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2009

First Edition

Teaching through Text

Reading and Writing in the Content Areas

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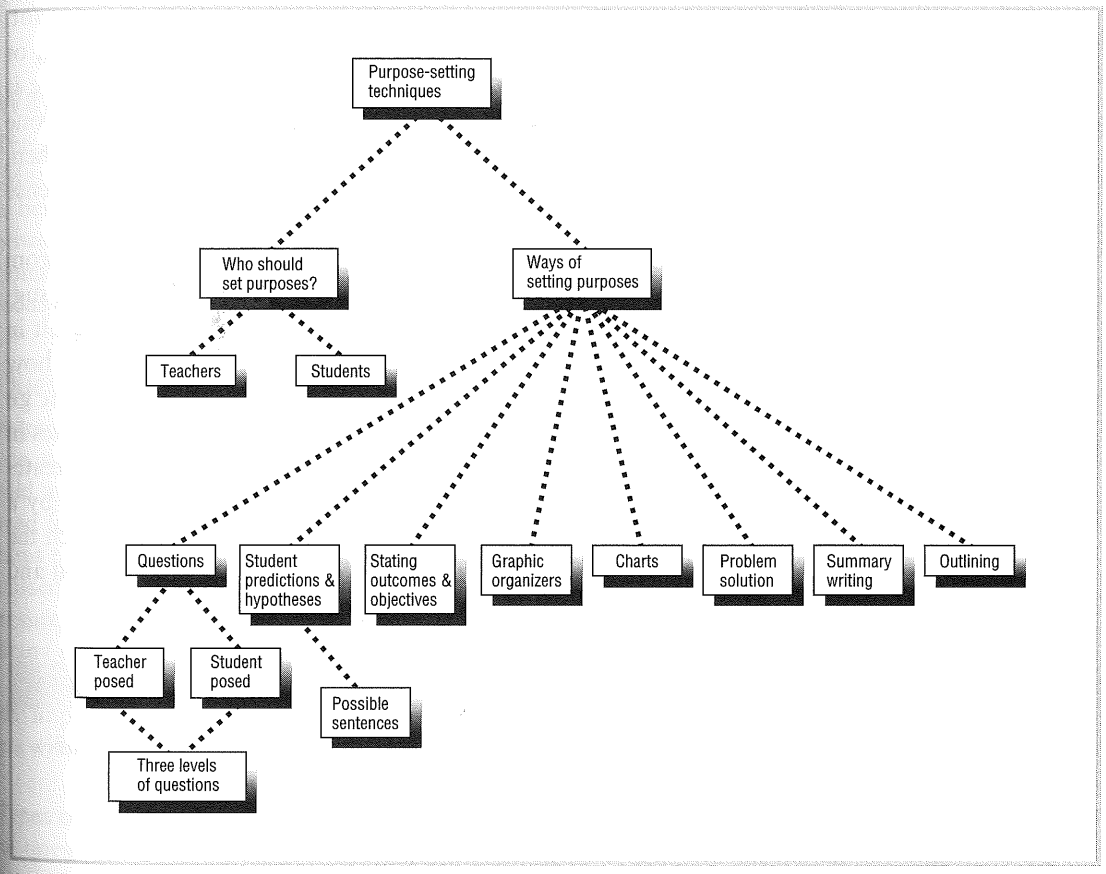
CHAPTER 7

Making Reading Purposeful



The secret of success is constancy to purpose.

—Benjamin Disraeli

Dr. Samuel Johnson, whose comments about reading and writing we have quoted liberally in this text, enjoyed a reputation as one of the world's foremost authorities on these subjects during the eighteenth century. The Scottish economist Adam Smith once remarked that Johnson "knew more books" than anyone in the world. The question of how Johnson was able to read so extensively on such a wide variety of subjects was a frequent topic of discussion. An acquaintance once asked him if, when he read a book, he proceeded through it line by line from cover to cover, reading every word as he went. Johnson's reply astonished his friend.

