DOCUMENT RESUME

ED 480 264 CS 512 379

TITLE	Reading Comprehension Instruction in Grades 4-8.
INSTITUTION	North Central Regional Educational Lab., Oak Brook, IL.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE	2002-11-00
NOTE	23p.
AVAILABLE FROM	North Central Regional Educational Laboratory, Editorial Offices: NCREL, 1120 E. Diehl Rd., #200, Naperville, IL 60563. Tel: 800-356-2735 (Toll Free). For full text: http://www.ncrel.org/litweb/comp48/.
PUB TYPE	Guides - Classroom - Teacher (052) -- Guides - Non-Classroom (055)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Classroom Techniques; Intermediate Grades; *Metacognition; Middle Schools; *Reading Comprehension; *Reading Instruction; Reading Processes; *Reading Strategies; Text Structure; *Vocabulary Development
IDENTIFIERS	*Explicit Instruction; *Strategic Reading

ABSTRACT

Researchers have found that readers they described as "strategic" had a purpose for reading, that they monitored their comprehension as they read, and they reflected on their reading. Although most readers have grasped fundamental reading processes by age 12, they still do not have well-articulated concepts about effective strategies to enhance comprehension. This guide for teachers on reading comprehension instruction in grades 4-8 is divided into the following sections: Introduction; Strategic Reading (Strategy Instruction; Strategy Instruction and Individual Differences; Tips for Teachers on Instruction in Strategic Reading); Vocabulary (Vocabulary Instruction and Individual Differences; Tips for Teachers on Vocabulary Instruction); Metacognition (Metacognition Instruction and Individual Differences; Tips for Teachers on Teaching Metacognition); and Conclusion. Appended are: Fishbone Chart; Rate Your Words; Modeling a Think-Aloud. (Contains 36 references.) (NKA)

Reading Comprehension Instruction in Grades 4-8

November 2002

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Strategic Reading

Researchers have found that readers they described as "strategic" had "a purpose for reading," that they "monitored their comprehension as they read, and they reflected on their reading" (Dole, 2000, p. 56). These readers effectively used reading strategies, or "mental and behavioral activities...to increase their likelihood of comprehending text" (van den Broek & Kremer, 2000, p. 10). When comprehension failed, strategic readers were able to "use a variety of strategies to repair their understanding" and "adapted their strategies to different contexts" (Dole, 2000, p. 56).

By the time children reach pre-adolescence, they are able to adopt a much more sophisticated approach to reading as they acquire more strategies and learn to use them more flexibly and effectively. Although most readers have grasped fundamental reading processes by age 12, they still do not have "well-articulated concepts about effective strategies to enhance comprehension," and they need to develop "more detailed knowledge about what strategies are available, how they function, when they should be applied, and why they help comprehension" (Paris, Wasik, & Turner, 1991, p. 619).

Many students can learn strategies indirectly through activities such as creating graphic organizers and K-W-L-H (what a student *K*nows, what a student *W*ants to learn, what a student *L*earned while reading, *H*ow a student can learn more) charts (Ogle, 1986), but others need explicit instruction to learn to use them effectively. The *Strategic Teaching and Reading Project: Comprehension Resource Handbook* (Young, Righeimer, & Montbriand, 2002) suggests the following components to effective explicit instruction:

- Select appropriate materials.
- Teach the strategy explicitly.
- Model the strategy.
- Ask good questions and conduct focused discussions.
- Choose effective activities that promote this strategy, particularly activities involving graphic organizers.
- Create helpful student aids. (p. 22)

In addition to these steps, explicit instruction should include "declarative (WHAT), procedural (HOW), and conditional (WHEN and WHY) knowledge about strategies and how students should manage and utilize the strategies they know" (DiGisi & Yore, 1992, p. 8).

