

## CHAPTER 3

# Meeting the Reading Comprehension Demands of Each Content Area

Let's begin by thinking about what we mean by *reading* and more specifically what it means to read in math, science, and social studies. Reading is a complex skill that many of us spend a great deal of time focusing on in our elementary classrooms. Think about all of the reading skills that our students must learn. Very young students must develop concepts of print. Students need to learn that we read from top to bottom and left to right, and that we read words not illustrations. Additionally, we teach Dolch and other sight vocabulary words that students must recognize. As part of our early literacy instruction, we foster decoding skills through phonemic analysis so that students can figure out unfamiliar words that they encounter. Finally, we encourage students to use picture cues, skipping and rereading, and metacognitive monitoring to help them with unfamiliar words in the text.

As students master these basic skills and move beyond the primary grades, we move on to what Shanahan and Shanahan (2008) call “intermediate literacy” (p. 45). We help students at this level comprehend by encouraging a wide variety of literacy strategies. K-W-L plus, directed reading thinking activity, Venn diagrams, and other strategies expand students' background knowledge, strengthen their vocabulary, and encourage metacognition.

Our goal in developing these reading skills is to enable our students to understand that print has meaning and to ensure that they have a wealth of strategies in their toolbox when they encounter words they cannot read. Research suggests that we are very successful at developing these levels of literacy. Our students are reading markedly better than they did years ago, and our standardized scores demonstrate that (Perie, Grigg, & Donahue, 2005). However, as students progress in their schooling and move beyond

elementary school, they are unprepared for the textual demands they encounter.

Shanahan and Barr (1995) have a wonderful analogy for this trend in literacy thinking, which they refer to as the “vaccination approach.” It is often believed that if early literacy issues are funded and strengthened—if students are “vaccinated” early on—students will continue to read without problems for years to come. Unfortunately, that does not appear to be the case. The great improvements we are seeing with younger students are not lasting after they leave our elementary classrooms and proceed on in life. Keeping with the vaccination analogy, this type of approach in actuality is similar to the flu shot. The vaccination approach, with a strong emphasis on basic and intermediate literacy skills, helps students at the lower literacy levels. However, the approach leaves students unprotected for all strains, or types, of literacy demands they encounter later. When our older students are faced with the demands of specific content area reading, they are unprepared to be successful readers. In fact, Greenwood (2004) stresses that middle school students actually encounter a wall with content area reading. This wall can be removed by presenting students with the skills and knowledge they need to be prepared for math, science, and social studies reading.

As elementary teachers, we want our students to be successful throughout life in their reading. Even though we must focus on the basic and intermediate literacy skills, we must also begin at even the youngest of ages to focus on the reading demands found in disciplinary literacy. Although it sounds like one more task to add to an ever-lengthening list of material to cover and items to teach, it just means that we need to rethink how we present material and strategies. We need to draw students’ attention to the unique reading demands of the field of mathematics and help them realize that they must consider content areas when reading. When we read a math word problem, a document on the U.S. Civil War, or a section of text explaining how we digest food, we read the text very differently.

### **DISCUSSION POINT**

Think about the important role that comprehension plays in reading. How does the way students read in math vary from the way they read in social studies and science? How can we draw their attention to the fact that reading requires different skills and strategies in different content areas?

## ***What Does This Mean for the Content Areas?***

If I asked you to review a letter, a book, or an online article on a significant historical event, you would not be surprised if I told you to read it and then invited you to talk about it without looking back at the text. What would happen? You would summarize what you learned and discuss the gist of your reading, which would probably work. However, if I asked you to read a math word problem and then turn over the sheet and tell me the gist of what you read, you would probably be shocked, to say the least. With math, we must teach close reading and rereading of text. Students must realize what the problem is asking them to do and be able to sift out erroneous information, which is just one example of how reading in science, social studies, and math differs. Therefore, let's now look at each of the three content areas to determine the types of reading skills we need to develop in our students, the goals we have for them in those areas, and the types of activities they may participate in to be successful with the reading demands of these subjects.

Mathematical reading requires a very unique type of reading. Let's think about what we expect students to know and be able to do when it comes to reading related to mathematics. Throughout their schooling experience, students are presented with word problems and expected to be able to determine the best way to solve the problem. Even when students are presented with problems within trade books, they must often approach the text as they would a word problem in a textbook. They must determine what information is important and what is not important to solve the math problem. Students must therefore understand the value in close reading and rereading as two extremely important strategies to use with text.

With scientific reading, students are often required to look at text and then diagrams and charts that extend the information present in the printed words. As they read, students must be able to visualize what they are reading. Moving from reading printed words to visuals on a page and back to printed words is a sophisticated process. It means students are not using the skills of beginning at the top of the page and reading until the end of the text as they may have traditionally done with narrative text. Students stop, start, and stop again as they seek to understand the relationship of the visuals and the text and gain meaning from the print. They need to read a great deal of factual information and be able to understand it.

Social studies text requires an entirely different type of reading. As we all know, this type of text is quite dense, with a great deal of information discussed in very few words. Let's think about some of the textual demands that students might encounter while reading through a social studies text. Shanahan and Shanahan (2008) point out that although there may be fewer technical terms in social studies, the general difficulty of words is high. When I reviewed two elementary-level books pertaining to the Civil War, I found words such as *advisor*, *resigned*, *stroke*, *honored*, and *majority*. Although those words may not be familiar to many students, they are not words that readers would anticipate seeing in Civil War texts. Learning and reading about famous people is valuable, but how were events and people a part of the bigger scheme of things back then? How did it all fit within trends we see in history? We must assist students so that they can continue to successfully read social studies text and understand the textual demands. Students must also understand how to compare multiple sources through careful analysis and understand how others impose their opinions on text. According to VanSledright (2002), this is difficult to learn because students from a very young age are taught to see texts as factual and true accounts of what really occurred. With all of the information bombarding students now in the informational age, it is especially important to help them critically evaluate texts.

The following activities are not all inclusive. There are many ways that we can prepare students to read text related to specific disciplines. However, these activities are meant to provide concrete ideas for drawing students' attention and interest to thinking about how they read in math, science, and social studies. When we ask a young student about reading, chances are they will talk about words and books. Students will not intuitively think about reading within various content areas as requiring different skills unless we help them with this important process, which must begin in the elementary grades.

## **Math**

Word problems may be the greatest mystery of all time. When teachers tell me that students struggle with word problems, it is clear that some things never change. Has there ever been a time when word problems were easy for students? I remember struggling with them as a child. If I said to an adult, "The train leaves the station at..." I am sure many eyes will

roll. It is so much easier to solve math when it involves symbols, such as  $2 + 2 = \underline{\quad}$ , because we know what we must add to determine an answer. In word problems, the mathematical operations required to determine the answer are never explicit. We must take words and translate them into symbols and vice versa. All three of the strategies shared in this section show students that math is similar to a puzzle. The first strategy is designed to help them translate words into symbols. The second strategy draws students' attention to mathematics and requires them to use color to help "read" the words in a problem. Finally, the third activity is designed to help students think about everything they read in math and determine what is and is not important in the problem.

## **Word Problem Code Breaker**

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This strategy helps students translate words into math symbols and vice versa (Altieri, 2010). It is a way to help students learn what keywords in math word problems mean. Students will come to associate specific mathematical symbols with various words they might see in word problems.

Students must realize that when they read mathematical text, they must read every word. Although polysyllabic technical words might be the ones that create difficulty in other content areas, many math teachers have shared the difficulty in getting students to realize that small words such as *is* and *of* must be noticed because they can have an impact on the answer to a problem. With social studies text, it may be enough to get the gist of the material, but mathematics is different. Students must not only pay attention to specific words but also be able to understand their meanings specific to the field of mathematics.