He said that he rarely if ever read a book in that manner, for few books were worthy of that sort of reading. Instead, he read selectively to accomplish his own purposes for reading. Johnson's interviewer was surprised because he, like many of us, believed that to do anything less than read every word is not reading at all. In our print-oriented society, however, in which the demands of reading are apt to be extensive, skillful readers tend to adopt strategies like Johnson's and read to accomplish their own purposes. The need to *have* clear purposes is obviously great, especially when materials are challenging and prior knowledge is limited.

Reading without a clear idea of purpose can lead to frustration for students, who may not achieve the results their teachers expect, and to exasperation for teachers, who often fail to understand how their students' comprehension can be so inadequate. For many students, however, it is not enough to read a textbook for the broad purpose of "getting all the facts" or a narrative with the aim of "finding out what happens." They often need specific direction in determining what is important in the midst of what may seem an avalanche of print.

Consider your own experience with this text. Have you caught yourself wondering, or perhaps even inquiring, about what you will need to know for testing purposes? There is nothing wrong with such a question, for it reflects the thinking of a strategic reader—one who reads purposefully, using whatever strategies may help to achieve specific goals. When, as in many classroom situations, the purposes are determined by the teacher, it makes sense to discover them by asking.

He has only half learned the art of reading who has not added to it the even more refined accomplishments of skipping and skimming.

ARTHUR, LORD BALFOUR

Teachers who are not forthcoming about what they expect their students to derive from reading are inviting poor comprehension. Some teachers defend this policy, however, by suggesting that any effort on their part to limit the scope of reading assignments will result in their students' reading only for the prestated purposes. This response acknowledges how powerful purpose setting can be! The object is to set the *right* purposes: those that go beyond literally stated facts and get at their significance. Teachers who establish purposes in this manner can have the confidence to permit, and even encourage, students to read strategically. Whenever purposes for reading encompass the curricular goals envisioned by a teacher, the goal of reading should be to achieve those purposes and not simply to reach the last page of an assignment. Students are then free to model themselves after Dr. Johnson and read for what they need.

Objectives

This chapter will acquaint you with ways of making your students' reading more purposeful. When you have completed it, you should be able to

1. describe the reasons for setting purposes prior to reading;
2. pose questions at the literal, inferential, and critical levels;
3. explain how student-posed questions might best serve certain reading assignments;
4. describe and use alternative methods of purpose setting, including hypothesizing, stating objectives, completing graphic organizers and charts, solving problems, writing summaries, and outlining;
5. identify the strengths and limitations of these techniques that may make them more suitable to some global plans than to others; and
6. vary and combine purpose-setting techniques.

Who Should Set Purposes for Reading?

Few would dispute that an important goal of schooling is to produce strategic readers capable of setting their own purposes and of reading flexibly to achieve those purposes (Damico & Baildon, 2007; Janzen, 2003; Petersen & VanDerWege, 2002). Our recommendation, however, is that

content teachers be somewhat directive in the process of setting purposes. There are three good reasons behind this suggestion. To begin with, the teacher's prior knowledge of the subject is apt to exceed that of students to such an extent that the teacher is better able to establish reasonable goals for reading. In addition, many students have limited experience in setting purposes, regardless of their knowledge of content. Finally, we would argue that the ability to read strategically in order to achieve purposes set by others will eventually be at least as important to students (when they reach the workplace) as reading to satisfy their own purposes.

We are not suggesting that teachers give their students no choices as to what to read or what to read for. We do recommend that, while guiding the process of purpose setting in these techniques, they continue to realize that student-generated purposes may be unsophisticated, vague, and incomplete. In these cases, teachers may be wise to encourage students to modify their purposes in accordance with teacher suggestions. Tact is important in order not to dampen student initiative and thought.

Ways of Setting Purposes

The goal of purpose setting is to "direct student attention to the most important information" (Marshall, 1989, p. 64). There are several methods for accomplishing this goal. No one method is best for all reading assignments, and familiarity with several techniques will give you the power to select one that is well suited to a given occasion. In the next chapter, we take the additional step of incorporating these methods, often in combination, into reading guides used to focus the efforts of students as they read.

Questions Posed by the Teacher

A traditional means of focusing students' attention is by posing prereading questions. This practice, more than most, is likely to occasion the complaint we mentioned earlier: that if students are told what to read for, told in advance which questions they'll be called on to answer, they will read for this purpose alone. Indeed, there is research evidence indicating that prereading questions tend to focus attention so distinctly that content not associated with the questions can be missed. Such findings merely indicate the power of prereading questions. It is up to teachers to ensure that questions cover the desired range of content and that they do more than call for a litany of factual details.

