_

Math Facts	Student Response	
1.	1a.	1b.
2.	2a.	2b.
3.	3a.	3b.
4.	4a.	4b.
5.	5a.	5b.

f.0

# Self-Administered Folding-In Technique: Math Facts

The folding-in intervention (math-fact SAFI: Hulac, Dejong, & Benson, 2012) trains students to take charge of their own intervention to acquire and develop fluency in math-facts. Using flash cards, the student reviews math-facts with immediate performance feedback, engages in repeated practice to correct errors, and records on a running log those math-facts that have been mastered.

## Preparation:

Create or obtain the following materials:

- **Math-fact flash cards.** The entire collection of math-facts to be mastered are written onto flash-cards. One fact is written on each card, with the math-fact appearing on the front and the correct answer appearing on the back. For example, multiplication math-facts for 0 through 10 would require 121 flash cards to cover all possible number combinations for this fact-set. Tip: Students can be given a master set of math-facts with answers (e.g., on the blackboard or on a handout) and directed to create their own math-fact cards.
- **Math-Facts SAFI: Student Checklist** (p. 39). The student receives a copy of this checklist containing the essential steps of the self-administered intervention. The teacher can use this same checklist to observe the student and evaluate the integrity of the math-fact SAFI.
- **Dry-erase board, markers, and eraser.** The student uses the dry-erase board to record all answers in the session.
- **Student Log: Mastered Math-facts** (p. 40). This recording-form is used by the student to log any math-facts mastered during the intervention.

Meet with the student to:

- **Inventory those math-facts the student already knows.** Review all math-fact cards with the student. Show each card to the student for 3 seconds. If the student responds correctly to the math-fact, sort that card into the "known" stack. If the student answers incorrectly or hesitates for 3 seconds or longer, sort the card into the "unknown" stack. Then put rubber bands around the "known" and "unknown" stacks for student use as outlined below.
- **Train the student in the steps of the math-fact SAFI.** Using the intervention materials and Math-Facts SAFI: Student Checklist, train the student to implement the intervention.

## Steps for Implementation:

*(To teach and give to the student to follow)*

1. Start with the daily stack of cards from the last session. Or create a new "daily stack" by taking 7 cards from your weekly "known" stack and 3 cards from your weekly "unknown" stack and shuffling them.
2. Take the first card from the top of the daily stack and place it flat on the table.
3. Read the math-fact on the card and write the answer on the dry-erase board within 3 seconds.

4. Turn the card over and compare the answer that you wrote to the answer on the card.
5. If your answer is correct, sort that card into a "daily known" pile. If your answer is incorrect, sort that card into a "daily unknown" pile--then practice by writing the math-fact and correct answer on your dry-erase board three times in a row.
6. Continue until you have answered all 10 daily cards. Then look at the daily "known" and "unknown" card stacks. If all daily cards are in the "known" stack, draw a star in the bottom left corner of your dry-erase board.
7. Shuffle the 10 cards in the daily card deck.
8. Continue reviewing all 10 cards in the daily deck as explained in steps 2-7 until you have drawn three stars in the bottom left corner of the dry-erase board. (In other words, continue until you have answered all 10 cards without error in a single run-through and have accomplished this feat a total of three times in the session.)
9. When you have earned 3 stars, consider the entire daily stack to be "known" cards. So it's now time to update the daily deck.
10. Take any 3 cards from your current daily 10-card deck and transfer them to the weekly "known" deck. Then, on the Student Log: Mastered Math-facts form, record the math-facts and current date for the 3 cards that you transfer. Congratulations! These now count as mastered math-facts!
11. Next, take 3 cards from the weekly "unknown" stack and add them to your current daily deck to bring it back up to 10 cards.
12. Begin reviewing the daily stack again (as outlined in steps 2-7) until your time runs out.
13. Before ending the session, place rubber-bands around the weekly "known" and "unknown" decks and the daily stack that you are currently working on. Also, be sure that your *Student Log: Mastered Math-facts* form is up-to-date.

## References

- Hulac, D. M., Dejong, K., & Benson, N. (2012). Can students run their own interventions?: A self-administered math fluency intervention. *Psychology in the Schools, 49*, 526-538.