The Word Problem Code Breaker is a great strategy regardless of the age level (see page 212 in the Appendix for the reproducible). Young students can complete the sheet as a whole-class activity and will only be able to complete sections for the operations they have learned. Older students may work in groups to complete individual sheets that they can keep and use to help them solve future word problems they encounter. Students can continue to add words to their sheet as they deal with progressively more difficult problems.

The purpose of this strategy is not to stop using concrete objects to complete math problems but to enhance the use of such methods. The purpose of the reproducible is to introduce the idea that reading in

mathematics is done very differently from other types of reading with which students may be more familiar.

## How It Works

1. Provide students with a copy of the Word Problem Code Breaker reproducible. First, explain that the sheet has the equal sign in the middle of the page and areas to brainstorm all of the words that students might see for each operation (i.e., addition, subtraction, multiplication, division). It is often less confusing for students to complete the page counterclockwise to align with the order in which they learned the mathematical operations, denoted by the large *C* on the sheet. The *C* is a reminder for students to proceed counterclockwise, in the same direction that they typically write a *C*. Therefore, students will begin by brainstorming words that might mean *addition* in the top right section of the paper.
2. Divide the class into small groups and ask them to brainstorm words they see or have seen in word problems that are used to mean each of the operations on the sheet. To do this, they may want to look at their math books or children's books that contain word problems.
3. Begin with addition. Ask one group to share all of the words they brainstormed. After the first group of students shares what they wrote in the addition section of their sheets, the other groups can give additional ideas. Everyone in the class can add terms to their own papers as ideas are shared. Continue on with each group sharing until the last group shares what they put in the oval in the middle of the page, and others have shared additional ideas for the term *equal*.

Very young students may be presented with the following problem:

There are six cats sitting on a fence. Four of those cats get off the fence. How many cats are left?

The students may draw and write out their answer to the problem. Many times students at this age are also expected to write the number model. For this example, the answer expected might be  $6 - 4 = 2$ . Students may draw six cats and put an X over four of the cats. Even a simple problem such as this has words that have mathematical meaning.

How do the students know that they are not adding the number of cats but instead are subtracting? Many very young students will respond that it makes sense. They draw their illustration, and since some cats are no

longer there, they illustrate “take the cats away” by drawing an X through four of the individual cat pictures. Take that moment to point out that the words “are left” often means that the reader is being asked to subtract and not add. Similarly, problems geared to the youngest of ages that ask “for the total” in a math problem often require adding. The students can reread or listen as the recently solved problem is reread and compare other problems they have completed to see if those problems had a similar wording and if they subtracted in those problems.

This strategy can also be easily used with word problems written for much older students. Older students may read the following:

The sum of three times a number plus 10 is 25. Find the number.

Students could read through the word problem and determine which words are code words for mathematical operations. *Sum* refers to addition, *times* refers to multiplication, and *is* means equals. This strategy is a very versatile one for math because it can be modified and used at a variety of grade levels.

### **Additional Ways to Try It Out**

Although very young students will not be ready for the Word Problem Code Breaker sheet, they may be introduced to a modified version. You can create a chart or even a section of a wall with only the plus and minus signs on it. As students read and notice similar words in the problems they solve, these words can be added near the correct symbol. For example, they might list words such as *more*, *adds*, *in all*, and *plus* in the + section. Under the – sign, they may also list words such as *take away*, *minus*, *leaves*, *removes*, and *are left* that gave them cues to use subtraction.

### **The Color Connection**

The Color Connection is a strategy primarily geared for upper elementary students and uses color as a way to help them develop mathematical literacy. This strategy requires students to read words and translate them into symbols. Therefore, students can translate a word problem into its symbolic form. This strategy also emphasizes a close reading of equations. The Word Problem Code Breaker sheet (see previous activity) can be tied into this activity.

## How It Works

1. Provide students with a written equation such as the following:

A rectangle's perimeter is equal to two times the length plus two times the width.

2. Ask students to underline or highlight the words that mean "equal to" in a specific color.

A rectangle's perimeter is equal to two times the length plus two times the width.

3. Then, ask students to change the underlined words to their symbolic equivalent, the equal sign, and highlight that symbol with the same color. This separates the sentence into two distinct parts, to the left and right of the equal sign, and shows that there are two sides to the equation.

A rectangle's perimeter = two times the length plus two times the width.

4. Have the class highlight the first part of the sentence in a new color and the second part in yet another color (denoted by **bold** and *italics* here).

**A rectangle's perimeter** = *two times the length plus two times the width.*

5. Students should look at their Word Problem Code Breaker sheet and circle the operation words they found in the word problem.

6. The circled words should be replaced by their mathematical symbols. For "times," the students can use an  $\times$  or a multiplication dot ( $\cdot$ ). In addition, the plus sign represents "plus" in the equation. Students insert the symbols for those words.

A rectangle's perimeter = two  $\times$  the length + two  $\times$  the width.

7. Talk about how the numbers in the sentence must be changed into their symbolic representation so that there are fewer words at the final steps. There are only two numbers in this problem, so when they are changed into their symbolic representations, students have the following:

A rectangle's perimeter =  $2 \times$  the length +  $2 \times$  the width.

8. Discuss how the variables must represent exactly what they measure. If the reader does not know how much he or she has of something, then that is the unknown, or variable, quantity. Perimeter could be represented by  $P$ , length could be represented by  $L$ , and width could be represented by  $W$ . Insert those letters into the equation to represent those words.

(Now that we are working with an entirely symbolic problem, the period is deleted, which is how students will most often see these types of problems.)

$$P = 2 \times L + 2 \times W$$

9. Students have just translated words into symbols. They have gone from the English language to the algebra language. Older students may understand that  $2 \times L$  is equal to  $2L$  and that  $2 \times W$  is equal to  $2W$ . If so, both  $\times$  symbols can be removed.

$$P = 2L + 2W$$

10. Reread the answer and compare it to the original written equation.

Many students are visual learners and respond to color. This activity initially uses color to focus students' attention on translating a written problem into its symbolic equation. Using color makes each step clearer to the students as they go through the mathematical process.

## Stoplight Strategy

Even the youngest students understand the meaning of the colors on a stoplight. Often in the early grades, teachers use a stoplight system for behavioral management. Green means that students should keep doing what they are doing, yellow means that they must use caution and think about how they should change their behavior, and red means to stop and change behavior. Whether it is a stoplight on which students have individual clothespins signifying their current behavior or some other method of denoting behavior with colors, the very youngest of students understand those three important colors.

That is why I like to use those colors to help students know what to do when they are reading the text in a word problem. They first get the green light to read through the word problem and then they must stop. When stopping, they have to ask themselves some very important questions. What is the word problem asking them to do? The students can either determine the problem orally as a group or individually write the problem, depending on their age and experience with the strategy. Then, they proceed with caution as they decide what is important or unimportant textual information to answer the question. Understanding what is

important in a word problem and what is not important is a very difficult concept for young students, but with teacher assistance, even those at the younger grade levels realize that they must read mathematical problems and stories differently. They must also monitor their understanding as they complete the steps.

## **How It Works**

1. Begin by talking about the colors on a traffic light and let students explain what those colors mean to drivers. Why must we have traffic lights? Then, tell the students that they will be using those same three colors to help read word problems.

2. Read through and discuss the following steps with students:

Green = Go

Carefully read the word problem.

Red = Stop

Think about what you read. Before going on, state the problem that you must solve.

Yellow = Proceed with caution.

Look at the text and list all of the information as either important or unimportant.

Red = Stop

Can we take the important information in the problem and write out the steps we need to complete?

Yellow = Proceed with caution

Let's look at the steps to see if we can determine the answer.

Red = Stop

Does the answer make sense? How do we know that it is reasonable?

3. As a class, work through one word problem together using the Stoplight Strategy for Solving Word Problems reproducible, found on page 213 in the Appendix, which may be used with students to help them through the process.