Evidence suggests that it is best to teach students a small repertoire of strategies that they can practice in depth over a long period of time (Pressley, 2000). Several well-researched instructional techniques incorporate the use of a variety of reading strategies. In reciprocal teaching (Palincsar, 1986), for example, students practice summarizing, asking questions, and clarifying meaning. As students construct K-W-L-H charts (Ogle, 1986), they access their background knowledge, set purposes

for reading, and reflect on their learning. Repeated practice with these strategies can help students become more proficient and flexible readers.

Strategy Instruction
Two groups of reading strategies have been proven to be successful for improving comprehension. One group focuses on text structure and includes identifying important information and summarizing. Another includes using background knowledge, making predictions, and drawing inferences.

Text Structure
Proficient comprehension requires identifying main ideas and making connections between relevant information (Dickson, Simmons, & Kameenui, 1995, p. 10). This complex process demands knowledge of how texts are organized. Knowledge of the clues that indicate which phrases and ideas are important, and how those ideas connect to supporting details, helps readers comprehend more efficiently. The ability to sort out what matters most in a text limits the demands placed on short-term memory and allows the reader to focus on the most relevant pieces of information (van den Broek & Kremer, 2000). This allows readers to create a macrostructure of what they are reading, and they remember that rather than the entire text (Berkowitz, 1986). This practice leaves them the mental energy to engage in high-level thinking about what they are reading.

Beyond the distinction between narrative and expository texts, there are several ways of further classifying text structures. Expository texts can be categorized as description, temporal sequence, definition/example, time sequence, list, cause and effect, comparison and contrast, and problem and solution (Young et al., 2002, p. 44). A much simpler categorization system includes main idea, list, and order (Bakken, Mastropieri, & Scruggs, 1997).

The middle grades appear to be a pivotal time for helping readers use knowledge of text structure to improve their comprehension. Berkowitz (1986) explains, "[I]n general, middle-grade and junior high school students do not demonstrate the ability to detect and use an author's structure as a framework for memory" (p. 163).

Pearson and Fielding (1991) found "incredibly positive support for just about any approach to text structure instruction for expository text" (p. 832). Since an understanding of the "hierarchical representation of a text's ideas appears to be a fundamental requirement for establishing levels of importance (for the ideas)" (Carriedo & Alonso-Tapia, 1996, p. 143), one of the most widely used methods of instruction in text structure is the use of graphic organizers such as maps, graphs, and charts (see Appendix A).

When selecting texts to use in text-structure instruction, teachers should begin with simple texts and move to those that are more complex (Dickson et al., 1995). Students comprehend well-structured texts better, but they must also learn to make meaning of texts that may not be so clearly organized. Texts commonly used in content areas can be one way to help students acquire the skills they need in this area.

Drawing Inferences
A second group of related reading strategies includes accessing background knowledge, making predictions, and drawing inferences. These strategies are all

related to higher levels of thought and the critical reading of texts. Pearson and Fielding (1991) concluded that the research on comprehension suggests "students' comprehension, particularly inferential comprehension, is improved when relationships are drawn between students' background knowledge and experiences and the content included in reading selections" (p. 847).

Explicit instruction in this strategy must include explanations in how to combine background knowledge with the information in the text to make predictions and draw inferences. This process involves three steps:

1. Learn to connect what is on the page with prior knowledge to understand text.
2. Locate and use relevant text clues to construct meaning and establish relationships.
3. Examine whether the inferences make sense and are relevant. (Young et al., 2002, p. 53)

Strategy Instruction and Individual Differences

What students need in reading comprehension can be highly individual, depending on "differences in short term memory, knowledge base, learning style, and student preferences" (Chan, 1996, p. 125). Determining how to match strategy instruction to the particular needs of specific students can be difficult, but the positive results can be well worth the effort.