Obtained from: <http://www.interventioncentral.org/node/965168>



Math-Facts SAFI: Student Checklist (Hulac, Dejong, & Benson, 2012).	
Carried Out?	Intervention Step
__Y __N	1. Start with the daily stack of cards from the last session. Or create a new "daily stack" by taking 7 cards from your weekly "known" stack and 3 cards from your weekly "unknown" stack and shuffling them.
__Y __N	2. Take the first card from the top of the daily stack and place it flat on the table.
__Y __N	3. Read the math-fact on the card and write the answer on the dry-erase board <b>within 3 seconds</b> .
__Y __N	4. Turn the card over and compare the answer that you wrote to the answer on the card.
__Y __N	5. If your answer is correct, sort that card into a "daily known" pile. If your answer is incorrect, sort that card into a "daily unknown" pile--then practice by writing the math-fact and correct answer on your dry-erase board <b>three times in a row</b> .
__Y __N	6. Continue until you have answered all 10 daily cards. Then look at the daily "known" and "unknown" card stacks. If all daily cards are in the "known" stack, draw a star in the bottom left corner of your dry-erase board.
__Y __N	7. Shuffle the 10 cards in the daily card deck.
__Y __N	8. Continue reviewing all 10 cards in the daily deck as explained in steps 2-7 until you have drawn three stars in the bottom left corner of the dry-erase board. (In other words, continue until you have answered all 10 cards without error in a single run-through and have accomplished this feat a total of three times in the session.)
__Y __N	9. When you have earned 3 stars, consider the entire daily stack to be "known" cards. So it's now time to update the daily deck.
__Y __N	10. Take any 3 cards from your current daily 10-card deck and transfer them to the weekly "known" deck. Then, on the <i>Student Log: Mastered Math-facts</i> form, record the math-facts and current date for the 3 cards that you transfer. Congratulations! These now count as mastered math-facts!
__Y __N	11. Next, take 3 cards from the weekly "unknown" stack and add them to your current daily deck to bring it back up to 10 cards.
__Y __N	12. Begin reviewing the daily stack again (as outlined in steps 2-7) until your time runs out.
__Y __N	13. Before ending the session, place rubber-bands around the weekly "known" and "unknown" decks and the daily stack that you are currently working on. Also, be sure that your <i>Student Log: Mastered Math-facts</i> form is up-to-date.





### Student Log: Mastered Math-facts

Student: \_\_\_\_\_ School Yr: \_\_\_\_\_ Classroom/Course: \_\_\_\_\_

**Directions to the Student:** Record any math-facts that you are transferring to the 'known' weekly stack.

Item 1: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 2: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 3: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 4: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 5: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 6: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 7: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 8: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 9: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 10: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 11: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 12: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 13: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 14: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 15: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 16: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 17: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 18: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 19: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 20: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 21: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 22: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 23: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 24: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 25: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 26: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 27: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 28: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 29: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 30: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 31: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 32: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 33: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 34: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 35: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 36: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 37: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 38: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 39: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 40: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 41: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 42: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 43: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 44: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 45: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 46: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 47: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Item 48: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

# Increase Accuracy by Intermixing Easy and Challenging Computation 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

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

## Steps for Implementation:

- 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).
- The teacher next identifies an 'easy' problem-type that the students can complete very quickly (e.g., adding or subtracting two 1-digit numbers).
- The teacher then creates a series of student math computation worksheets with 'easy' computation problems interspersed at a fixed rate among the 'challenging' problems.
- 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).

**Note:** You can create your own worksheets with a mix of easy and challenging computational problems through this online Math Worksheet Generator:

<http://www.interventioncentral.org/tools/math-worksheet-generator>

## References

1. Hawkins, J., Skinner, C. H., & Oliver, R. (2005). The effects of task demands and additive interspersal ratios on fifth-grade students' mathematics accuracy. *School Psychology Review*, 34, 543-555.

Obtained from: <http://interventioncentral.org/academic-interventions/math-facts/math-computation-increase-accuracy-intermixing-easy-and-challengin>

# Math Computation: Student Self-Monitoring of Productivity to Increase Fluency

The student monitors and records his/her work production on math computation worksheets during timed-drills—with a goal of improving overall fluency (Maag, Reid, R., & DiGangi, 1993). This intervention can be used with a single student, a small group, or an entire class.

## Materials:

1. Student self-monitoring audio prompt: Tape/audio file with random tones or timer
2. Math computation worksheets containing problems targeted for increased fluency
3. *Student Speed Check!* recording form (p. 44)