4. Next, students should work in groups or individually to see if they can apply the strategy to other math problems they encounter. The

reproducible should not have to be photocopied every time students try to answer word problems. Instead, keep the steps on a chart posted in the classroom for students to reference. As time passes, they will internalize the types of thinking they must do to solve word problems.

Students in the early grades often work with very simple word problems. When students get to step 4, they may only have one step to complete their problem. However, those at older levels may have several steps required to determine the answer.

### **A Look Inside One Classroom**

The following word problem is very similar to ones that might be completed in second grade. The following shows how the Stoplight Strategy might look in action:

#### **Green = Go**

Teacher: Let's read through the word problem.

Second graders had a field day. There were 3 teams of second graders created for the races. Those teams competed in wheelbarrow races, sack races, and an obstacle course. There were 4 children on each team. How many children were in the races altogether?

#### **Red = Stop**

Teacher: After reading through this word problem, what problem are they asking us to solve?

Student: We have to figure out how many second-grade kids were in a relay race.

#### **Yellow = Proceed with caution**

Teacher: Let's see if we can figure out what is important information and what is not important information from the text and create lists. If we aren't sure, we'll let the information stay in the important information part of our chart.

Student: I don't think we really have to know the types of races they had that day.

Teacher: That's right. Which sentence contains that information?

Student: The third one.

Teacher: Can we just remove that sentence? Let's read it out loud and make sure there isn't anything we need to know to help us figure out the problem. If we agree, then we'll draw a line through the unimportant information.

~~Some second graders had a field day. There were 3 teams of second graders created for the races. Those teams competed in wheelbarrow races, sack races, and an obstacle course. There were 4 children on each team. How many children were in the races altogether?~~

Teacher: Is there anything else that we can remove?

Student: The first sentence doesn't really tell us anything important either.

Teacher: What does it tell us?

Student: It just tells us the grade and that they were having a field day.

Teacher: Does everyone agree? Let's go ahead and draw a line through that sentence, too. That was a good point because it doesn't really matter what grade the children are in in the story. Let's also remove part of the second sentence.

~~Some second graders had a field day. There were 3 teams of second graders created for the races. Those teams competed in wheelbarrow races, sack races, and an obstacle course. There were 4 children on each team. How many children were in the races altogether?~~

### **Red = Stop**

Teacher: Let's look at the problem we have left and write down the important information we know.

There are three teams for the races.

Four children are on each team.

We need to determine how many children there are altogether.

Teacher: Let's rewrite this information as a math problem with numbers and symbols.

$$3 \times 4 = ?$$

### **Yellow = Proceed with caution**

Teacher: Let's try to solve our problem.

$$3 \times 4 = 12$$

## **Red = Stop**

Teacher: Does 12 make sense for an answer?

Class: Yes.

Teacher: How do we know it is reasonable?

Student: The answer has to be larger than the number of teams, and it has to be bigger than the number of kids on each team.

The Stoplight Strategy encourages students to closely read and reread word problems. By getting students to use their metacognitive skills and think about each step, we help them realize that math word problems must be read differently than many of the texts they encounter on a daily basis.

## ***Science***

As we think about the demands of scientific reading, we realize that we often must read factual information and develop a complete understanding of the material. Similarly to math, readers must know what is important and what is not important. They also encounter technical vocabulary that may not be familiar. Often as readers, we get caught up in the narrative and forget to focus on the facts provided within the text. Furthermore, scientific writing often contains an assortment of graphic aids. Charts, diagrams, and graphs are often found within the pages, and students are expected to be able to shift between reading words to looking at visuals and vice versa. If they are not taught the importance of such visuals, many students will merely skip the visual aids and read the actual text.

The activities that follow help students determine important textual information, encourage the expansion of technical vocabulary, and focus their attention on the importance of visuals related to science texts. The first activity, Talking Drawings is a great way to introduce the importance of visuals to students by engaging them in creating pictures. Next, the Text Roles activity is designed to focus students' attention on the skills they need to navigate science text. Each role develops specific disciplinary literacy skills related to science.

## **Talking Drawings**

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Originally developed by McConnell (1993), this strategy is a great way to help students focus on the importance of visuals. Because visuals play a

key role in many science texts, it is important that students see drawings as a source of information when reading science content. Through student-generated drawings, students are able to share their knowledge and technical information (Fello, Paquette, & Jalongo, 2006). Not only will this activity help them visualize what they hear or read about in texts, but it also can provide them with additional opportunities to increase their understanding of specialized words. While some strategies must be modified to work with a range of ages, Talking Drawings is one that can be successfully used for various grades with only minor modifications to better suit the needs of the teacher and students.

Although students may read the science text to themselves to complete the activity, this strategy is an excellent way to tie in teacher read-alouds with informative texts and content area material. Tying comprehension strategies with science content is an excellent way to support student learning (Connor et al., 2010), and this strategy is an excellent way to do just that. Research strongly supports the importance of orally reading aloud informative texts to students (Smolkin & Donovan, 2001). Although teachers have read stories aloud to students for years, the text of choice was often a narrative book. However, as the focus on the use of informative texts in the classrooms increases, it is important that these texts be seen as viable for read-aloud time with students. Through the oral reading, students can build background knowledge, develop a better understanding of the technical vocabulary and content information in the text (Webster, 2009), and focus on the linguistic features present in such texts (Jalongo, 2006). Furthermore, according to Pappas (2006), the discussion that ensues allows teachers to model scientific language.

### **How It Works**

1. Choose a science topic that students are preparing to study or just beginning to study.
2. Select a quality informative text pertaining to the topic. Chapter 2 contains many ideas for locating such texts. Since the text is to be read aloud, be sure to read it aloud on your own or to a peer several times before sharing it with students. Often, informative texts are more difficult to read aloud than the narrative ones, which is often due to a lack of experience with reading such texts aloud and the linguistic features that mark such texts. Locate several discussion points in the book where you

might want to stop and have a discussion with the class. Decide how you will draw the students' attention to linguistic features that the author uses in the book. Just as with a narrative text, and even more so with an informative text, engage the students throughout the read-aloud. Asking questions at the end will not keep them engaged with the text, and there is no way to know what they are and are not learning as the text progresses.

3. Introduce the science topic and text to the students. Explain that before the book is read to the class, they should draw an illustration of the topic. Discuss what they may gain from drawings and other types of visuals they create or view. It is often easier to draw a picture than to write about a topic because students may lack the language skills or knowledge of content-specific terms. While drawing, students are able to think about any prior knowledge they may have on a topic and may remember other information as the drawing progresses. Finally, ask them to think about how authors use such visuals to help readers gain a better understanding of text. Have they ever seen information presented in pictures and found it easier to understand than the written words? Rebus stories are often used when students start reading. These books contain pictures in lieu of some words. Likewise, pictures are equally important as students progress through the grades. Instead of replacing words, visual aids are often used to add important information to the text. Talk about maps, graphs, and other types of illustrations they have seen.

4. Allow time for students to create an illustration on the topic. Ask them to draw a picture to share what they know about the topic. They may label items, write phrases, or just draw.

5. Have students share their drawings with the rest of the class.

6. Orally read and discuss the selected text with the students.

7. Ask students to then modify their drawings, or if it is easier, they can create entirely new ones for the topic based on the text they just heard. Have them add information they learned. Encourage them to label parts of their illustrations and use any new technical terms they heard in the story.

8. Talk about the strategy. Have students share their illustrations with the rest of the class. They can talk about what they changed after the story was read or share their two drawings if they made a new one after hearing the text. By listening to others share their drawings, students are having technical vocabulary reinforced and perhaps hearing information they missed when

the text was read. Encourage them to refer back to the book read when discussing why they added certain information to their pictures.