Strategy Instruction for Students with Learning Disabilities

The National Assessment of Educational Progress (NAEP) found that 37 percent of all fourth graders were reading below the basic level (Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001). By the time these students reach middle school, those who lag behind in reading ability may develop coping strategies that allow them to avoid reading and keep them from improving. Students may choose only simple texts, cheat, rely on friends to accomplish school tasks, or avoid reading whenever possible (Paris et al., 1991). Paris and his colleagues write: "All of these self-serving strategies are antithetical to the mastery-oriented, text-processing strategies that we want children to use before, during, and after reading" (p. 625).

Many students find some strategies, such as prereading activities, time-consuming and do not understand how they will help them understand. Students may engage in nonstrategic reading due to "a mixture of developmental naiveté, limited practice, lack of instruction, and motivational reluctance to use unfamiliar or effortful strategies" (Paris et al., p. 609). Therefore, understanding why a strategy is important is an extremely important part of instruction for these students.

The teachers in Anderson and Roit's (1993) study—in addition to presenting research-based strategies such as summarizing and visualization—"made efforts to draw out existing strategies and help students judge the efficacy of their strategies in light of the problems and texts at hand" (p. 126). In examining their own strategies, children were found to "use their own words and show more intense signs of thoughtful effort" (p. 126).

Training in text structure identification is especially important for students with learning disabilities as they "typically lag behind their peers in reading comprehension and demonstrate difficulty recognizing patterns in text, discerning relevant information, and recalling information (Dickson et al., 1995, p. 1). Explicit

instruction in strategies for identifying text structure through the use of think-alouds and graphic organizers is critical for students who are struggling with expository texts.

Strategy Instruction for English Language Learners
Fortunately for teachers of reading, the cognitive processes used in reading for understanding are generally the same in one language as in another, and the strategies a student has learned to use in his or her native language will transfer to English (Fitzgerald, 1995). Jiménez (2001) describes three major domains of strategic processing that should be emphasized when working with students who are learning English, particularly those who have learning disabilities:

1. Approach unknown vocabulary, make inferences, monitor comprehension, and ask questions.

2. Model the think-aloud procedure for each of the three strategies multiple times.

3. Have students practice thinking aloud; ask students to reflect on their comprehension. (p. 160)

Tips for Teachers on Instruction in Strategic Reading:

- When using implicit strategy instruction such as graphic organizers, point out the reading strategies embedded in the activities.
- Talk about how students are approaching texts, frequently asking questions such as these: Are you using your background knowledge to help you understand? What kind of structure does this passage have? How does that tell you what is important?
- Attribute successful comprehension to the efficient use of reading strategies rather than to effort, luck, or ability.
- Identify text structures used most often in each content-area and consistently describe them using the same terminology.
- Determine the strategy needs of reading tasks, and teach those strategies explicitly.

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Vocabulary

Word meaning is one of the most important components of comprehension. In fact, "Learning, as a language-based activity, is fundamentally and profoundly dependent on vocabulary knowledge" (Baker, Simmons, & Kameenui, 1995). This connection between knowing words and understanding content becomes especially important in the middle school as the texts students read become more abstract and conceptually dense. Graves (2000) describes four components of an effective middle-grades vocabulary program: "wide reading, teaching individual words, teaching strategies for learning words independently, and fostering word consciousness" (p. 118).

For content-area teachers, vocabulary development is inextricably linked to instruction in new concepts, and this is often done through direct instruction in words relevant to the topic being studied. This is traditionally accomplished through lists of words and definitions. The vast number of words in these lists makes it impossible, however, to teach them in any kind of depth. Graves (2000) offers several questions to guide teachers in trimming down vocabulary lists to those words to be taught directly:

- Is understanding the word important to understanding the selection in which it appears?
- Are students able to use context or structural analysis to discover the word's meaning? If they can use these skills, then they should be allowed to practice them.
- Can working with this word be useful in furthering students' context, structural analysis, or dictionary skills?
- How useful is this word outside of the reading selection currently being taught? (p. 121)

Context is crucial in helping children learn and understand new words. Anderson and Nagy (1991) claim that studying words in the abstract, apart from their various shades of meaning, can be a waste of time at best, and even misleading. To teach these concepts, in addition to content-specific activities such as demonstrations and diagrams (see Appendix B), the following instructional activities can help students understand difficult concepts in all their complexity:

- Define the new concept, giving its attributes and, if possible, show a model or picture illustrating it.
- Distinguish between the new concept and similar but different concepts with which it might be mistaken.
- Give examples and nonexamples of the concept and explain why they are

what they are.