## Preparation:

1. Decide on the length of session and frequency of the student's self-monitoring intervention. NOTE: One good rule of thumb is to set aside at least 10 minutes per day for this or other interventions to promote fluent student retrieval of math facts (Gersten et al., 2009). For example: *Mrs. Rilke, a 3rd-grade teacher, decides that her student, Jeremiah, will monitor his productivity on math computation worksheets on a daily basis for 10 minutes per session.*
2. Choose one or more problem types (target skill) that are to appear in intervention worksheets. For example, *Mrs. Rilke decides to target two math computation problem-types for Jeremiah: Addition—double-digit plus double-digit with regrouping and Subtraction—double-digit plus double-digit with no regrouping.*
3. When you have chosen the problem types, create sufficient equivalent worksheets (with the same number of problems and the same mix of problem-types) to be used across the intervention days. Each worksheet should have enough problems to keep the student busy for the length of time set aside for a self-monitoring intervention session. For example: *when designing a worksheet, Mrs. Rilke decides to include 15 problems per sheet for her 3rd grade student, to keep Jeremiah busy for the 10 minute daily intervention period. The teacher then creates and prints off 25 equivalent math worksheets for use across all intervention days (5 days per week for five instructional weeks).*
4. This timed-drill intervention relies on student self-monitoring triggered by audio prompts. Therefore, the teacher must decide on a fixed number of audio prompts the student is to receive per session. NOTE: On the attached *Student Speed Check!* form, space is provided for the student to record productivity for up to five audio prompts per session. *In our example, Mrs. Rilke selects five audio prompts per session.*
5. Next, you must decide on how to generate the audio prompts (tones) that drive this intervention. There are two possible choices:
  1. You can develop a tape or audio file that has several random tones spread across the time-span of the intervention session, with the number of tones equaling the fixed number of audio prompts selected for the intervention (see previous step). For example, you may develop a 10-minute tape with five tones randomly sounding at 2 minutes, 3 minutes, 5 minutes, 7 minutes, and 10 minutes.
  2. You may use a timer. During the intervention period, set the timer to a randomly selected number of minutes. When the timer expires and chimes as a student audio

prompt, the reset the timer to another random number of minutes and repeats this process until the intervention period is over. Of course, you must ensure that the student receives the same fixed number of audio prompts (e.g., 5) across each intervention session and that all audio prompts are delivered by the conclusion of the timed intervention session. Before each intervention session, you may want to preselect several random time intervals. For example, on a given day, if you want to include five timer prompts in a 10 minute intervention session, you may decide to ring the timer at 2 minutes, 3 minutes, 5 minutes, 7 minutes, and 10 minutes. This sequence would then be changed for the next session.

6. Meet with the student to train him/her in the steps of the intervention.

## Steps for Implementation:

1. **[Student] Set a Session Computation Goal.** The student looks up the total number of problems completed on his/her most recent timed worksheet and writes that figure into the 'Score to Beat' section of the current day's *Student Speed Check!* form.
2. **[Teacher] Set the Timer or Start the Tape.** Direct the student to begin working on the worksheet and either start the tape with tones spaced at random intervals or set a kitchen timer. If using a timer, randomly set the timer to a specific number of minutes. When the timer expires and chimes as a student audio prompt, the reset the timer to another random number of minutes and repeat this process until the intervention period is over.
3. **[Student] At Each Tone, Record Problems Completed.** Whenever the student hears an audio prompt or at the conclusion of the timed intervention period, the student pauses to:
  1. Circle the problem that s/he is currently working on
  2. Count up the number of problems completed since the previous tone (or in the case of the first tone, the number of problems completed since starting the worksheet)
  3. Record the number of completed problems next to the appropriate tone interval on the *Student Speed Check!* form.
4. **[Teacher] Announce the End of the Time-Drill Period.** The teacher announces that the time-drill period is over and that the student should stop working on the worksheet.
5. **[Student] Tally Day's Performance.** The student adds up the problems completed at the tone-intervals to give a productivity total for the day. The student then compares the current day's figure to that of the previous day to see if he or she was able to beat the previous score. If YES, the student receives praise from the teacher; if NO, the student receives encouragement from the teacher.

## References

- Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). *Assisting students struggling with mathematics: Response to Intervention (RTI) for elementary and middle schools* (NCEE 2009-4060). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from <http://ies.ed.gov/ncee/wwc/publications/practiceguides/>
- Maag, J. W., Reid, R., & DiGangi, S. A. (1993). Differential effects of self-monitoring attention, accuracy, and productivity. *Journal of Applied Behavior Analysis*, 26, 329-344.

Obtained from: <http://interventioncentral.org/academic-interventions/math-facts/math-computation-student-self-monitoring-productivity-increase-flu>