For example, if young students are learning about birds, they may draw a picture of a tree, some birds, and grass prior to listening to a text such as *What Bluebirds Do* by Pamela Kirby (2009). After reading and discussing the text, students may choose to add details and labels to their drawings. Based on information gained from the text, students may choose to draw a knothole on the tree and label it “cavity,” or they may add a nest box to the tree. They may also show a group of nesting boxes and label it “bluebird trail.” Smaller birds may be labeled “chicks,” or a group of chicks may be labeled “brood.” Since the first flight is referred to as a fledging, a student may draw a chick in the air and label it “fledgling” (the name of the chick after its first flight). Even parts of the chick might be labeled, such as the down (the hair on a recently born chick) or the beak.

After the second drawing is created or the first one is modified, let students work in groups or pairs to share their drawings with each other. Students will reinforce the technical science vocabulary they are developing and expand their vocabulary and content knowledge by talking with others. Listening skills and cooperative learning will also be strengthened. While they are reinforcing the skills and background information they need to read science texts, it is evident that they are also learning to visually represent and view visuals that they did not create.

### **A Look Inside One Classroom**

A first-grade teacher was teaching a two-day unit on turtles. She began by letting students know that they would be learning about turtles. Before they began, she encouraged them to show her what they knew by drawing a picture. They could label parts of the picture or write a sentence on it if they wanted to do so.

The teacher then had the students orally share their pictures. Many of the pictures did not have labels. Most students just drew pictures of turtles, and some included sand, water, and eggs. After sharing the pictures, the teacher orally read the informative text *Sea Turtles* by Gail Gibbons (1999). The book talks about eight different types of sea turtles and goes into detail about each type’s characteristics. The pictures in this book for young learners are clearly labeled. After reading the book, the teacher had the students give her facts about sea turtles, and she listed those on the smartboard.

Finally, they drew a second picture showing what they knew after listening to and discussing the book. The students, even at this young age, did a great job. Some of their new pictures looked entirely different from their first ones. One student's original picture depicted a turtle and eggs on the sand with water nearby. This student's postreading picture showed only a turtle, but six parts of its body were labeled: "tal," "shell," "bacfliprs," "fliprs," "yis," and "mouth." Another student chose to keep his before and after drawings almost the same with an illustration of a turtle, sand, and water. However, on his after picture, he labeled "weeds," "water," "baby trtl," and "sand." When the teacher asked why, he said he was showing what he had learned from the read-aloud.

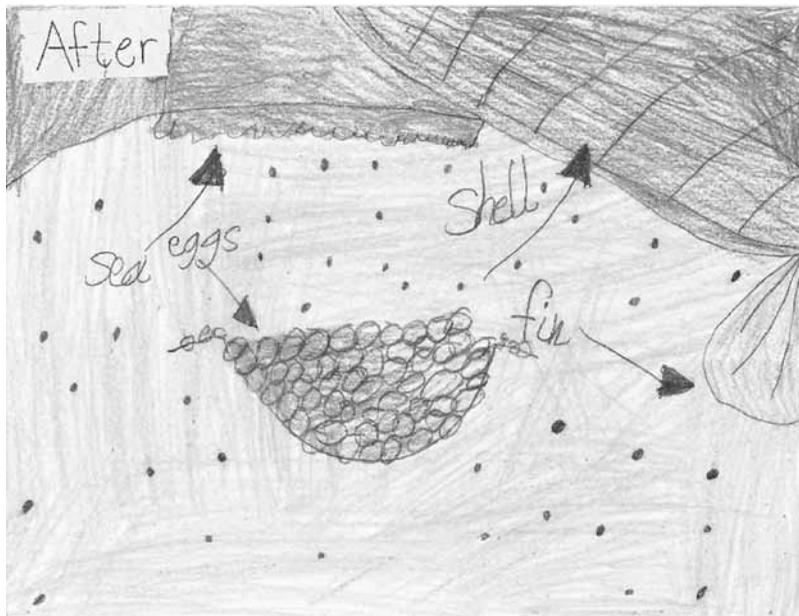
One of the more interesting examples is Shannon's drawings. Her before and after pictures are shown in Figure 1. Many books for young readers use anthropomorphism, giving inanimate objects and animals human characteristics. This practice is often criticized in informative trade books because children have trouble differentiating between real and make-believe. In Shannon's before picture (Figure 1A), the four turtles look almost human. Two of the turtles have long eyelashes and big, pink lips. I would venture to guess that she was showing boy turtles and girl turtles in this drawing. After hearing the informative text by Gibbons, this first grader made a much more scientific drawing (see Figure 1B). She clearly labeled with arrows the sea, eggs, fin, and shell. Also, she showed the turtle leaving the sand after laying the eggs to return to the sea. This correct sequence of events shows that Shannon has an understanding of how sea turtles lay their eggs.

All of the students' drawings demonstrated a gain in knowledge after hearing the book. Not only did Shannon's second picture show a better understanding about sea turtles, but it appears that her initial picture may have been influenced by fictional books or movies that she may have seen previously. Although she may not know how to distinguish male and female turtles, real females do not have big, pink lips and eyelashes. Shannon's second drawing appears to focus more on scientific aspects of turtles. The results demonstrate the importance of providing informative books for students on various scientific concepts.

### **Additional Ways to Try It Out**

If desired, this activity can also become progressive talking pictures. Teachers may select several trade books to read aloud that are based on

**Figure 1. A First-Grade Student's Talking Drawings**



Note. These drawings were made before and after the teacher read a book on sea turtles to the students.

the same topic. Each day, the students can add to their drawings after the trade book is read or create new ones. The discussion with a partner is still a critical element, because students learn a lot through collaboration. This discussion can clarify misunderstandings that students may have about the content. When the trade books are all read, students can look at their drawings and see how much information they gained through the successive texts. Students may also use a different color to label items after each text is read to them, so they can see how exponentially their content knowledge is increasing.

Visuals play a key role in science content. As students progress through the grades, that role can become more and more important. Through talking drawings, students explore the importance of visuals and the knowledge that can be gained from them. The collaborative nature of the strategy adds further learning potential, and the small-group sharing is essential. Through this strategy, students gain new technical vocabulary and background knowledge that will help them when they are presented with future science material on the topic.

## **Text Roles**

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Teachers over the years have enjoyed using roles in literature circles with a variety of grades (Daniels, 2002). Literature circle roles provide students with a purpose for their reading and a task to complete prior to a class discussion of a text. The teacher divides the class into small groups, or literature circles, and then individual students within each group are assigned a role. Daniels is quick to point out that although teachers will want to provide printed copies of the tasks to use with students when first introducing them to literature roles, eventually the students will internalize the roles and not need the printed copies. Many teachers designate tasks for each student, such as seeking out vocabulary words, illustrating an aspect of the story, leading the discussion, making connections to other material, or providing a summary. Teachers may take these roles a step further and use roles that are specific to a content area, which can foster the type of reading skills necessary to develop disciplinary literacy knowledge.

Let's look at the skills necessary to understand scientific text. As previously discussed, students must learn how to shift their focus from visuals

to text and vice versa, summarize the material and eliminate unimportant information, develop technical vocabulary, relate the information to the world around them, and read critically. Each of the roles in this activity focuses on some of those goals. Therefore, it is critical that students alternate roles, so they have an opportunity to develop a variety of disciplinary literacy skills.