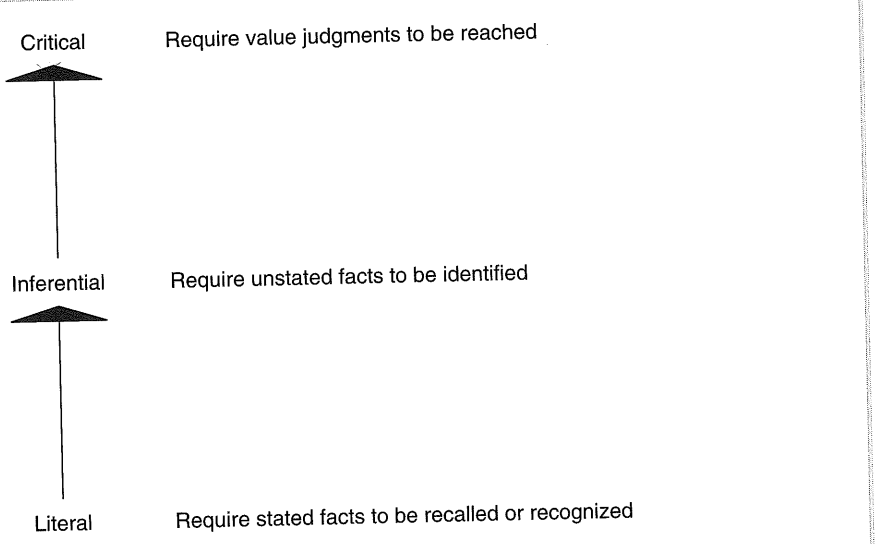
Moreover, questions can have an important dual effect. Not only do they focus thought on the important dimensions of content, but they also activate some of the relevant schemata readers will need to process the material (LeNoir, 1993).

Types of Questions. Knowing the right questions requires knowing something about the types of questions one might ask. In the past, reading researchers have examined detailed lists, or taxonomies, of comprehension skills (e.g., Barrett, 1972; Pearson & Johnson, 1978). The skills contained in these taxonomies, such as inferring cause-and-effect relationships or predicting outcomes, can be used to define types of comprehension questions. This highly detailed approach to question formulation is not really necessary for most purposes, however. Instead, we recommend a simpler approach based on three widely acknowledged *levels* of comprehension. These levels, along with the kinds of questions they suggest, are depicted in Figure 7.1.

At the lowest level, the literal, questions call for students to recognize explicitly stated information. Some years ago, an eighth-grade student of the first author described them as "Christopher Columbus" questions because "you search for the answer until you land on it." It is no doubt that literal questions cause some teachers to have reservations about the notion of posing prereading questions at all.

Students can look up answers to literal questions without giving much thoughtful attention to an answer's context and implications. It is for this reason that such questions should seldom form the sole basis of a reader's purpose. There are exceptions to this rule, as when we look up a population figure in an almanac or a pronunciation in a dictionary. But the reading of longer selections with the goal of fully comprehending their content requires more than the acquisition

FIGURE 7.1
Three levels of questions



of individual facts. The student must integrate facts, both with one another and with prior knowledge, in order to make sense of them, to apply them, and, in Aquinas's words, to realize their significance. Purposes of this sort call for questions of a different kind. Although literal questions have their uses in helping students acquire the facts they need, they should not be an end in themselves.

Truth is not facts. Truth is the significance of facts.
THOMAS AQUINAS

Inferential questions require students to use explicit facts in order to reach unstated, or implicit, conclusions. Teachers should encourage students to draw on prior knowledge in this process as well. The result is the identification of new (that is, unstated) facts or *suspected* facts (Basche et al., 2001). Some inferences are clearly and indisputably correct. When we read that a painter mixes equal portions of blue and yellow paint, we can safely infer that the result is green even though this fact may not be stated. (Note that we used prior knowledge along with information provided through reading in order to reach this particular conclusion.) On the other hand, some inferences are less than certain. Consider the social studies teacher who assigns a series of newspaper and magazine articles about a coming election and then asks students who they think will win. Even though the students cannot be sure of their answers, the reasoning process is nevertheless inferential. This is because known facts are being used to determine unstated ones. Noted linguist S. I. Hayakawa (1939) once defined an inference as "a statement about the unknown made on the basis of the known" (p. 41). It is less important that a student's "statement" about the election's outcome eventually be proved correct than that it be based on presently known facts.