# Student Speed Check!

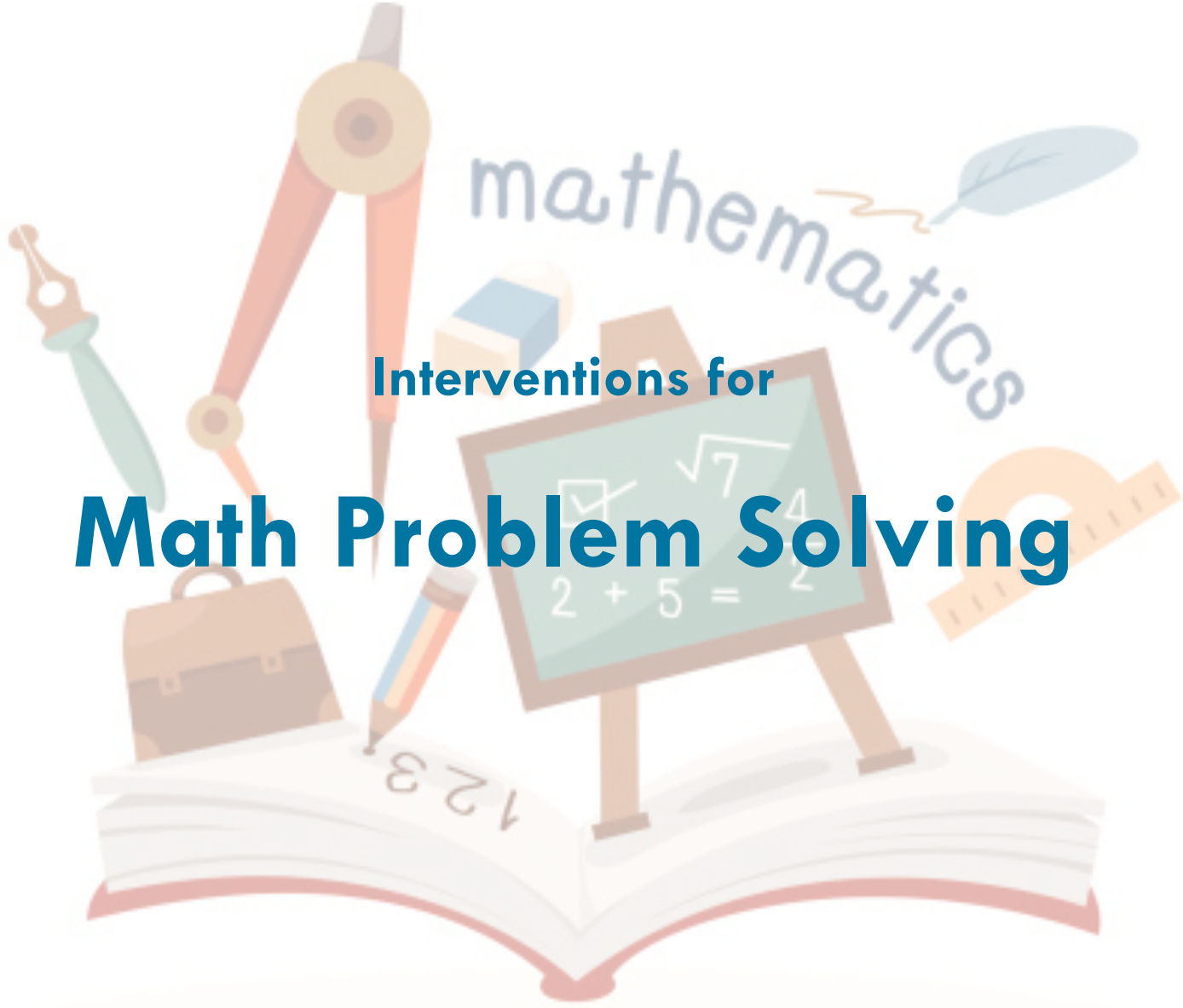


Student Name: \_\_\_\_\_ Classroom: \_\_\_\_\_

Directions: Use this form to track your speed in completing math worksheets.

<b>Score to Beat:</b> How many problems did I complete at my last session?	_____ Problems
<b>Today's Session:</b>	Date: _____
How many problems did I complete at TONE #1?	_____ Problems
How many more problems did I complete at TONE #2?	_____ Problems
How many more problems did I complete at TONE #3?	_____ Problems
How many more problems did I complete at TONE #4?	_____ Problems
How many more problems did I complete at TONE #5?	_____ Problems
How many more problems did I complete between the final tone and the end of the session?	_____ Problems
<b>TOTAL</b> number of problems completed in this session:	_____ Problems
Did I beat my previous score?	___ Yes ___ No

<b>Score to Beat:</b> How many problems did I complete at my last session?	_____ Problems
<b>Today's Session:</b>	Date: _____
How many problems did I complete at TONE #1?	_____ Problems
How many more problems did I complete at TONE #2?	_____ Problems
How many more problems did I complete at TONE #3?	_____ Problems
How many more problems did I complete at TONE #4?	_____ Problems
How many more problems did I complete at TONE #5?	_____ Problems
How many more problems did I complete between the final tone and the end of the session?	_____ Problems
<b>TOTAL</b> number of problems completed in this session:	_____ Problems
Did I beat my previous score?	___ Yes ___ No



mathematics

Interventions for

# Math Problem Solving

# 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. 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 for Implementation:

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

### 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.
- Set 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, prepare 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 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 the appropriate QAR,
  - 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.

## References

- Mesmer, H. A. E., & Hutchins, E. J. (2002). Using QARs with charts and graphs. *The Reading Teacher*, 56, 21-27.
- Raphael, T. (1982). Question-answering strategies for children. *The Reading Teacher*, 36, 186-190.
- Raphael, T. (1986). Teaching question answer relationships, revisited. *The Reading Teacher*, 39, 516-522.