## How It Works

1. Begin by determining a scientific topic for students to explore. This topic may be broad (e.g., habitats) or may be more specific (e.g., changes that occur in nature during winter).
2. Find a variety of texts related specifically to the topic. Look through suggestions shared in Chapter 2 for finding recently published, quality texts. The suggestions can also be used to determine if texts are at a suitable level for the students. Students can play a part in this decision process by also sharing ideas for texts. If students are currently learning about habitats, the teacher may share book talks on texts such as *What Bluebirds Do*, *Wolfsnail*, Tannis Bill's (2010) *Pika: Life in the Rocks*, or *The New York Times* bestseller *Turtle Summer: A Journal for My Daughter* by Mary Alice Monroe (2007). Then, the teacher might let the students determine which books they want to read. By having them participate in the decision process, they have choice, which is a powerful motivator in the classroom.
3. Determine how you want to use the content area text with the text roles. There are two ways these roles might be used: Teachers can have each group read the same text or read an informative text based on a specific topic. Both of these methods can be used with the same role sheets. For example, if the class is learning about nature, each group may choose to read texts specific to one aspect of nature. One group may select texts related to winter or, more specifically, what happens to nature in winter. *Wings of Light: The Migration of the Yellow Butterfly* by Stephen Swinburne (2006), *Bugs and Bugscicles: Insects in the Winter* by Amy Hansen (2010), and *Under the Snow* by Melissa Stewart (2009), which describes what happens under snow in a variety of habitats, all pertain to the topic, yet they are representative of a range of difficulty levels. It is important to ensure that the text options meet the needs of the struggling readers as well as the most proficient and skilled readers.
4. Discuss with the entire class each of the possible roles that students may be assigned. As Daniels (2002) states, the role sheets he shares in

*Literature Circles: Voice and Choice in Book Clubs and Reading Groups* are meant as “book club training wheels” (p. 99), and the same is true with the reproducible role sheets in the Appendix (see pages 214–218). The goal is for students to begin to think like scientists and draw attention to the skills they need to develop. As students experience the roles, they will think about key points, visuals, vocabulary, and connections outside the text, and eventually they will not need to have a role assignment to discuss a text pertaining to a specific topic. The following is an overview of each of the roles.

**Visual Expert.** Students must learn to view and create visuals that contain scientific information. Students have a great deal of experience seeing visuals but not necessarily viewing them with skill. Visuals are found in the media, on the Internet, and in books, but to be experts at viewing them, students must be able to analyze the information presented and understand the purpose of the author or creator of the visual. Although students may be tempted to skip over visuals to save time while reading text, because they do not really understand the importance of the graphs, charts, and illustrations, this role focuses attention on those visuals. Students must carefully analyze the visuals in the text and determine whether they serve a purpose or could have been modified to be more informative or interesting. Students can also be invited to create visuals that they think might be more appropriate for the text they are reading. The visual expert’s contribution to the group dialogue will engage the other group members to also examine and discuss the visuals within the text (see page 214 for the Visual Expert Role Sheet reproducible).

As an example, the teacher may take a picture walk through a book such as *Cicadas! Strange and Wonderful* by Laurence Pringle (2010). Within the pages, students can identify many types of visuals that are used to enhance the text. There are labeled pictures, diagrams, charts showing the life cycle, sequentially numbered pictures, and even maps. As the class looks through the text, they can discuss the types of visuals they see and how they enhance the text. Then, students can look at the visuals in other quality books, such as *Mysteries of the Komodo Dragon: The Biggest, Deadliest Lizard Gives Up Its Secrets* by Marty Crump (2010) or *Seed, Soil, Sun: Earth’s Recipe for Food* by Cris Peterson (2010). These two books have amazing photographs that accompany the text but limited visual aids common to informative texts.

Students can then discuss what types of visual aids might make reading those books easier. Perhaps maps or a timeline would add visual knowledge to Peterson's text. Students might suggest adding a diagram of the Komodo National Park to Crump's text because it is mentioned in the book. They may also suggest a map showing the different locations of zoos mentioned that have Komodo dragons. The text discusses the size of their eggs and the length of the babies when they hatch. A life-size drawing for the text, scaled to size, might make that information even more interesting. Perhaps a timeline could be used to show some of the dates mentioned in the book. Finally, students might consider fact boxes, which could highlight amazing trivia mentioned in the text. Many students will be interested in knowing that Komodo dragons' saliva kills their prey or that they can also sniff out dead animals from seven miles away.

**Mad Scientist.** With this role, students are encouraged to think about the mad scientists they have seen in various media or read about in texts, and be just as obsessed with science as the mad scientists. Students are encouraged to read the text and then search for outside information on the topic or even the author (see page 215 for the Mad Scientist Role Sheet reproducible). They are encouraged to be creative and keep their eyes open for any type of brochures, websites, experts, and other sources that might add information through text or personal interviews. This role will lead students to make intertextual connections (Kristeva, 1984) as they compare information found in multiple sources. The role sheet has a place for students to list a source, a page number if they are examining a written text so that they can easily locate what they want to share, and a few key pieces of information they gained from the source.

**Time Machine Traveler.** This role asks students to take a ride in a hypothetical time machine and think about how the scientific information in the book may be important not just now but also in the future. They think about the relationship between the material and their present-day lives and the world in general (see page 216 for the Time Machine Traveler Role Sheet reproducible). Students also consider the reasons behind the scientific information's significance. Then, they are asked to brainstorm how they will use the information they gained in the future. If necessary, students can ask other group members or interview outside sources who might explain the importance of the content. These sources might be

students in older grades, adults in specific careers, or even adults who use the material or information in their daily lives.

**Science Newscaster.** Newscasters must summarize a great deal of important information on a topic in a very brief amount of time. They have to make sure they are focused on the key points they want to share in their newscasts. The purpose of this role is to focus students' attention on the main points in their text. They then prepare a breaking news alert to share with other group members later (see page 217 for the Science Newscaster Role Sheet reproducible).

**Word Magician.** Magicians can do amazing things with simple objects. Word magicians can take a single word, weave their magic, and provide so much more information on the word. Students who fulfill this role locate interesting words in the text that they believe others should know (see page 218 for the Word Magician Role Sheet reproducible). This role is a modified version of the visual and verbal word association strategy for building vocabulary (Eeds & Cockrum, 1985; Readence, Bean, & Baldwin, 2004). Students state an interesting word they found in the text, write a sentence using the word, explain the definition of it as it is used in the text, and draw an illustration so that they remember the word. The reproducible also has a section where students can list other forms of the word, such as morphemes and affixes. By looking for other forms of the word, students are manipulating words. The more students see, think about, and use words, the deeper their understanding will be of the terms.

5. Once teachers and students have selected the texts and reviewed the roles, it is time to establish the text groups. These groups should each have approximately five students.

The teacher may assign the roles to the students or let them select the roles they wish to take for the text. Let the students know that they will have the opportunity to participate in each role during the science circles. The rotation of roles is important because it not only keeps students interested but also ensures that they are thinking like scientists and developing the various disciplinary skills necessary for dealing with more difficult text and concepts in later years. A chart can be used to ensure that each group member participates in each of the scientific roles at some time within the small groups.

Students not only realize the importance of visuals but also realize that they must decode unknown words. Students must also comprehend the main idea, without getting caught up in extraneous details, and apply what they are learning to situations outside the classroom. If there are not five students in each group, the teacher may decide to have a student handle two roles. Another idea is to demonstrate with the entire class how the roles work and model through one of the roles, then allow the students to complete the other role sheets within their groups as usual. If it is not possible to use all of the role sheets at one time, it is still important to try all of them at one time or another so that all of the skill areas are targeted.

6. After each of the students has a role, provide them with adequate time to complete their role descriptions. This will probably require at least two to three days. Let students know when their role sheets must be completed by so that they are ready to share in groups. Some teachers may even choose to use topic roles on a specific day of the week, such as Monday or Friday. Science roles might even be used in lieu of sustained silent reading one day a week. The science roles will not only strengthen content knowledge and encourage the reading of informational books but also strengthen students' disciplinary knowledge, which is necessary for future science reading.