- Present students with examples and nonexamples and ask students to distinguish between the two.

- Have students present examples and nonexamples of the concept, and have them explain their reasoning. (Graves, 2000, p. 122)

Teachers cannot possibly directly teach all the words that students need to learn, so students need a repertoire of strategies they can use to learn words on their own. Three resources can be particularly helpful in independent word learning: using context, word parts, and a dictionary (Graves, 2000). Graves recommends helping students use context to figure out unknown words by making a chart using the following steps: (1) Recognize that you don't know a word. (2) Look for clues in the sentence and in the rest of the paragraph. (3) Guess the meaning and try your guess to see if it works.

The third component of effective word meaning is the development of awareness and curiosity about words. Learning new words takes effort, and students need to understand the importance of the power of words before they invest the time in the process (Harmon, 2000). To improve their personal vocabularies, students must care about words and gain "enjoyment and satisfaction from using them well and from hearing them used well by others" (Graves, 2000, p. 127).

Finally, most of the word learning that children do in their lives is incidental (Nagy, 1988). Therefore, teachers must capitalize on students' independent language use through speaking and reading to improve their word knowledge. As students read "longer and more difficult readings" (Harmon, 2000, p. 519), and as they are exposed to a variety of independent word-learning strategies, they can build their vocabularies on their own.

Vocabulary Instruction and Individual Differences

Limited vocabulary knowledge is a significant impediment to comprehension for students with learning disabilities. Research shows that "vocabulary knowledge varies tremendously between students, [that] many diverse learners acquire vocabulary at a much lower rate than other students," and that "vocabulary differences between students appear early and the vocabulary gap grows increasingly large over time" (Baker et al., 1995, p. 6).

Vocabulary Instruction for Students With Learning Disabilities

Like normally achieving students, students with learning disabilities need contextualized vocabulary instruction. They particularly need for teachers to address the "conceptual linkages among vocabulary items" and to provide opportunities for them to use the words they have learned (Baker, et al., 1995, p. 9).

Students who have limited vocabularies also need additional instruction in how to learn words independently. Harmon (2000) suggests some questions that students can ask themselves while reading to help them monitor their word understanding:

- Do I know this word?

- Do I need to know this word to understand what I'm reading?

- If I think this word is important, what do I already know about it?
- What does the word have to do with what I am reading? What is it referring to?
- How is it used in the sentence? Does it describe or show action?
- Do I see any word parts that make sense?
- Do I know enough about this word?
- Do I need to know more information?
- How can I find out more about this word? Should I ask someone or use the dictionary? (p. 525)

Finally, poor reading achievement has a cyclical effect since students who do not read well do not engage in independent reading and therefore do not improve their vocabularies or their skills. Incorporating independent reading time into the regular school schedule can help to reduce the vocabulary gap if students are taught strategies to help them make the best use of that time for learning new words and skills.

Vocabulary Instruction for English Language Learners
Research supports the common-sense notion that vocabulary knowledge is significant in the reading ability of students who are learning English (Fitzgerald, 1995). English language learners (ELLs) depend more on knowledge of vocabulary than do native English speakers (McLaughlin et al., 2000). A study by Garcia (1991) found that knowledge of vocabulary was even more important in test performance than was background knowledge of the text content.

An especially important word-learning strategy for students learning English is the use of cognates, "vocabulary items that are related across languages because of common ties to an ancestral language" (Jiménez, 2001, p. 157). Fitzgerald's (1995) study showed that proficient ELL readers make more efficient use of cognates than their lower-achieving peers.