Obtained from: <http://interventioncentral.org/academic-interventions/math/math-problem-solving>



# Math Problem-Solving: Combining Cognitive & Metacognitive Strategies

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).

## Steps for Implementation:

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 uncertainty 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 the purpose of the step ('**Say**').
- The student next self-questions by 'asking' what s/he 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.

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

<b>'Say-Ask-Check' Metacognitive Prompts Tied to a Word-Problem Cognitive Strategy</b>		
<b>Cognitive Strategy Step</b>	<b>Metacognitive 'Say-Ask-Check' Prompt Targets</b>	<b>Sample Metacognitive 'Say-Ask-Check' Prompts</b>
<b>1. Read the problem.</b>	<p><b>'Say' (Self-Instruction) Target:</b> <i>The student reads and studies the problem carefully before proceeding.</i></p> <p><b>'Ask' (Self-Question) Target:</b> <i>Does the student fully understand the problem</i></p> <p><b>'Check' (Self-Monitor) Target:</b> <i>Proceed only if the problem is understood.</i></p>	<p><b>Say:</b> "I will read the problem. I will reread the problem if I don't understand it."</p> <p><b>Ask:</b> "Now that I have read the problem, do I fully understand it?"</p> <p><b>Check:</b> "I understand the problem and will move forward."</p>
<b>2. Paraphrase the problem.</b>	<p><b>'Say' (Self-Instruction) Target:</b> <i>The student restates the problem in order to demonstrate understanding.</i></p> <p><b>'Ask' (Self-Question) Target:</b> <i>Is the student able to paraphrase the problem</i></p> <p><b>'Check' (Self-Monitor) Target:</b> <i>Ensure that any highlighted key words are relevant to the question.</i></p>	<p><b>Say:</b> "I will highlight key words and phrases that relate to the problem question."</p> <p>"I will restate the problem in my own words."</p> <p><b>Ask:</b> "Did I highlight the most important words or phrases in the problem?"</p> <p><b>Check:</b> "I found the key words or phrases that will help to solve the problem."</p>
<b>3. 'Draw' the problem.</b>	<p><b>'Say' (Self-Instruction) Target:</b> <i>The student creates a drawing of the problem to consolidate understanding.</i></p> <p><b>'Ask' (Self-Question) Target:</b> <i>Is there a match between the drawing and the problem</i></p> <p><b>'Check' (Self-Monitor) Target:</b> <i>The drawing includes in visual form the key elements of the math problem.</i></p>	<p><b>Say:</b> "I will draw a diagram of the problem."</p> <p><b>Ask:</b> "Does my drawing represent the problem?"</p> <p><b>Check:</b> "The drawing contains the essential parts of the problem."</p>
<b>4. Create a plan to solve the problem.</b>	<p><b>'Say' (Self-Instruction) Target:</b> <i>The student generates a plan to solve the problem.</i></p> <p><b>'Ask' (Self-Question) Target:</b> <i>What plan will help the student to solve this problem</i></p> <p><b>'Check' (Self-Monitor) Target:</b> <i>The plan is appropriate to solve the problem.</i></p>	<p><b>Say:</b> "I will make a plan to solve the problem."</p> <p><b>Ask:</b> "What is the first step of this plan What is the next step of the plan?"</p> <p><b>Check:</b> "My plan has the right steps to solve the problem."</p>
<b>5. Predict/estimate the Answer.</b>	<p><b>'Say' (Self-Instruction) Target:</b> <i>The student uses estimation or other strategies to predict or estimate the answer.</i></p> <p><b>'Ask' (Self-Question) Target:</b> <i>What estimating technique will the student use to predict the answer</i></p> <p><b>'Check' (Self-Monitor) Target:</b> <i>The predicted/estimated answer used all of the essential problem information.</i></p>	<p><b>Say:</b> "I will estimate what the answer will be."</p> <p><b>Ask:</b> "What numbers in the problem should be used in my estimation?"</p> <p><b>Check:</b> "I did not skip any important information in my estimation."</p>
<b>6. Compute the answer.</b>	<p><b>'Say' (Self-Instruction) Target:</b> <i>The student follows the plan to compute the solution to the problem.</i></p> <p><b>'Ask' (Self-Question) Target:</b> <i>Does the answer agree with the estimate</i></p> <p><b>'Check' (Self-Monitor) Target:</b> <i>The steps in the plan were followed and the operations completed in the correct order.</i></p>	<p><b>Say:</b> "I will compute the answer to the problem."</p> <p><b>Ask:</b> "Does my answer sound right" "Is my answer close to my estimate"</p> <p><b>Check:</b> "I carried out all of the operations in the correct order to solve this problem."</p>

