

Teaching Students to Comprehend Informational Text Through Rereading

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By identifying sections of text that provide opportunities for successful comprehension as a result of rereading and paraphrasing, teachers can provide students with experiences that lead to successful meaning making and, hopefully, generalization to other reading contexts.

Marco, Kimberly, Rashid, and Rosanna (all names are pseudonyms) are sixth graders with reading achievement in the lowest quartile on state tests. After participating in a series of 15 tutoring sessions in which they read and thought aloud about astronomy passages, each of them reported that they had learned to reread the text when things did not make sense or when they needed to answer comprehension questions. How did their tutor, Ms. Gabel, help them shift from once-through readers to students who reread to better comprehend informational text? We share our experiences with these students, identifying aspects of informational text they found challenging and suggesting ways to promote rereading to repair comprehension breakdowns.

Informational texts like those typically used in science and social studies classrooms convey information to build students' knowledge or revise existing understandings (Goldman & Rakestraw, 2000; Otero, 2002). As teachers and students interact to apply a variety of evidence-based practices (see Gersten, Fuchs, Williams, & Baker, 2001; Mastropieri, Scruggs, & Graetz, 2003; Sencibaugh, 2008), teachers often guide students' concurrent use of a foundational skill: rereading. Rereading may help students resolve

some comprehension problems when using science and social studies passages; however, this fix-up strategy is most effective when it is matched to the text's features.

The purpose of this article is to describe some specific features of informational text that striving readers often find challenging and suggest ways teachers can model and guide rereading to foster students' comprehension. We include researcher-developed sentences and paragraphs similar to those used by the first author during a series of 15 think-aloud astronomy lessons with sixth graders.

Obstacles for Striving Readers

Good readers reread, or look back in the text, to clarify meaning, make connections, or retain information in working memory for processing (Pressley & Afflerbach, 1995). In other words, they monitor comprehension (Otero, 2002) and use fix-up strategies to build meaning. Compared with good readers, striving readers are less likely to reread or recognize that they have lost meaning (Coté & Goldman, 1999; Garner, 1981; Johnston, 2004). Many of these students fail to recognize that they have not understood what they read or pinpoint what they need to reread. As a first step in promoting rereading, therefore, readers need to recognize that the purpose of reading is to make meaning.

Purpose for Reading

Striving readers may view the purpose of reading as decoding an assigned section rather than building knowledge. For example, during our tutoring sessions, Ms. Gabel instructed Kimberly and her partner to read silently and underline anything they found

confusing, that is, to read for meaning. Kimberly did not underline anything in the paragraph because, as she noted, "We know all the words." As Ms. Gabel discussed the passage with the students, however, it became clear that Kimberly did not fully understand critical vocabulary and concepts even though she could orally read all the words. In spite of Ms. Gabel's explicit instructions, Kimberly equated reading with accurate decoding. Sometimes striving readers attempt to read for meaning, but the difficulty and amount of reading they need to complete create obstacles they cannot overcome. Both the readability and the length of the assigned text influence whether students reread sections.

Reading Assignments

Text sections assigned during classroom instruction may discourage striving readers for several reasons, including the difficulty and length of the passage. Informational texts used in general education science and social studies classrooms may be two or more grade levels beyond the reading level of readers with and at risk for disabilities (Best, Floyd, & McNamara, 2008; Gersten et al., 2001), and nearly 70% of all students may be unable to accurately decode or comprehend their textbooks (McGrath, 2005).

Reading text that is too difficult or complex decreases students' effectiveness and efficiency in using fix-up strategies like rereading (Otero, 2002). When readers expend effort without experiencing success, they may view that fix-up strategy as unhelpful and stop using it (Otero, 2002). Striving readers in particular may abandon rereading and other attempts to clarify meaning as the difficulty of the text increases (Coté & Goldman, 1999). Using relatively easy text allows students to shift their attention from pronunciation to understanding the meaning of words (Gaffney, Methven, & Bagdasarian, 2002). Instructional-level text that students can decode with greater than 90% accuracy may create a context for meaning making.