7. On the assigned role sharing day, talk about what makes a good listener. Listening is just as important as talking, and in order for each person to have a chance to share in groups, everyone must be a good listener. After groups discuss the texts using their completed role sheets, the students can discuss as a class what went well with the groups and what they may want to change the next time they use roles with an informative text. Using roles is a process, and it will take time to see what works best with the class.

### **Additional Ways to Try It Out**

While the groups are meeting, act as a facilitator and observe what is occurring in the groups. Also, groups may want to evaluate their experience either orally or in writing. In lieu of oral sharing, students may complete exit slips to share what went well and what was difficult for them. This feedback is essential in order for the teacher to be able to modify the roles for future texts.

If texts are long or students are very young, have students read only a portion of the book for each meeting. In this scenario, students can experience a variety of roles with one text. Another possibility with young students is to work with older students as partners. If the older students are struggling readers at their level, they will benefit from helping younger students by improving attitudes toward reading and building self-confidence. An older student can read aloud a short informative text to a group of younger students. Each of the younger students can then complete their roles and share the information they learned at a later date. If this idea is used, it will be important to also let parents know what book the students are reading, so parents can help their students find the information necessary to complete the assigned roles. The added benefit is that parents also are aware of the reading demands that their children might experience with science texts.

## ***Social Studies***

Reading social studies–related material requires unique skills. To begin with, students must be aware that social studies text is dense, as a large period of time may be discussed within very few pages. Therefore, it is often difficult to determine the main idea when there is such a large amount of information in a passage. Also, students must analyze the sources they read and develop an understanding of the difference between primary and secondary documents. Historical documents are influenced by the author of the material, and therefore it is important to compare what several documents or texts might say about the same topic. Finally, point of view is an especially important aspect to consider when reading social studies texts.

Three of the activities in this section—Analyzing Like an ARTIST, Multiple Gists, and I-Charts—require students to examine multiple texts. The ability to compare texts is a higher level skill that is important for those reading social studies texts. Through text comparisons, students can determine if information is consistent within different sources, analyze viewpoints, and learn to succinctly summarize key information. Furthermore, as discussed in Chapter 1, the overall vocabulary found in social studies texts can be difficult. Therefore, the 10 Important Words Plus and Word Puzzles activities focus students’ attention on the words found in texts and provide a number of ideas for strengthening their understanding of the words.

## Analyzing Like an ARTIST

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Famous Movie Star Admits to Prior Life as a Grapefruit! Trained Dog Saved From the Pound Cleans Owner's House as a Father's Day Gesture! Have you ever seen headlines similar to these in tabloids as you stood in line at the grocery store? Even more important, have you ever had someone actually repeat information they read in such texts as factual information? Unfortunately, there are a lot of people who read a text and then repeat the information as if it were factual without taking into consideration the author, the author's intent, or even the type of document. The ability to read information and make educated decisions is a skill that must be taught to students. This is especially true with documents related to social studies content.

With this document analysis strategy, students are required to examine a number of details about a text. Artists are known for having a very keen eye for analyzing the world around them, and students are encouraged to think as artists. They must not read the material as factual, but rather they must critically examine the text. Students must understand that there are both primary and secondary sources and that the type of document can have an impact on what they read about an event, place, or person. Also, social studies text can be affected by the author's bias about the person, place, or event. Students must take all of this into consideration as they seek to understand and develop social studies disciplinary knowledge.

Students can use the ARTIST Document Analysis reproducible to examine text (see page 219 in the Appendix). This form encourages the reader to consider the audience, the type of document, the reason why it was created, important details contained in the text, the source for the information provided, and the time period during which the text was created. On the sheet they complete, students provide any information related to each of these six aspects.

### How It Works

1. Begin the discussion by asking students if they have ever seen something in writing that they did not believe was true. As they discuss this, ask them what made them rethink what they were reading. Perhaps they knew that the source was a tabloid website known for rumors about famous stars. Maybe they questioned the text because they could tell the author had a strong opinion and was writing to sway the opinion of the reader,

or perhaps they knew the author was someone who had a stake in the information the reader took away from the text. An article written on the important role animals have played historically in medical research would be very different if written by a scientist versus a member of People for the Ethical Treatment of Animals.

2. Prior to beginning the lesson, locate several texts related to a topic of study in social studies. These texts might be from the Internet, a newspaper, or other books specifically about the topic. Then, present students with one of the sample texts.
3. Explain to the students that there are several things they must take into consideration when reviewing texts. As a class, talk about each of the sections of the ARTIST Document Analysis sheet. Why is it important to think about each area? What types of information might we find?
4. As a class, use the sheet to record a text analysis. If there is no information known for a section, the section can be left blank. Discuss the results.
5. Groups of students can then use the sheet to analyze another document on the same subject.
6. After students have completed their analysis, discuss what they found. Were there any interesting findings that they may not have noticed had they not considered each aspect on the sheet? Each group can share an overview of the results of their text critiques.
7. Explain that it is extremely important to analyze social studies material. With older students, take this opportunity to talk about primary and secondary sources. Reading primary sources is similar to hearing information firsthand, and reading secondary sources is similar to being told something secondhand from a friend.
8. As a class, look at other documents related to the topic being studied. Compare several documents authored or created by different people, so students can understand that information can be presented differently by different people. Be sure to include a variety of texts, including those in the media, printed texts, and perhaps even interviews. Discuss how each of the sources might affect the information shared.

### **A Look Inside One Classroom**

A sixth-grade class was studying the Crusades and looked at a variety of texts as part of the classroom instruction. The students began by

analyzing a copy of a painting from the Crusades Era and writing their observations directly on their photocopies. Students also looked at maps showing Christian-dominated areas, Muslim-dominated areas, and those that were a mix of the two religions. Students made inferences based on their observations from both the photographs and the map. Then, the teacher modeled the use of the ARTIST Document Analysis sheet with the photograph. Students were asked if they could tell who the painting was created for, which religion's side was favored in the painting, and during what time period the painting was created. During class discussion, they had to explain how they determined the information shared. The teacher wanted to encourage students to analyze documents carefully and not just look at them superficially.

Then, the teacher passed out two separate persuasive paragraphs. One was written from the perspective of a Christian nobleman during the Crusades, and the other was written from the perspective of a Muslim leader. Students used the reproducible independently to analyze these short texts. The teacher found that the strategy encouraged students to focus closely on document details. Locating emotionally loaded words and determining the time when the document was created was an easy task for all of the students. However, some students needed additional help with other aspects of the analysis. Identifying the document's intended audience, the type of document, and the reason or purpose for the author creating the document seemed to be especially difficult for these students. Through additional discussion, they soon achieved success.

### **Additional Ways to Try It Out**

After students have completed the activity, consider completing a scavenger hunt activity with a narrow aspect of the next topic discussed in social studies. The class can brainstorm the various types of text that might be located on the topic. Students can then work in groups to find a wide variety of materials or texts on the topic. Each group can have a copy of the brainstormed list so that they can work together to make sure the texts they locate come from a variety of sources. For example, if students are studying the government, they may be instructed to find texts related to the vice president. Students might find newspaper articles, magazine and television interviews, political cartoons, press releases, letters, and even charts and tables showing results of polls.

On a designated day, the students can work in their groups to analyze the documents they found, then present their findings to the class. Even the youngest of students can begin to develop the understanding that readers must read critically and compare texts. Young students can understand that two texts on the same topic may share very different information for a variety of reasons. Wineburg (1991) discusses how historians must corroborate information across multiple texts and closely examine the authors' backgrounds and perspectives. This strategy can help young students start developing those skills.