At the critical level, questions call on students to judge what they read. These judgments can serve a variety of purposes.

- Synthesizing information from a variety of sources
- Selecting facts that support a particular viewpoint
- Identifying biased writing
- Recognizing inadequacies in an author's treatment of a topic
- Evaluating the literary merits of writing
- Interpreting information in order to apply it to a new situation
- Deciding how to read a given assignment selectively in order to accomplish one's purposes
- Comparing one reading selection with others
- Choosing the most efficient method of solving a problem in mathematics or science

Critical questions do not have factual answers. Reasonable, comprehending readers may differ in their responses to such questions because the answers depend on personal values, experiences,

FIGURE 7.2
Description of Pluto at the NASA Web site

Once known as the smallest, coldest, and most distant planet from the Sun, Pluto has a dual identity, not to mention being enshrouded in controversy since its discovery in 1930. On August 24, 2006, the International Astronomical Union (IAU) formally downgraded Pluto from an official planet to a dwarf planet. According to the new rules a planet meets three criteria: it must orbit the Sun, it must be big enough for gravity to squash it into a round ball, and it must have cleared other things out of the way in its orbital neighborhood. The latter measure knocks out Pluto and 2003UB313 (Eris), which orbit among the icy wrecks of the Kuiper Belt, and Ceres, which is in the asteroid belt.

Discovered by American astronomer Clyde Tombaugh in 1930, Pluto takes 248 years to orbit the Sun. Pluto's most recent close approach to the Sun was in 1989. Between 1979 and 1999, Pluto's highly elliptical orbit brought it closer to the Sun than Neptune, providing rare opportunities to study this small, cold, distant world and its companion moon, Charon.

Source: www.nasa.gov

desires, and tastes. As in the case of inferential questions, the important aspect of a critical response is not the response itself but the reasoning behind it. Answers to critical questions are not correct or incorrect; they are more or less *defensible* depending on their basis in fact.

To illustrate the difference between literal, inferential, and critical questions, consider the passage presented in Figure 7.2 about the planet Pluto. This objectively written, highly factual, expository selection invites many sorts of questions, and we offer one at each level of comprehension.

1. How long does it take Pluto to orbit the sun?

This question has a factual answer that is clearly stated in the selection. It is a clear-cut, "Christopher Columbus" example. Contrast it with this one:

2. Is there life on Pluto?

This question has a factual answer (there either is or is not life on Pluto), but you will find no mention of life in the selection. The question is therefore not literal but inferential. Because it is not a certain inference, some teachers might categorize it as critical, but the answer is factual, like our earlier example of predicting the results of an election. The third question is undeniably critical. Contrast it with the second in terms of the sort of answer it calls for.

3. Should the United States send a space probe to explore Pluto?

Here, the answer is not a fact but a judgment—an answer that may well vary from one reader to the next despite how well those readers have understood the selection. The usual confusion between critical questions and questions that call for probable (less than certain) inferences is that each asks the reader for an *opinion*. However, the inferential question asks for an opinion based on facts while the critical question calls on the reader to examine values and desires.

We emphasize that these three levels are not entirely distinct. There is a "gray" area between the literal and inferential levels, where some questions appear to fall, and another between the inferential and critical levels. This is of little concern to us, however, because the three-level system is designed as a tool for formulating new questions, not classifying existing ones. In Figure 7.3, we offer a few tips for using the three-level approach more effectively in setting purposes.

Teacher-posed questions have an obvious influence on any postreading discussion, because the teacher's blueprint for discussing the material is in fact the questions posed in advance. Other questions are asked as well, as we describe in Chapter 10, but the framework of the discussion is planned before the reading assignment is ever made.