Assignment length also creates challenges for striving readers. As teachers feel pressure to cover everything in the textbook, they often assign lengthy sections for independent, silent reading. Striving readers often have difficulty initially reading lengthy text sections because of poor fluency (Bashir & Hook, 2009; Best et al., 2008). When low reading rates and lengthy passages combine to make an

Reflection Questions

- In your experience, do striving readers reread for understanding? How might thinking aloud about the text promote rereading?
- What are general adjustments to classroom assignments that teachers can make to promote rereading of text? Why might these adjustments be effective?
- Why are appositives and pronoun-referent relationships difficult for striving readers?
- How are science and social studies texts enhanced to focus readers' attention on important terms and concepts? How can teachers and readers enhance the text themselves to promote rereading and comprehension?

assignment particularly challenging, readers may not take the time or expend the effort to fully understand the text. Consequently, students are exposed to many facts without mastering or understanding the content (Conderman, Bresnahan, & Pedersen, 2009). Additionally, students may not be able to pinpoint where they lost the meaning after reading a lengthy section, making it difficult for them to identify which sections to reread.

Solutions From Tutoring

In our work with sixth graders with low reading achievement, we addressed these general problems with informational text in several ways. First, we selected content area text from a variety of sources (e.g., Harcourt Science texts, trade books, *Kids Discover*, Internet sources) with readability ranging from third to sixth grade. Controlled readability allowed students to focus on making meaning, but we also attempted to identify passages that communicated the science concepts in ways that the students would find interesting and engaging (Ness, 2009). For example, several selections featured astronauts as they worked in space. The selections covered important vocabulary words in interesting and accessible ways

and included vivid descriptions and illustrations of concepts. Reading about the same concept across more than one relatively short passage (i.e., 200–400 words) had a similar impact to rereading sentences within the same passage (Anderson, 1996).

Second, we reminded students to read for understanding, setting a specific purpose with a preview. In classroom settings, this preview sometimes includes examination of section objectives, comprehension questions, section headings, charts or diagrams, and enhanced text. Additionally, use of advanced organizers, such as K-W-L charts (Ogle, 1989), helps students set a purpose of reading to learn. In our preview, we included high-interest pictures from *Kids Discover* related to the topic for the day. We found that pictures made the preview more powerful in focusing readers' attention on meaning. Students often reflected on these pictures when rereading the text to compare their understanding of the print with the visual information. Comparing the visual information to the text engaged students in higher order thinking to make meaning.

Third, we isolated sections of text that we thought were important for concept development—usually no more than three paragraphs per passage—and had students pause at designated points for thinking aloud. Chunking the text in this way helped students build reading endurance, set a purpose of reading for meaning, and created spaces for the sixth graders to apply fix-up strategies, such as rereading. When we incorporated thinking aloud into text reading, we observed our sixth graders spontaneously rereading silently a large proportion of the time to plan before speaking. Although thinking aloud after every sentence was disruptive to reading overall, pausing to think aloud after two to four sentences provided students with sufficient information for making connections and building knowledge.

Finally, and perhaps most important, we modeled rereading as an effective fix-up strategy through thinking aloud and other explicit practices (Bereiter & Bird, 1985; Johnston, 2004). Our modeling included what section to reread and how to reread efficiently, as well as why rereading might be helpful. We specifically targeted sections of text that ended with key terms, contained appositives, or had a large number of pronoun–referent combinations, all features that frequently create obstacles to comprehension for striving readers.

Specific Text Features for Rereading

Informational text proved to be an excellent medium for teaching students to reread because of its text features and the large number of unique words requiring problem solving. These features include placement of main ideas, key terms, appositives, pronoun–referent substitution, and text enhancements. The description of each feature is followed by recommendations for teachers on how to scaffold rereading.

Placement of Main Ideas

Readers often use the paragraph's main idea to help them identify the organization of the passage, an important support for comprehension (Bakken, Mastropieri, & Scruggs, 1997; Jitendra, Hoppes, & Xin, 2000). Main ideas may be especially helpful when they occur early in the paragraph, preparing readers for the paragraph's organization (e.g., "The four types of galaxies are classified by their shapes: *spiral*, *elliptical*, *barred*, and *irregular*"). Unfortunately, when the main idea does not occur in the paragraph's first or second sentence, striving readers may not be able to anticipate the text's organization. Once readers find the main idea, rereading the paragraph can better help them to understand its meaning.