## Multiple Gists

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As the saying goes, brevity is a virtue. Unfortunately, brevity is something that does not come easy for most people. When we are asked to retell an event that occurred or a book we read, we often go into great detail about not only the main idea but also aspects and details that interested us. As adults, we might notice eyes glazing when we realize that our audience truly stopped listening after the first few minutes. Brevity is why many of us will never be able to tweet or text well without running out of space or developing carpal tunnel syndrome. However, we expect students to be able to succinctly tell us the main idea of a passage. The ability to summarize briefly is an important skill, but it is difficult with social studies because of the amount of content contained within very few pages.

Cunningham (1982) originally developed gist as a strategy to get students thinking about the main idea of a social studies passage. Then, Manderino (2007) adapted the strategy so that students can use it to compare multiple texts. Students read one document and create a 20-word gist. After reading the second document, they take their first gist and the information in the second document to create a new 20-word gist. This continues as students read more documents. Students can use up to 30 words in their final gist. This strategy is a great way for students to make intertextual connections and learn to succinctly comprehend the main idea of diverse informative texts. Multiple Gists can easily be modified for a range of ages.

## How It Works

1. Select a passage for students to read. The length of the passage will depend on the age of the students. For young students, share a very brief

informative book on a specific topic. Older elementary students may read a chapter, a section of a trade book, or an online article.

2. Place students in groups and have them retell the passage in complete sentences totaling 20 words. This limits the facts the students can retell, but they also have the opportunity to go into enough detail to explain the main idea. Many teachers who use this strategy with younger students give them a sheet with 20 short lines, so the students can write one word per line to keep track of how many words they have written. Then, students go back to their writing and modify it as necessary. This step in the process is easier if the students turn over the passage after reading it and before trying to write the gist. Otherwise, they may have a great deal of difficulty with limiting their information to the main idea.

3. Ask groups to share their completed gists with the rest of the class. This is a good time for students to share why they did or did not include specific information. They can talk about the difficulty level of the activity and perhaps brainstorm ideas that might make the task easier in the future. Discuss how linguistic features, such as bold terms, italicized print, and headings, might cue them in on the main ideas of their passages.

4. After creating the first 20-word gist, students read another text, then try to synthesize the information in their first gist with information from the second passage and create a new 20-word gist of all of the material they have read.

5. Discuss with students the importance of removing details from text when locating the main idea. Main idea is a difficult concept for many students to understand. However, this activity limits the words they can use. As students continue to synthesize across various texts, they may use additional words for their multiple gists. Allow students to have between 20 and 30 words in their gists as the number of texts they read increases.

If students encounter difficulty with this strategy, have them complete a gist on one text. Then, progressively increase the number of texts students use with Multiple Gist in the future. This strategy can easily be modified in this way to meet the needs and ability levels of diverse students.

## I-Charts

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As students are expected to read more and more advanced material in social studies, they must be able to compare various sources, corroborate

information they read in texts, and pay attention to the source of the information. Although inquiry charts, commonly known as I-charts (Hoffman, 1992), are often suggested as a way to prepare older students for that type of reading, a modified version can be used with younger students. This strategy is a great way for them to organize the information they read in different sources, and it encourages the use of various types of text. An additional benefit of this strategy is that students organize their thoughts for writing. For primary grades, complete the I-chart as a whole-class activity. However, students in the upper elementary grades may be able to complete the I-charts in small groups after a sample is completed as a model with the entire class.

### **How It Works**

1. Think about a topic related to social studies that is currently being studied. Then, brainstorm with the students to determine three or more questions that they want to answer about the historical subject.
2. Introduce the I-chart (see page 220 in the Appendix for a reproducible). Tell students that, similar to K-W-L, the chart has a place to write what they think they know in relation to each of the questions they brainstormed. Ask the students for any information they know in relation to each question and list that information in the corresponding columns in the first row. If there is other important information they learned in regard to the topic, list that information in the appropriate columns also.
3. Now it is time to consult other sources. Explain that different information can be found in various texts, and sometimes similar information is read. Brainstorm with students other texts that they might read to find out more about the topic. Depending on the topic, they may consult informative texts, the Internet, newspapers, magazines, or even the course textbook.
4. Explain to students that whenever they consult a printed book, they will want to note the title, author, and copyright year of the text in the left column of their I-charts. In addition to that information, they can list the page numbers and edition when the source is a magazine or newspaper. Finally, they can list the website where they found information on their topic when they use the Internet as a source. If they cannot find information on the topic in a source related to one of their questions, they can leave that row blank except for the first column. Encourage students to make sure this column is completed each time they fill in a row to avoid forgetting where they found the information.

5. Using one source at a time, students complete each row.
6. Then, students take the information they learned in relation to the first question and write a brief summary in the final row under question 1. This is repeated for each of the other questions.
7. When charts are complete, students can talk about what they read as a class. Did they find similar information in more than one text? Did they find any information that differed between texts? These charts can also help students organize information from various sources so that they can use their summaries to write four paragraphs on the topic.

I-Charts are an excellent way to visually represent information gained from a variety of texts. As part of the activity, students are also involved in many higher level thinking skills as they compare and synthesize information gained from a number of sources. Similar to Multiple Gists, the number of texts used for this activity can easily vary according to the ability level of students present in the class and the experiences that students have had with comparing diverse texts.

## 10 Important Words Plus

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Have you ever been intrigued by a word you saw in print for the first time? Did hearing it roll off your tongue make you enjoy using it every once in a while just for fun in conversation? Well, students are the same way. They can jump into the wonderful, wacky world of words quite easily by seeking out new and interesting words they want to learn. Rather than providing specific words and definitions to the students to learn, the teacher is in the role of facilitating vocabulary development. Students sense this and want to learn the new words and use them to complete word puzzles later.

This strategy is an excellent way to create word consciousness, which is a curiosity and interest in words, and it is essential for developing vocabulary. Memorizing definitions of assigned words does not help students remember the words after the vocabulary test, and it more than likely will not lead to students applying the words to other contexts. Although many vocabulary strategies require students to be told which words are important to learn, this strategy is unique because it allows students to select the words they want to learn. By allowing students to play a part in the process, they are more easily engaged and curious about the words. While students select

the words for 10 Important Words Plus, it is still very easy to ensure that any words the teacher wants to bring to the attention of the students will be focused on in the lesson.

According to Shanahan and Shanahan (2008), many scholars believe that the general vocabulary found in social studies texts can be very difficult. However, using this strategy in social studies is an excellent opportunity to let students select the words that are important to them from the text. Although many believe there may be less technical vocabulary in social studies than other content areas, even everyday words, or general vocabulary, can be unfamiliar to students. Through teacher guidance, the teacher still has a role in the words ultimately selected for further exploration. Yopp and Yopp (2003) have outlined the steps, as described in the section that follows.

### **How It Works**

1. Ask students to read through a piece of text. The amount of text will depend on the age and ability levels of the students.
2. After students finish reading the text, have each of the students determine 10 words they think are important. Each word can be written on its own sticky note.
3. Then, have students create a class bar graph based on the words selected. By creating a graph with the sticky notes, students can determine which words others also felt were important.
4. Lead a class discussion so that students not only discuss the 10 words they individually selected but also talk about other words students listed on the graph. There is nothing magical about 10 words, and teachers can modify the strategy for younger students and shorter text by having the students locate fewer words.
5. This strategy can then be extended with small-group activities. The teacher provides each student with a task written on a color-coded card. Each card color represents a different task. These tasks can include listing synonyms or antonyms, telling where a word might be encountered, listing other forms of the word, drawing pictures to depict its meaning, creating a graphic aid to show the relationship between the word and other words, acting out the word, or finding sentences in which it was used (Yopp & Yopp, 2007).
6. After the color-coded cards are handed out, all of the students with the same color work together to complete the activity stated on the card with a

teacher-selected word from the class graph. This is where the teacher can focus students' attention on words he or she might feel are valuable for this text and future texts.