<b>7. Check the answer.</b>	<p><b>'Say' (Self-Instruction) Target:</b> <i>The student reviews the computation steps to verify the answer.</i></p> <p><b>'Ask' (Self-Question) Target:</b> <i>Did the student check all the steps in solving the problem and are all computations correct</i></p> <p><b>'Check' (Self-Monitor) Target:</b> <i>The problem solution appears to have been done correctly.</i></p>	<p><b>Say:</b> "I will check the steps of my answer."</p> <p><b>Ask:</b> "Did I go through each step in my answer and check my work"</p> <p><b>Check.</b></p>
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## References

- Burns, M. K., VanDerHeyden, A. M., & Boice, C. H. (2008). Best practices in intensive academic interventions. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology* (p. 1151-1162). Bethesda, MD: National Association of School Psychologists.
- Montague, M. (1992). The effects of cognitive and metacognitive strategy instruction on the mathematical problem solving of middle school students with learning disabilities. *Journal of Learning Disabilities, 25*, 230-248.
- Montague, M., & Dietz, S. (2009). Evaluating the evidence base for cognitive strategy instruction and mathematical problem solving. *Exceptional Children, 75*, 285-302.

Obtained from: <http://interventioncentral.org/academic-interventions/math/math-problem-solving-combining-cognitive-metacognitive-strategies>

# Self-Monitoring: Customized Math Self-Correction Checklists

For this intervention, you will analyze a particular student's pattern of errors commonly made when solving a math problem (on either computation or word problems) and develop a brief error self-correction checklist unique to that student. The student then uses this checklist to self-monitor—and when necessary correct—his/her performance on math worksheets before turning them in (Dunlap & Dunlap, 1989; Uberti et al., 2004).

## Materials:

- Customized student math error self-correction checklist (both sample and blank *Math Self-Correction Checklists* are attached on pages 53-54).
- Worksheets or assignments containing math problems matched to the error self-correction checklist.

## Steps for Implementation:

1. **Develop the Checklist.** Draw on multiple sources of data available in the classroom to create a list of errors that the student commonly makes on a specific type of math computation or word problem. Good sources of information for analyzing a student's unique pattern of math-related errors include review of completed worksheets and other work products, interviewing the student, asking the student to solve a math problem using a 'think aloud' approach to walk through the steps of an algorithm, and observing the student completing math problems in a cooperative learning activity with other children.
  - Based on this error analysis, create a short (4 to 5 item) student self-correction checklist that includes the most common errors made by that student. Items on the checklist are written in the first person and when possible are stated as 'replacement' or goal behaviors. This checklist might include steps in a problem that challenge the student (e.g., "I underlined all numbers at the top of the subtraction problem that were smaller than their matching numbers at the bottom of the problem") as well as goals tied to any other errors that impede math performance (e.g., "I wrote all numbers carefully so that I could read them easily and not mistake them for other numbers").
  - NOTE: To reduce copying costs, you can laminate the self-correction checklist and provide the student with an erasable marker to allow for multiple re-use of the form.
2. **Introduce the Checklist.** Show the student the self-correction checklist customized for that student. State that the student is to use the checklist to check his/her work before turning it in so that the student can identify and correct the most common errors.
  1. Prompt the Student to Use the Checklist to Evaluate Each Problem. The student is directed to briefly review all items on the checklist before starting any worksheet or assignment containing the math problems that it targets.
  2. When working on the math worksheet or assignment, the student uses the checklist after every problem to check his/her work—for example, marking each checklist item with a plus sign ('+') if correctly followed or a minus sign ('-') if not correctly

followed. If any checklist item receives a minus rating, the student is directed to leave the original solution to the problem untouched, to solve the problem again, and again to use the checklist to check the work. Upon finishing the assignment, the student turns it in, along with the completed self-correction checklists.

3. **Provide Performance Feedback, Praise, and Encouragement.** Soon after the student submits any math worksheets associated with the intervention, you should provide that student with timely feedback about errors, praise for correct responses, and encouragement to continue to apply best effort.
4. **[OPTIONAL] Provide Reinforcement for Checklist Use.** If the student appears to need additional incentives to increase motivation for the intervention, you can assign the student points for intervention compliance: (1) the student earns one point on any assignment for each correct answer, and (2) the student earns an additional point for each problem on which the student committed none of the errors listed on the self-correction checklist. The student is allowed to collect points and to redeem them for privileges or other rewards in a manner to be determined by you.
5. **Fade the Intervention.** The error self-correction checklist can be discontinued when the student is found to perform on the targeted math skill(s) at a level that you define as successful (e.g., 90 percent success or greater).

## References

- Dunlap, L. K., & Dunlap, G. (1989). A self-monitoring package for teaching subtraction with regrouping to students with learning disabilities. *Journal of Applied Behavior Analysis*, 229, 309-314.
- Uberti, H. Z., Mastropieri, M. A., & Scruggs, T. E. (2004). Check it off: Individualizing a math algorithm for students with disabilities via self-monitoring checklists. *Intervention in School and Clinic*, 39(5), 269-275.