In order to address this issue during instruction, teachers can preview the passage to identify potential trouble spots, including paragraphs in which main ideas are implicit, embedded, or occur at the end of the paragraph. When main ideas fall within or at the end of paragraphs, help students restructure the paragraph by (a) highlighting the main idea and reading it first and (b) reminding students that because this is the main idea, all other sentences will connect to it somehow. Orally identify the organization of the passage with the students (e.g., list, sequence, compare–contrast) and reread to connect supporting details. Graphic organizers can be used as visual supports for rereading at the paragraph level.

Sometimes reordering sentences in writing can underscore the importance of main ideas. One method of reordering sentences is to provide readers with a photocopy of the paragraph with blank lines at the beginning. Teachers can then model for students how to write the main idea at the beginning of the paragraph. This repositioning should be followed by

rereading to demonstrate how the main idea relates to the supporting details. Second, teachers can write main ideas on sticky notes or sentence stems to flexibly reposition them during rereadings of original passages. Other visual supports and text enhancements (discussed later in this article) also support rereading to make connections among main ideas, text organization, and supporting details. Obstacles to comprehension of informational text, however, occur at the sentence level as well. Just as main ideas in informational text often occur at the ends of paragraphs, key terms sometimes occur at the ends of sentences.

Definitions Following Key Terms

Informational text introduces, defines, and describes a large number of important terms that students must understand to find the gist of the passage (Goldman & Rakestraw, 2000). These definitions or descriptions often follow a familiar sentence form that begins with the key term (e.g., “*Craters* formed by the impact of meteors cover the moon’s surface”). Key terms that begin sentences alert readers to attend to what follows, especially when the text is boldfaced or italicized.

Instruction including rereading can help students to understand the importance of key terms. When a keyword occurs at the beginning of a sentence, remind students to reread from the beginning of the sentence, find the key term, and change the sentence into a question. For example, after reading the sentence “The visor reflects the sun’s intense light,” we suggested that Rashid ask himself, What is a visor? or

What does a visor do? Because this format corresponds with “right-there questions” (Raphael & Au, 2005), or questions taken from the text, students typically can locate answers readily. As a caution, however, even though students may be able to answer right-there questions, they still might not understand the concept.

Even though Rashid thought aloud that a visor reflected the sun’s light, he still

did not know exactly what a visor was. As he continued his explanation, he said he thought a visor was a mirror. In this case, rereading the sentence alone could not resolve this problem. At this point, Ms. Gabel thought aloud, stating that rereading had helped with the question but not the meaning. She then asked Rashid what they might do instead to understand more about visors, and in the end, they examined the preview picture for clues. Consequently, rereading should not be taught to students as the only possible fix-up strategy for comprehension.

Definitions Preceding Key Terms

Just as main ideas may occur at the ends of paragraphs, key terms may occur within or at the ends of sentences. When a key term does not occur at the beginning, striving readers may not recognize the importance of the information in the full sentence, even when the term is enhanced. For example, Marco encountered the following sentence: “Planets follow an elliptical path called an orbit as they travel around the sun.” In thinking aloud, he stated that the planets travel around the sun but failed to articulate the gist of the sentence, which involved the definition of the key term *orbit*. When this happens, striving readers may not recognize an opportunity for rereading previous material for a definition of the key term.

When a key term occurs at the end of a sentence, model how to reread the sentence so that it begins with the key term. Sentence stems, or restatements of a portion of the target sentence beginning with the key term (e.g., “An orbit is...”), can be created orally, with paper and pencil, or on whiteboards. Situations in which sentence stems are useful for rereading sometimes arise during instruction, but teachers may also anticipate sections of text that require rereading and prepare sentence stems for these sections in advance of instruction. Written sentence stems provide visual support of oral modeling (see Table 1).