Other instructional strategies that help English language learners improve their vocabularies are these:

- Direct instruction in vocabulary to deepen word knowledge of high-frequency grade-appropriate words.
- Instruction in strategies to infer meaning from text...and recognize root words.
- Activities outside the classroom to extend and deepen students' understanding of word meanings. (McLaughlin et al., 2000, p. 134)
- The use of writing as an avenue for meaningful use of language. (Watts-Taffe & Truscott, 2000)

In order for students who are learning English to increase their vocabularies at a fast enough rate to comprehend content-area texts, they need extensive opportunities to practice the language, through speaking and writing as they interact with peers and adults. Managing a classroom so that they have opportunities for such practice is crucial to their success.

Tips for Teachers on Vocabulary Instruction:

- Teach some words directly, but choose which words to teach carefully and teach them thoroughly.
- Teach independent, word-learning strategies, such as using context and the dictionary.
- Capitalize on and reward the skillful and creative use of words.
- Provide time for independent reading.
- Allow time for students who are learning English to interact with peers on content-related subjects.

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Metacognition

Much of the most exciting reading research done in the 1980s and '90s examined metacognition and its role in reading. Kletzien (1992) found that while poor readers knew the same number and kind of strategies as good readers, their regulation and use of these strategies was far less effective. The ability to "think about thinking" is "critically important for beginning and accomplished readers alike" (Underwood, 1997).

Metacognition is believed to have three components: (1) planning, which involves "goal setting, accessing prior knowledge, identifying additional informational sources, and selecting appropriate strategies"; (2) monitoring, which involves "self-questioning, reviewing, and testing"; and (3) regulation, which involves "refocusing attention, adjusting effort, and selecting alternative strategies" (Craig & Yore, 1996, p. 227).

There is some evidence that middle school is an important time in the metacognitive development of readers. Haller, Child, and Walberg (1988) found that metacognitive training had the least effect on students in the fourth, fifth, and sixth grades, and had the greatest impact on those in seventh and eighth grades. By pre- and early adolescence, children begin to "exhibit spontaneous, selective, and self-controlled use of strategies" (Paris, et al., 1991, p. 615), which makes them more able to respond positively to instruction in metacognition.

One of the most important components of metacognitive training is self-monitoring. This can be accomplished through a variety of kinds of self-questioning. Questions such as "Why am I reading this selection?" and "How am I doing?" and "What could I have done differently?" (Young et al., 2002, p. 18) can help students monitor their comprehension. To learn to generate these kinds of questions as they read, readers must be aware of the importance of monitoring understanding as they read and also must appreciate the demands of the particular reading task (p. 24).

Perhaps the most widely used instructional method for metacognition is the think-aloud (see Appendix C), a strategy in which individuals articulate their thoughts as they read a passage of text. Through think-alouds, teachers can model the thinking processes of effective readers, and students can analyze their own strategy use and that of their peers. This type of "thinking out loud," however, does not come naturally to students. Jiménez (2001) found that the sixth, seventh, and eighth graders in his study needed extensive preparation in order to produce useful articulations of their thought processes. Teacher modeling and simple think-aloud protocols can help students develop the skills they need to do this kind of thinking and speaking.

Metacognition Instruction and Individual Differences

Students' awareness, knowledge, and use of metacognitive strategies vary greatly, depending on cognitive abilities, cultural background, and motivation. The kind of instruction that will be effective with individual students depends on a variety of

factors.

Metacognition Instruction for Students with Learning Disabilities
Instruction in metacognitive strategies may hold the greatest benefit for students who are struggling readers. Where proficient readers can often create their own learning strategies from the tasks they are given to accomplish, students with learning disabilities may not be able to do this due to their lack of awareness of their own learning needs (Vaidya, 1999). These students "need repeated instruction to understand that they must use strategies, and they need modeling before it becomes natural for them to use the strategy and to transfer [it] to other relevant settings" (Vaidya, 1999). A review of research on learning interventions supports the position that "if strategy training is carried out in a metacognitive, self-regulative context, in connection with specific content rather than generalized skills... positive results are much more likely" (Hattie, Biggs, & Purdie, 1996, p. 101).