Obtained from: <http://interventioncentral.org/academic-interventions/math/self-monitoring-customized-math-self-correction-checklists>

**SAMPLE: Math Self-Correction Checklist**

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_

Rater: Student Classroom: \_\_\_\_\_

Directions: To the Student: BEFORE YOU START: Look at each of these goals for careful math work before beginning your assignment.  
 AFTER EACH PROBLEM: Stop and rate YES or NO whether you performed each goal correctly.

	Problem#1	Problem#2	Problem#3	Problem#4	Problem#5
<b><i>I underlined all numbers at the top of the subtraction problem that were smaller than their matching numbers at the bottom of the problem.</i></b> Did the student succeed in this behavior goal? <input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N
<b><i>I wrote all numbers carefully so that I could read them easily and not mistake them for other numbers.</i></b> Did the student succeed in this behavior goal? <input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N
<b><i>I lined up all numbers in the right place-value columns.</i></b> Did the student succeed in this behavior goal? <input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N
<b><i>I rechecked all of my answers.</i></b> Did the student succeed in this behavior goal? <input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N

## Math Self-Correction Checklist

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_

Classroom: \_\_\_\_\_

Directions: **TO THE STUDENT: BEFORE YOU START:** Look at each of these goals for careful math work before beginning your assignment.  
**AFTER EACH PROBLEM:** Stop and rate YES or NO whether you performed each goal correctly.

	Problem#	Problem#	Problem#	Problem#	Problem#
<input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N
<input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N
<input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N
<input type="checkbox"/> YES <input type="checkbox"/> NO	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N	_ Y _ N



Interventions for  
**Social Studies & Science**





# Improving Content Area Comprehension with a Critical Thinking Map

Students will learn to use a visual framework to organize and remember information in their content area textbooks. This intervention can be implemented in any subject where students must read textual material in order to learn content.

## Materials:

- Printed copies of critical thinking maps (p. 59), one per student
- Copies of generic comprehension questions, one per student. Generic comprehension questions:
  - What is the main idea in this passage?
  - What were the important steps that led to the main idea?
  - What are some other points of view or missing information about this topic?
  - What is your own conclusion?
  - How is this passage relevant to a problem or issue in today's world?
- Overhead projector and a transparency of the map (optional)
- Colored pens for checking papers, one per student

## Steps for Implementation:

### Model

1. Using an overhead projector, display a transparency of the critical thinking map or reproduce it on the board. Explain to the students that they will be learning to use the map to get more out of reading their social studies textbooks.
2. Explain each of the map components:
3. Read the passage aloud, pausing as you encounter answers to map components in the text. Fill in the map components on the transparency or chalkboard as you identify answers to them in the lesson.
4. After you have read through the entire lesson, read the map components aloud or call on students to do so. Guide the class in checking what you have written for accuracy and completeness, and add more information as necessary.
5. Distribute copies of the five generic comprehension questions and have students silently read the questions and write down their responses without referring back to the text. Then review the answers to the questions and have students correct their responses using colored pens.
6. Continue this modeling phase for two more lessons or until most students are achieving ratings of "satisfactory" or higher on four of the five questions.

### Lead

7. Distribute copies of the map and instruct the students to read the lesson silently.
8. Demonstrating with the overhead projector or on the chalkboard, help students reexamine the lesson for answers to map components and complete their maps.
9. Have students take turns orally rereading the contents of the map components, checking for accuracy, and adding more information if necessary.
10. Collect maps, distribute the comprehension questions, and have students complete them.

11. Have students correct their papers with colored pens while you review answers to the questions and discuss any discrepancies between incorrect comprehension answers and correct map information. Have students rewrite any incorrect answers.

### Test

12. As students become successful in completing the map components, discontinue class-wide demonstrations and provide individual help as needed.
13. When most of the students are obtaining “satisfactory” ratings on all five of the comprehension questions with little or no assistance, discontinue use of the map.
14. If desired, discontinue the use of the comprehension questions. Instead, have students read the lesson silently and then write a paragraph pertaining to each of the map components during class time or as a homework assignment.

## References

- Idol, L. (1987). A critical thinking map to improve content area comprehension of poor readers. *Remedial and Special Education*, 8(4), 28-40. PRO-ED, Inc.

Obtained from:

Rathvon, N. (2008). *Effective school interventions, second edition*. New York: The Guilford Press.

# A Map for Critical Thinking

Name: \_\_\_\_\_ Chapter: \_\_\_\_\_ Section/Pages: \_\_\_\_\_

Date: \_\_\_\_\_ Topic: \_\_\_\_\_

Important events, points, or steps

Main idea

Other viewpoints/opinions about this topic

Reader's conclusion

Relevance to today

Idol, L. (1987). A critical thinking map to improve content area comprehension of poor readers. *Remedial and Special Education, 8(4)*, 28-40. PRO-ED, Inc.