For example, to support Marco’s definition of *orbit*, Ms. Gabel orally modeled for him how to reread and restructure the sentence beginning with the key term: “An orbit is...” She then guided him to complete the sentence stem in his own words (“the path planets take around the sun”) after rereading the text. She then wrote the sentence stem on paper as she orally restated his new sentence. Finally, Ms. Gabel thought aloud about the definition of *orbit* and the movement of different objects in space. Later, when thinking

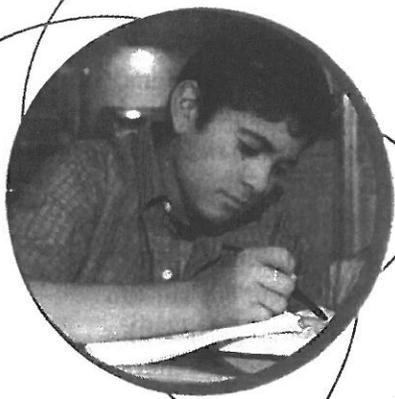


Table 1
Examples of Sentence Stems and Text Enhancements to Support Rereading

Sample text for targeted rereading*	Text feature	Teaching activity	Sample support for rereading
There are two ways astronomers detect planets orbiting distant stars. They measure how the stars' magnitudes, or brightnesses, and rotations change. These are clues that a planet is tugging at <u>them</u> .	Pronoun-referents or appositives are included.	Sentence stem (oral, written)	Stars' _____ [synonym or appositive] is their _____, because _____. Example: "Them" refers to stars, because _____ [the astronomers saw how brightness and rotation changed when the planets pulled on them].
Comets are smaller than planets, so as they move around the sun, they often don't follow a neat path like a planet's.	Key term is omitted.	Sentence stem (oral, written)	Like a planet's—what? Comets don't follow a neat path like a planet's _____ [orbit or path].
The four types of galaxies are classified by their shapes: <i>spiral, elliptical, barred, and irregular</i> .	Key terms end sentence.	Sentence stem (oral, written)	Elliptical, spiral, barred, and irregular are _____.
Long ago, many people believed Venus and Jupiter were stars, because they are two of the brightest objects in the night sky. Like the moon, these planets reflect the sun's light, but they are far from Earth. Then, about 400 years ago, the telescope was invented. It allowed people to look more closely at these planets.	Main idea is embedded in paragraph about uses of the telescope.	Sentence strips to reposition main idea to beginning	<u>Then, about 400 years ago, the telescope was invented. It allowed people to look more closely at these planets.</u> [Cut sentence strip and move to beginning.]

*Text illustrations developed by first author.

aloud, Marco correctly used the term when talking about the moon moving around the earth.

Similarly, comprehension questions at the ends of sections or chapters often follow the pattern of ending with key terms (e.g., "What are the four types of galaxies?"). Readers can learn to reread these questions to begin with the key terms in preparation for responding. This provides a means of checking for accuracy in answering questions (e.g., "Four types of galaxies are.... Does my answer make sense?"). Reordering these sentences and questions combined with rereading with a definition helps students access key information. Recognizing the key term in the question also helps students focus their rereading while looking back in the text for that term.

Pronoun-Referents

Pronouns are short, decodable words (e.g., *it, that, this, these*) that take the place of nouns in sentences and thereby decrease redundancy in writing.

Pronouns usually stand for only one of several different nouns from the preceding text (e.g., "There are two ways astronomers detect planets orbiting distant stars. They measure how the stars' magnitude, or brightness, and rotation change. These are clues that a planet is tugging at them"). A large number of sentences in informational text begin with pronouns referring to key terms at the ends of preceding sentences (Fang, 2006). A high proportion of pronouns decreases coherence (McNamara, Louwerse, & Graesser, 2005) and makes comprehension more difficult for striving readers.

Bereiter and Bird (1985) found that readers' comprehension improved when teachers prompted readers to "remind yourself what the 'referent' is—to substitute the 'real thing' for the pronoun" (p. 143). Some students, therefore, benefit when teachers simply point out the pronoun and prompt students to make a connection to a noun. Other students with limited strategic or background knowledge

may need explicit instruction to make the pronoun-referent connection. For these students, (a) interrupt real-time reading to model thinking aloud about pronoun-referent relationships, (b) orally reread the preceding sentence to check for nouns that make sense in place of the pronoun (Bereiter & Bird, 1985), and then (c) model, substituting nouns for pronouns in the target sentence. Provide explicit statements of why a particular choice is the best fit to reinforce the effectiveness of the strategy in clarifying meaning.