The value of suggesting questions during reading has not been lost on nonfiction writers for youngsters. Figure 7.4 illustrates how using questions as subheadings can focus attention. Each subsection is devoted immediately to answering the question posed at the outset. The text then goes on to elaborate. Do you think students would find the material just as engaging with different headings?

FIGURE 7.3
Characteristics of questions

Critical questions
- Always open-ended; never have a single answer
- Have answers that are not facts but that reflect values
- Often contain the word *should*

Inferential questions
- Have factual answers even though the answer may not be certain
- Require that two or more facts be considered together in order to produce an unstated (or suspected) fact
- May rely on facts in the reader's prior knowledge as well as facts stated in the reading selection

Literal questions
- Have answers that can be located in the reading selection
- Require minimal use of prior knowledge

Questions Posed by Students

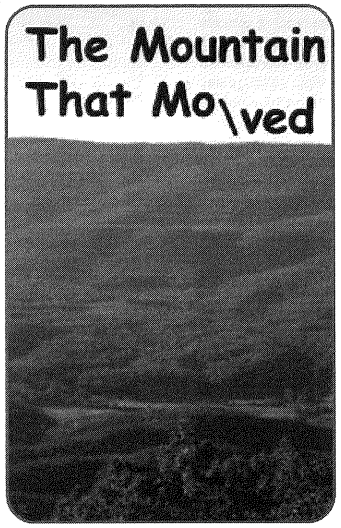
The National Reading Panel (2000) concluded that activities in which students generate questions themselves tend to improve comprehension. One reason for this is that in order to ask a good question we must understand the material ourselves—at least to a degree. But can students ask reasonable questions? Our classroom experience says that they can. We have observed children as young as third grade generate productive questions about fiction and nonfiction alike. Many teachers, however, hesitate to relinquish the traditional role of questioner. In our experience, they have little to fear, and they can always complement student questions to fill gaps.

As an experiment, we described the Pluto selection (Figure 7.2) to a group of eighth graders without allowing them to see the selection. We told them the source was a NASA article and asked them what they would expect to be able to learn from reading the selection. Here is a sample of what they suggested:

- How cold it is on Pluto
- How far Pluto is from Earth
- What Pluto looks like
- What life-forms might exist on Pluto
- What kinds of rock might be on Pluto
- How big Pluto is
- Whether Pluto has any moons
- Where you might look for Pluto in the sky

Examining the list might give confidence to teachers who are skeptical that students are capable of setting prudent, defensible purposes for reading when encouraged to do so. Note that the items in our list are in the form of indirect questions because of how we had asked our question. Note, too, that these questions are either literal or inferential, depending on how the encyclopedia author treated the topic. The students had no way of knowing whether they might actually find the information literally stated in the selection. In cases where the information was not explicit (such as "what life-forms might exist on Pluto"), the students' purpose would be to identify facts that support an eventual inference (such as the extremely low temperatures, the near-absence of life, and the hostile atmosphere). Finally, note that critical questions are not present. This may well have been because the students did not expect such issues to be addressed in an encyclopedia. It may also have been the result of their limited experiences with critical thinking and reading. Teachers interested in encouraging these processes may find it necessary to nudge students in this direction during the prereading discussion.

FIGURE 7.4
Example of embedded questions, U.S. Geological Survey



Geologic Wonders of the George Washington and Jefferson National Forests
No. 2 in a Series
Blacksburg/Wythe Ranger Districts

USGS science for a changing world
U.S. Department of Interior
U.S. Geological Survey

in cooperation with

U.S. Department of Agriculture
Forest Service, Southern Region

2000

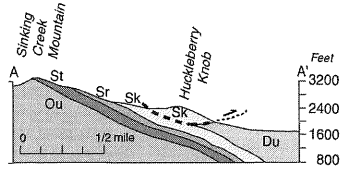
Prehistoric, giant landslides in Montgomery and Craig Counties, Va., in the Blacksburg/Wythe Ranger Districts of the Jefferson National Forest, are the largest known landslides in eastern North America and are among the largest in the world. One of the landslides is more than 3 miles long! The ancient, giant landslides extend for more than 20 miles along the eastern slope of Sinking Creek Mountain. Enormous slabs of rock ranging from about 0.2 to more than 1.5 square miles in size broke loose and slid downslope under the influence of gravity. The movement of some slides may have been slow, but the movement of others was probably sudden and catastrophic.