There is some evidence indicating that metacognitive training cannot be all things to all people. Proficient readers may benefit from just a small amount of instruction in metacognitive strategies (DiGisi & Yore, 1992). Chan (1996) found that "direct and explicit instruction in the use of prescribed strategies, while found to be beneficial for poor learners, could have an adverse interference effect for good and average readers" (p. 125). The manner in which metacognitive training is conducted in the classroom must, therefore, depend on the teacher's knowledge and understanding about his or her students and the reading tasks in which those students are engaged.

Metacognition Instruction for English Language Learners
A review of the research on the cognitive reading processes of students learning English concludes that these readers: (1) "use fewer metacognitive strategies," (2) "use selected metacognitive strategies with different relative frequencies," (3) "verbalize their metacognitive strategies less," and (4) "tended to monitor their comprehension more slowly" (Fitzgerald, 1995, p. 178). Since these characteristics often describe native English speaking students who are struggling with reading comprehension, instructional strategies that work for one group should also be effective for the other. Teachers also need to bear in mind that instruction in metacognitive strategies does not have to wait until students can read English fluently. Students can practice metacognitive strategies with texts in their native language, and the strategies will transfer to English texts as they become more proficient in English.

Tips for Teachers on Teaching Metacognition:

- Portray reading as a complex, purposeful process that requires judgment and flexibility, rather than as a series of isolated steps, skills, or strategies.
- Differentiate metacognitive instruction for students' individual needs. What works for one kind of student will not necessarily work for another.
- Model effective metacognitive strategies through think-alouds of

different types of texts at least on a daily basis.

- Speak the language of metacognition throughout the day in a variety of learning situations by asking questions such as these:
  - What should you do before you start to read this chapter?
  - Did you understand the paragraph you just read?
  - How well did the strategy you tried work? Would another strategy have worked better?
- Encourage students who are learning English to practice their metacognitive strategies while reading in their native language.

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Conclusion

The middle grades are a crucial time for students and for the teachers who teach them. Evidence shows that "recreational and academic reading attitudes, on average, begin at a relatively positive point in Grade 1 and end in relative indifference by Grade 6" (McKenna, Kear, & Ellsworth, 1995, p. 952). This, combined with the individual abilities of students and the differences in instruction, leaves middle-grades teachers with classes in which the academic differences among students are far more pronounced than in the lower grades (Ivey & Broaddus, 2000). The systematic implementation of instructional strategies with a proven track record at improving student achievement can contribute to the reduction of the gap between groups of students and provide all students with the foundation they need to continue to learn and grow, both in school and in society.

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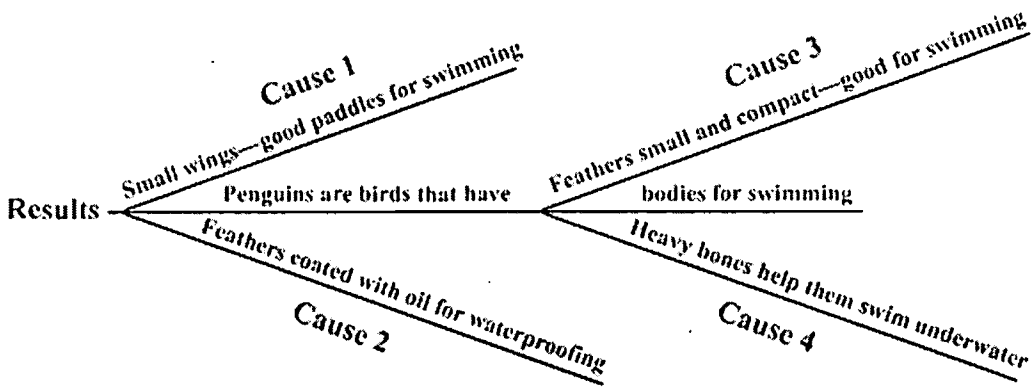
Reading Comprehension Instruction in Grades 4-8

Appendix A

Fishbone Chart

Definition:
Interaction between at least two ideas or events, one considered a cause and the other an effect or result.