The following example was taken from one of our tutoring sessions:

Ms. Gabel: The four largest planets in our solar system are Jupiter, Saturn, Uranus, and Neptune. They are made of hydrogen, helium, and other gases. I wonder what *they* is connected to? *Planets* are made of hydrogen—? That makes sense, but is there a better choice? *Solar systems* are made of—? No, doesn't sound right. *Jupiter* is—? No, Jupiter, Saturn, Uranus, and Neptune are made of hydrogen and helium and other gases. Yes, that makes sense, but *planets* makes sense, too. Both have the same meaning: Jupiter, Saturn, Uranus, and Neptune are planets.

To conclude, restate the target sentence with the noun that fits best, then paraphrase the meaning of the sentence. Students participate by suggesting nouns to substitute and later by rereading the target sentence orally with the substitute noun.

Visual support with sentence stems may be useful in supporting rereading to solve pronoun-referent relationships. For example, Rosanna read the following sentences: "There are two ways astronomers detect planets orbiting distant stars. They measure how the star's magnitude or brightness and rotation change. These are clues that a planet is tugging at them." Rosanna thought aloud: "Astronomers measure how bright stars are and how they rotate. They saw that the different planets pull on one another, that's how they tell there's more planets there." She successfully made a connection between astronomers (they), but she was confused about the final pronoun (them). Ms. Gabel wrote a sentence stem (see Table 1) for Rosanna and then asked, "What was the planet tugging?" Ms. Gabel could further clarify by orally offering choices, such as, "Was a planet tugging at

another planet or *at the star*?" The visual and verbal prompts helped focus Rosanna's rereading on locating the correct noun to complete the sentence stem and think about the connection between the two sentences.

Alternatively, cloze and maze sentences require that students reread to make the correct pronoun-referent connection (see Table 2). In cloze and maze passages, words are omitted and replaced with a blank. To address pronoun-referent relationships, substitute blanks for pronouns to create a maze or cloze sentence. As with sentence stems, cloze and maze sentences may be constructed as the need arises during or in advance of instruction. Maze passages scaffold students' task by providing noun choices after each blank (e.g., "There are two ways astronomers detect planets orbiting distant stars. _____ [Astronomers, Astronauts, Stars] measure how the stars' magnitudes, or brightnesses, and rotations change. These are clues that a planet is tugging at the _____ [brightness, stars, orbit].").

To create maze choices, review sentences preceding the target sentence for possible noun replacements. By contrast, cloze sentences have no choices, making them more challenging than maze sentences; however, in both cases, readers must reread to locate a noun that fits best. Encourage students to reread the text to find the best word for the blank and ask them to state why they chose that term. To diminish the use of maze support, increase the number of noun choices, change to cloze sentences, or use oral rather than written support.

Ms. Gabel decided to use cloze sentences after she noticed that Kimberly typically repeated the text sentences verbatim and seldom replaced pronouns with their referents. Because Ms. Gabel was not convinced that Kimberly understood the meaning based on her verbatim restatement, Ms. Gabel transformed target sentences into cloze sentences, leaving a blank in place of the pronoun. Kimberly completed these sentences by rereading the text to locate the noun that fit best. By the end of the lessons, she more frequently substituted referents for pronouns in the target sentence before paraphrasing, evidence of fully understanding target sentences. Cloze and maze sentences may similarly help students understand appositives.