These landslides are called rock-block slides and rockslides. In rock-block slides, a slab or block of bedrock moves down a slope intact. If the slab or block breaks up as it slides, it is called a rockslide.

How were the landslides discovered?

The landslides were discovered in the 1980's during geological mapping, which showed that rock layers were displaced (fig. 1). The landslides had not been recognized before because they are so large they are not easily seen. The zone of landslides was identified by geologists who noticed a combination of unusual hills and hollows, geologic structures, and unexpected vegetation patterns. These landslide features include cliffs where the rock has broken away, isolated flat areas or benches, and isolated knobs. The benches have springs, small streams, swamps, ponds, and circular to elliptical depressions from 30 to 300 feet across—features that are rare on slopes without landslides. The unusual landforms can be seen on topographic maps and aerial photographs.

Many of the rockslides have evergreen vegetation, while slopes below the slides have deciduous (hardwood) vegetation. Also, swamps and ponds on the slides contain ferns that do not normally grow on the steep eastern slopes, which are usually too dry for these plants. These changes in vegetation reflect the disruption of soils in the landslide zone.



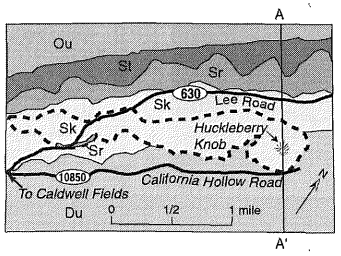


Figure 1. *Cross section and geologic map, Huckleberry Knob area.*

EXPLANATION
- Du Mostly shale
- Sk Keefer Sandstone
- Sr Rose Hill Formation
- St Tuscarora Sandstone
- Ou Older sedimentary rocks
- Boundary of landslide

FIGURE 7.4 (*continued*)

Example of embedded questions, U.S. Geological Survey

When did the landslides happen?

The exact time of movement is uncertain, but evidence suggests that the landslide movement was between about 10,000 and 25,000 years ago. This would be during the Pleistocene Ice Age, but before the arrival of humans in the area. Pollen and organic matter from a sag pond on one of the landslides show that sediments were deposited in the pond as early as 10,000 years ago. Native American artifacts of the Woodland period (about 1,000 B.C. to A.D. 1,000) were found on landslide slopes at three places. There is no evidence of recent movement of the landslides.

Where can you see them?

The large size of the landslides, dense vegetation, and deep erosion make them difficult to see. But, if you look carefully from certain locations, you can see the unusual landforms that are a result of these ancient landslides. They are seen best when the leaves are off the trees.

From Caldwell Fields and Lee Road. From the Caldwell Fields (fig. 2) parking area, look north along Lee Road (Rt. 630) (fig. 1). You will see the steep, straight "flat-irons" of sandstone that are characteristic of the undisturbed parts of the east slope of Sinking Creek Mountain. Then look to your left, where the slope is broken by "lumpy" topography, and the lower bench of a large landslide can be seen below the crest of the mountain. If you look closely at the powerline at the top of the mountain, you can see a cliff where bedrock is exposed. This is the scarp from which the slab of rock in the slide broke away. If you drive up Lee Road from Caldwell Fields, you will cross one of the ancient landslides, but the changes in topography, geology, and vegetation are subtle and not readily recognized.

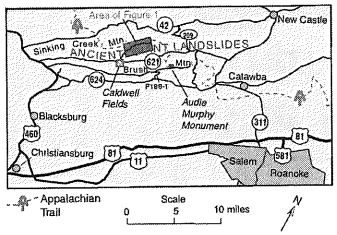


Figure 2. *Map showing location of ancient giant landslides.*

Huckleberry Knob. Huckleberry Knob (fig. 3) can be seen best when the leaves are off the trees from near the end of the Lee Road or by hiking on California Hollow Road (fig. 1). Huckleberry Knob is one of the best examples of an isolated landslide block sitting out in the valley. Notice the evergreens on the knob and the reversal in slope of the bench northwest of Huckleberry Knob. This is typical of the unusual landslide topography.