Example:
Emperor penguins evolved to live in the cold waters of the Antarctic. Because there was little food for them on land, they developed into wonderful swimmers. In order to swim better, they have small wings, which are useless for flying but serve as efficient paddles in the water. Because penguins need to swim, their feathers are very small and compact and are coated with oil to keep them warm and waterproof. Their heavy bones would be a hindrance to flying but allow them to float lower in the water so they can make use of their powerful wings for swimming. The penguin is built the way he is because he needs to spend so much time in the water.



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Appendix B

Rate Your Words

A "Rate Your Words" chart can be used to identify vocabulary words and to determine where these words fall in students' knowledge base, from unknown to known. The chart helps the teacher determine how much direct teaching is needed, and it can be a means to identify students' progress. The objective is to move new, targeted vocabulary words to Category 4: Words you know and can use correctly. The chart also allows students to monitor their own learning.

Note: This chart can be used in any subject area as an individual, small-group, or large-group activity.

In the example below, the teacher has identified six vocabulary words and has written them into the first column of the chart. The students have then rewritten each word on the chart under one of four category headings:

4. Words you know and can use correctly.

3. Words you almost know, but the meanings are foggy (partial knowledge; meaning may contain misconceptions or a "guesstimate").

2. Words you think you have seen or heard before ("pick-up" words that are slightly familiar and have been experienced in a variety of places, such as television, radio, conversations, magazines, and other subject areas).

1. Words you do not know at all (no prior knowledge).

Words	4	3	2	1
Factor		Factor		
Similar			Similar	
Equivalent				Equivalent
Divide	Divide			
Multiply		Multiply		
Integer				Integer

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Appendix C

Modeling a Think-Aloud

Model a think-aloud using an introductory lesson on the Industrial Revolution. This activity should be completed before reading the lesson.

Teacher:
Today, I'm going to allow you to look inside my brain and hear the conversations that go on in there to help me understand the information I'm about to read.

We are going to begin the unit on the Industrial Revolution and its effect on the population shift from rural to urban.

First, I have to figure out what "Industrial Revolution" means. I'll take a look at the words in the chapter's title: industrial and revolution. Do these words ring any bells in my mind?

Word Meaning
I know that the word "industry" has to do with manufacturing or producing a lot of things or goods at one time for sale, such as the automobile industry. My uncle works at a plant in Detroit where they assemble the headlight parts for cars, so he tells people he works in the automobile industry.

Prior Knowledge
What do I know about revolutions? I studied the American Revolution between the American colonies and England in fifth grade. What do I remember? I know colonists got tired of England telling them what to do and taxing them for everything without asking. The colonists decided it was time to change how things were done--they weren't going to be bossed by England anymore. England didn't like that and tried to force the colonists to behave, so war broke out.

But I don't think the Industrial Revolution is referring to war. I think revolution in this case means that a big change or turnaround is taking place because people are tired of doing things the same old way. Or that they got smarter and figured out how to do things faster and better. Or maybe it means declaring war on the old-fashioned way of doing things, but just not fighting to get people to change.

Text Structure
I'll take a look at the pictures and the headings in the chapter to check these ideas out. Oh, look, it says "Summary," and I know that means a shortened version. This section will give the highlights, not all the details. Now let me see, here's a chart about how things were made before industry came along. They were handmade. I remember the pilgrims had to cut down trees, hew them out, and strip the bark to make their furniture by hand.

Inference
So, if I put together what I know about the terms "industrial" and "revolution" and how people produced products, I now have an idea. While I'm reading, I'll check my predictions and see if I'm right.

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