Table 2
Examples of Questions and Cloze and Maze Sentences to Support Rereading

Sample text ^a	Text feature	Teaching activity	Sample support for rereading
Craters, formed from the impact of meteors, cover the moon's surface. Some are very large, such as Tycho Crater, which is more than 50 miles across.	Key term begins sentence.	Sentence conversion to question (oral, written)	What is a crater? How large is Tycho Crater?
Planets follow an elliptical path called an orbit as they travel around the sun.	Key term ends sentence.	Cloze sentence	A(n) ____ is the path the planets follow as they travel around the sun.
		Maze sentence	A(n) _____ [planet, orbit, trail] is the path the planets follow as they travel around the sun.
There are two ways astronomers detect planets orbiting distant stars. They measure how the stars' magnitudes, or brightnesses, and rotations change. These are clues that a planet is tugging at <u>them</u> .	Pronoun-referents are included.	Question (oral, written)	Who measured brightness?
		Question	What did the planet's gravity pull?
		Cloze sentence	____ measured how the star's brightness and rotation change.
Craters are just one feature found on the moon. Rays, gray streaks thousands of miles long, show where meteors struck the moon, making debris splash out across the surface.	Appositive is included.	Maze sentence	A planet's gravity was affecting ____ [stars, us, moons].
		Cloze	_____, gray streaks thousands of miles long, show where _____ struck the moon, making debris....
		Comma replaced with "is" or "are"	Rays are....

^aText illustrations developed by first author.

Appositives

In informational text, key terms and their definitions or synonyms frequently occur in the same sentence (Fang, 2006) in a construction called an appositive. In appositives, commas separate vocabulary terms from descriptors (e.g., "Rays, gray streaks thousands of miles long, show where meteors struck the moon, making debris splash out across the surface") or definitions. The comma in this case acts as an equals sign by showing that a term and its synonym are equivalent. This sentence construction differs from the more familiar plus sign use of commas separating items in lists or clauses of sentences (e.g., "The four largest planets in our solar system are Jupiter, Saturn, Uranus, and Neptune"). Readers do not necessarily need to learn the technical term, but they need to recognize the special relationship between appositive terms.

To teach appositives, emphasize the equals-sign relationship by rereading and substituting "is" or "was" for the comma (e.g., "Rays, gray streaks thousands of miles long" becomes "Rays are gray streaks thousands of miles long"). This changes the appositive to the more familiar definition sentence structure. Explicitly connecting the key term and its synonym by rereading the target sentence using the terms interchangeably (e.g., "*Gray streaks thousands of miles long* show where meteors struck the moon" or "Rays show where meteors struck the moon") may underscore this equivalence. After rereading in this way, confirm or disconfirm that both sentences mean the same thing and explain why (Bereiter & Bird, 1985; Johnston, 2004).

Sentence stems and cloze and maze sentences may help readers understand appositives as well as pronoun-referent relationships (e.g., "Sputnik is a

_____ [satellite, man, moon]). Although these supports may be oral, visually displaying these sentences may be beneficial for striving readers during rereading. For example, Ms. Gabel used sentence stems as visual aids for Rashid when working with appositives. Rashid did not recognize that Sputnik was the name of a space probe (i.e., “Sputnik, the first man-made satellite to orbit Earth, was launched into space in 1957”). She emphasized the equals-sign relationship between terms using a sentence stem (e.g., “Sputnik is a _____”). This stem provided a framework for him to think aloud about the appositive relationship.

As previously noted, having students think aloud as they complete the sentences and explain why they completed the blanks in a certain way (Bereiter & Bird, 1985; Johnston, 2004) may increase the power of rereading and completing sentence stems and cloze passages. Visual supports that make these connections explicit may also be provided in the form of text enhancements.

Text Enhancements

Many teachers may already be familiar with text enhancements, such as bold or italics, in informational text that cue students to attend to key terms as well as pictures, charts, and diagrams. Rereading is often needed to solidify understanding of these enhanced terms and visual displays. In some cases, however, teachers may use text that does not have enhancements. Students can learn to enhance the text themselves to highlight important information or visually represent important relationships described in the passage. As previously noted, our sixth graders began to preread bold and italicized terms, but they also began to underline unknown terms during silent reading. We observed that as the sixth graders underlined, they reread for meaning. Therefore, one way to promote rereading is to teach students how to create their own text enhancements.