# Improving Comprehension of Science Text with a Summarization Strategy

Students will learn to use a 9-step strategy to summarize information in their science textbooks. However, the summarization strategy and writing guide can be implemented to enhance comprehension in any textbook-based subject.

## Materials:

- Overhead projector and transparencies of a text passage and the summary writing guide, optional.
- Paper copies of the summary writing guide (p. 62), one per student.
- Short comprehension quizzes, one per training passage (optional).

## Steps for Implementation:

### Introduce

- Tell students that they will be learning a summarization strategy to help them understand and remember the information in their science texts.
- Describe a summary as follows: (a) a summary should contain only important information from what you have read, (b) it should not include personal and unnecessary information, (c) it should combine information when possible, and (d) it should be written in your own words.
- Describe the cues that help identify the main ideas in a textbook passage (e.g., large text size, italicized and underlined words, words and phrases such as “important” and “the purpose is,” pictures and tables, intro and summary sentences, repeated words/sentences)

### Model

- Display the transparency of the summary writing guide on the projector or create it on the board. Review each step, including the reason for each step.
- Have students follow along in their textbooks while you read through a selected passage and model how to use the summary writing guide. If you want, choose a passage that students just read for a homework assignment so that they are familiar with the content.
- Work through all the steps, thinking aloud and including self-instruction statements (e.g., “What is it I have to do? I need to...”). As you fill in the guide, call on students to help you identify cues to the main ideas that can help in writing the summary.

### Practice

- During the next session, again model completing the guide for another passage, but have students fill in their guides as well. Then have the students use their completed guides to write a summary of the passage.
- When students have finished their summaries, have them work in pairs to share their summaries and give each other feedback. Allow time for students to revise their summaries based on their partner’s feedback.
- Have several students read their summaries aloud, and provide praise and corrective feedback as needed. Conduct a brief discussion where you review aspects of the most

effective summaries, and allow time for students to revise their summaries based on the discussion.

- If you want, you could administer a short comprehension test based on the passage, and have students score their own paper while you go over the answers. Remind students that using the summarization strategy can help them improve their performance on tests and quizzes.
- Do this process several more times until students are proficient in the strategy (i.e., able to state the 9 steps in order and use the guides to summarize assigned passages with at least 90% accuracy and completeness).
- Gradually increase the length of the passages as students become more proficient.
- Gradually fade the use of the guides and summaries as an in-class activity, but encourage students to continue to use the strategy while doing their assigned readings and keeping their guides and summaries to help them study for tests.

## References

- Nelson, J. R., Smith, D. J., & Dodd, J. M. (1992). The effects of teaching a summary skills strategy to students identified as learning disabled on their comprehension of science text. *Education and Treatment of Children, 15*, 228-243.

Obtained from:

Rathvon, N. (2008). *Effective school interventions, second edition*. New York: The Guilford Press.

# Summary Writing Guide

## Part 1: Identify and Organize the Main Idea and Important Information

Step 1: Think to yourself—"What was the main idea?" Write down the main idea.

\_\_\_\_\_

Step 2: Think to yourself—"What important things did the writer say about the main idea?" Write down the important things that the writer said.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

Step 3: Go back and check to make sure you understood what the main idea was and the important things the writer said about this.

Step 4: Think to yourself—"What is the main idea or topic that I am going to write about?"

Write a topic sentence for your summary. \_\_\_\_\_

Step 5: Think to yourself—"How should I group my ideas?" Put a "1" next to the idea you want to be first, put a "2" next to the idea you want to be second, and so on.

Step 6: Think to yourself—"Is there any important information that I left out? Or is there any unimportant information that I can take out?" Revise your summary if necessary.

Step 7: Write a summary about what you have read

## Part 2: Clarify and Revise the Summary

Step 8: Read your summary and think to yourself—"Is there anything that is not clear?" Rewrite your summary if necessary.

Step 9: Ask a classmate to read your summary and tell you if there is anything that is not clear. Rewrite your summary if necessary.

Obtained from:

Rathvon, N. (2008). *Effective school interventions, second edition*. New York: The Guilford Press.

# Additional Resources

## **Intervention Central**

[www.interventioncentral.org](http://www.interventioncentral.org)

Intervention resources (e.g., interventions, progress monitoring tools, videos, & products)

## **Florida Center for Reading Research**

[www.FCRR.org](http://www.FCRR.org)

Reading intervention resources

## **What Works Clearinghouse**

<https://ies.ed.gov/ncee/wwc/>

Reviews the existing research on different intervention programs and products

## **Easy CBM**

<https://easycbm.com/>

Has progress monitoring measures available for free

## **National Center on Intensive Intervention**

<http://www.intensiveintervention.org/progress-monitoring>

Includes a collection of resources focused on progress monitoring