7. Once the task is accomplished, each group takes a turn sharing the results. Then, the task is repeated several times, with the teacher assigning another important word from the graph to each group. After students are adept at their task, the groups switch colors to complete a different task with a new word.

### **A Look Inside One Classroom**

One first-grade teacher used this strategy with two pages of text on the topic of natural resources. Because of the younger grade level, the class was divided into five groups of three students each. Also, the teacher instructed each group to find five important words in the text rather than 10. After they completed that task, the teacher listed the five words brainstormed by each group:

<b>Group 1</b>	<b>Group 2</b>	<b>Group 3</b>	<b>Group 4</b>	<b>Group 5</b>
land	water	food	resource	trees
resource	air	people	natural	water
earth	land	water	water	land
trees	fruits	air	land	resource
water	trees	land	needs	natural

Then, the students had a chance to talk about the words. During this discussion, the students noticed which words were on more than one list. One student pointed out that the word *air* was listed under two different groups. Another student stated that the word *needs* was only on one list. The teacher then asked the students to see if there were any words that occurred on three or more of the lists. There were five such words: *land*, *trees*, *water*, *resource*, and *earth*. The class decided that these words were important to most of the class, so the teacher wrote them on the smartboard for future reinforcement.

### **Additional Ways to Try It Out**

Because many classes can have 20 or more students, it would be difficult to handle 200 sticky notes. Therefore, consider dividing large classes

into groups of three or four students. Each group is given copies of the informative text to read, and as a group, the students come to an agreement on the 10 words they want to post on the graph. It is important that every group member has a chance to contribute at least one word to the group list. One sheet is compiled with the 10 words for each group. Older students may not only write the word on the sheet but also note where they saw the word and why they chose it. Although students do not read all of the information on the sheet aloud to the class, it can serve as a prompt for discussions that ensue about the words.

Often, students will go back into the text to locate a word mentioned if they do not remember seeing it, and because words are often used multiple times in a text, students will end up discussing the various places where the word is found. Also, students can list more than one reason for why the word was selected or where it is located in the text. This initial group work adds extra collaboration and encourages even more dialogue. Furthermore, students are gaining experience skimming text and rereading portions of it, which are highly valued skills in the content areas. Students are not only reading new words and expanding their sight vocabulary but also getting the terms into their oral vocabulary.

There is also another way this strategy can be modified. Since research (Heisey & Kucan, 2010) encourages the use of multiple texts even with very young students, because it strengthens students' understanding of content, teachers may choose to select a handful of books on a specific topic instead of having the entire class read the same brief text. Then, a brief book talk can be done on the books before each group is given a short informative text to review. Next, students proceed to select the important words in their text and compile a list of them. Because of the overlap in content/topic, students may have some words that are found in all of the books, yet there will be some unique words also added to the class graph from each text.

Each group takes a turn orally sharing the first five words on their lists with the rest of the class. By having each group begin by sharing only the first five listed, each group will have the opportunity to introduce some new words to the class graph. Then, the groups repeat by sharing the last five words on their lists. Start with the group that shared last and let them share first when sharing the final five words on their lists. As groups share, write the words on the smartboard or a sheet of chart paper to create a class graph. Then, chorally read the words on the graph so that they move into the students' speaking vocabulary.

Lead the discussion by asking what interesting things students notice about the graph. Are there several forms of a word listed? Were there any words that very few or very many students selected? Are there any proper nouns? Are there any words that students think are important that they did not notice when they first read the list, and why do students think so? If time is of the essence, students might complete an exit slip for the teacher. The next day, some of the exit slips might be shared before continuing on with the activity.

For more advanced or older students, they can then work in groups to find other creative ways to share the graph results. They might develop a scatterplot or another visual aid. Also, they may decide to categorize their results. Perhaps students want to develop a graph that categorizes the words according to the part of speech. Maybe they wish to create graphs that show how the words are presented in the text. Those included within headings (e.g., chapter, subsections, visual) might be in one category, those words that are presented in different types of fonts in another, and words that are only part of the chapter text in a third. All of these strategies get students thinking, talking, and writing words. Therefore, they build their vocabulary as they are repeatedly exposed to the words.

## Word Puzzles

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Students can complete word puzzles (or word tasks, but the term *puzzles* sounds much more motivating) on individual words within a social studies text. Puzzles are a motivating way to focus students' attention on vocabulary words, and students see these tasks merely as fun. The amount of time required to complete the word puzzles will depend on which ones are selected by the teacher. Therefore, the activity can easily be modified to fit within the time constraints of the classroom.

### How It Works

1. After students have read through a text, select a different mystery word for each group and write it on a card. The students in each group do not show the other groups their word. Although each group will pass the word card among the students in the group, they will want to only whisper the word in hushed tones to keep the word a mystery. Some of

the word puzzles that teachers might ask students to complete include the following:

- Create a riddle. List up to four clues for your word. Start with a general clue and then give a more specific one. When the time comes, share your riddle with the class to see if the other students can guess your word. As you contemplate clues to share, you might think about part of speech, the definition, or contexts where you might see the word.
- Find another text that uses the word. This may be difficult with print, but it should be fairly easy if students have access to the Internet. If time permits, the students can also look outside of the classroom for examples of the term. When the time comes to share, read the paragraphs or example you found to the class to see if the other students can guess which word was yours. Students will have to be thinking about the original text as they listen to the new text presented.
- Create a visual that incorporates the important word into the visual. When the groups share their visuals, allow other groups to guess the meaning behind the visual before explaining why you created it. What does it represent? Are there any symbols that have meaning to you that are related to the word? As discussed in Chapter 2, these visuals may become part of the local text in the classroom.
- Share the word with another class. Become roving reporters ready to report back to the classroom. Had the other students heard of the word? What did they think it meant? Where had they seen it? What did you learn about the word? If the other students did not know the word, were you able to find a creative way to teach it to the other students?
- See the connection. Groups select two or three words from the class graph and show the similarities and differences using a Venn diagram. Unlike the other word puzzles suggested, this activity allows the students to select the words. While this can be a difficult activity, students might find that two of the three words on the list might sometimes have the same affix added at the beginning or end. Perhaps two of the words have multiple meanings, but the third does not. It is easiest to compare two words with a traditional Venn diagram, but more advanced students may enjoy the challenge of creating one to compare three of the words.

2. At a designated time, have the groups share their completed word puzzles with the rest of the class. Discuss how they completed their tasks, any challenges that were encountered, and any other interesting words that students may have learned in the process. Students might even create word puzzles that the teacher can use with future words.

There are many more options for word puzzles. Since social studies text contains very difficult words, but fewer technically challenging words specific to just those texts, this strategy is a great activity to create word consciousness and build students' vocabulary without directly teaching a specific list of words.

## REFLECTING BACK AND LOOKING FORWARD

The strategies discussed in this chapter encourage students to understand the intricacies of reading math, science, and social studies texts. For students, these content areas are often viewed as subjects they must learn in school. Therefore, students often use the decoding strategies they learned in the “learning to read” phase and believe that they can continue to read each of the content area materials in the same manner. However, to be successful in content areas, students must understand the demands of each specific area.

Although disciplinary literacy skills are often discussed in reference to older students in middle and high school, it is possible to start building the foundation in the elementary grades. In the earliest grades, students can begin to understand that all texts are not read in a similar fashion, and older students can develop a more in-depth understanding of specific disciplinary literacy skills. The reading demands shared in this chapter that are unique to each content area can be introduced and discussed with the class.

Instead of reading math, science, and social studies in the same manner, students might choose to read a narrative tale. They must think about the specific content area, the literacy demands of the field, and how they can best approach the text. *Reading* is truly a multimeaning word. While reading always involves comprehension, the skills and strategies necessary to comprehend varies according to the subject matter. This knowledge will help students later in life, as they encounter more difficult content materials, and also prepare them for the literacy demands of the world beyond the classroom.