Perhaps the easiest form of enhancement is highlighting or underlining. Prepare by making photocopies of paragraphs to highlight with students. We had students silently read and underline to identify sections of text they found confusing or that contained important terms. Once text enhancement is complete, students “read around the words”—that is, they reread sentences before and after the key term. During rereading, model how to enhance the

phrase or sentence that explains the term (i.e., the context). Model for students how to highlight only key phrases and descriptors rather than long sections and why (e.g., “Will it help us if the whole paragraph is yellow?”). Highlighting different key term–definition pairs with different colored markers helps students match the words with their meanings quickly. Students can also “lasso and rope”—that is, model how to draw a circle (lasso) around the key term and a line (rope) to its definition (see Figure 1). Withdraw support gradually as students learn to highlight or lasso independently.

With original text that cannot be marked, prepare highlighting tape, sticky notes, or strips of paper to function as enhancements. Use these notes as manipulatives, placing them in the text where they can serve as reminders of where key terms and definitions occur. This process facilitates rereading, as students can quickly locate important information. For example, write out nouns that function as referents in a particular passage on sticky notes and have students place these next to pronouns to replace them in the text. Remind students to reread and substitute the noun on the sticky note to clarify meaning. Provide students with a short list of nouns prior to rereading and help them create their own manipulatives to place in the text. These text enhancements remind students to attend to meaning and reread when they have lost meaning.

Final Thoughts

Rereading represents one of the many skills spontaneously engaged by good readers (Pressley & Afflerbach, 1995). By contrast, striving readers may not reread for a variety of reasons, including the amount of effort required, the length or difficulty of the text, or the perception that it will not be helpful. Other students may not reread simply because they do not notice that they have lost the meaning of the text. Students can learn to purposefully reread and recognize situations in which it is both efficient and effective. This requires that teachers identify particular sections of text that can be clarified when students reread.

Perhaps because teachers are good readers, they may underestimate the amount of practice readers need to master skills such as rereading or the effort it requires for some students. Readers need multiple exposures with a variety of texts to become efficient

Figure 1
Text Enhancements Used With a Researcher-Developed Passage

Life Cycle of Stars

When you look into a crowd, you see people of all ages—babies, children, adults, and the elderly. Looking at people of different ages, you can describe how humans change and grow. In the same way, astronomers can look at the different kinds of stars in the night sky and determine how they change over time. Features of stars such as temperature, brightness, and color help them describe the life cycle of stars.

Stars are born in a ^① nebula, a cloud of dust and gas in space. When heat and debris from a nearby exploding star disturbs the nebula, the gases begin to rotate. This spinning causes the gases to squeeze together. If enough gas collects, a new star or ^② protostar forms. Protostars continue to rotate and collect gas from the nebula as they grow and increase in temperature. When the temperature in the core of a protostar reaches 27 million degrees F, ^③ it becomes a "main-sequence" star. A main-sequence star like our sun shines brightly for billions of years changing hydrogen into helium, light, and heat. When it begins to run out of ^④ fuel, it grows larger and cools, forming a red giant.

A red giant is a very old star near the end of its life, but ^⑤ it may be hundreds of times larger than our sun and a thousand times brighter. However, red giants have a relatively low surface temperature, about 3000 degrees F. ^⑥ Once all of its hydrogen and helium are used up, the rest of its gases burst into space in a great explosion. Supernovas or explosions of red giants sometimes create the nebulae where new stars are born. After the supernova, all that is left of the red giant is the core—a small hot star called a white dwarf. In this way, the life cycle continues with new stars beginning to shine and old stars exploding then fading over billions of years.

Restates main idea

6 steps in cycle

implementers (Anderson, 1996; Gaffney et al., 2002). This practice, however, should be designed for high rates of success, as rereading may represent an arduous task for striving readers. We found that after 15 tutoring sessions, our sixth graders were just beginning to adopt the rereading activities that we practiced with them. Although they still required a great deal of support, we found it encouraging that they were willing to reread to make meaning in collaboration with their tutors.

The complexity of informational text may require a great deal of problem solving for readers to comprehend and build new knowledge. Because of the specific characteristics such as pronoun-referent

and appositive relationships frequently found in informational text, we determined that it was a tremendous medium for extensive practice with rereading. Teachers can identify sections of text that provide opportunities for successful comprehension as a result of rereading and paraphrasing. Multiple experiences with these conditions may lead to successful meaning making and generalization to other reading contexts.

Notes

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