From Rt. 621 and Hall Road. Landslide benches can also be seen at some places from Rt. 621 on the slopes of Sinking Creek Mountain between Caldwell Fields and Rt. 209 (Hall Road). If you drive up Rt. 209, you get a good view of "lumpy" landslide ridges below the straight ridge at the skyline (fig. 4). As you continue on Hall Road to the top of Sinking Creek Mountain, you drive across an ancient giant landslide.

From Brush Mountain. Another viewpoint from which the landslide benches can be seen is the crest of Brush Mountain, looking north to Sinking Creek Mountain (cover photograph). You can drive to the crest of Brush Mountain on the gravel road (P188-1) off State Route 624.

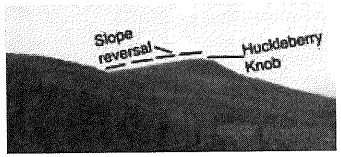


Figure 3. *View of Huckleberry Knob, which is an escarpment on the front of a landslide. Crest of the mountain and source of the slide are to the left.*

From the Appalachian Trail. Hikers on the Appalachian Trail ascending from Rt. 621 to the top of Sinking Creek Mountain will walk across the benches of one of the ancient giant landslides. Along the crest of Sinking Creek Mountain, hikers can look down the eastern slope toward Huckleberry Knob and see benches on the ancient giant landslides.

Why did the mountains move?

Erosion that undercut the base of the slope or erosion related to heavy rainfall might have produced unstable slopes that resulted in landslides. Another possibility is that the landslides were triggered by earthquakes because the landslides border on the presently active Giles County earthquake zone.

Will there be more landslides?

Even though there is no evidence of recent movement of the ancient, giant landslides on the slope of Sinking Creek Mountain, other types of landslides (rockslides and debris flows) do occur during rainstorms on slopes in the Appalachian Mountains. In the past, most landslides occurred in uninhabited areas. Today, knowledge of the geologic setting of existing and planned development can help identify the potential for landslides. Research on how and where slope failures occur can help reduce the risk to human lives and property from landslides.

Have the rocks been useful?

Yes. The rocks that form the high ridge of Sinking Creek Mountain are composed of sandstone (Keefer Sandstone), sandstone and quartzite (Tuscarora Sandstone), and interbedded sandstone and shale (Rose Hill Formation). Rocks from these units, both in the landslides and in the intact parts of the ridges, have long been used for building stone. Sandstone of the Rose Hill Formation commonly forms one- to two-inch thick, grayish-red to reddish-black layers that make good flagstone. The layers of the Rose Hill Formation may have provided surfaces along which overlying blocks of rock slid. (Note: If you wish to remove stone from the national forest, first stop at the Blacksburg Ranger Station and get a permit.)

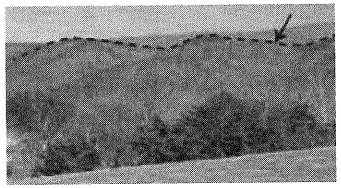


Figure 4. *"Lumpy" ridge line (accentuated by the dashed line) formed on a landslide. View from Hall Road near Craig Creek.*

Question–Answer Relationships (QARs). Raphael (1984) has suggested a straightforward method of teaching students about the levels of questions. Rather than use technical terms like *literal, inferential,* and *critical,* Raphael and her colleagues recommend the following easy-to-understand category labels:

1. *Right There.* The answer is in one place in the text. Words from the question and words that answer the question are often "right there" in the same sentence.

2. *Think and Search.* The answer is in the text. Readers need to "think and search," or put together different parts of the text, to find the answer. The answer can be within a paragraph, across paragraphs, or even across chapters and books.

3. *On My Own.* The answer is not in the text. Readers need to use their own ideas and experiences to answer the question.

4. *Author and Me.* The answer is not in the text. To answer the question, readers need to think about how the text and what they already know fit together. (Raphael, Highfield, & Au, 2006, pp. 23, 26)

Raphael and her colleagues describe the first two types as "In the Book" QARs. The second two are "In My Head" QARs.

Other researchers have validated Raphael's notion of QARs. Taking the time to acquaint students with question–answer relationships has been shown to help them answer a significantly larger percentage of comprehension questions (Benito, Foley, Lewis, & Prescott, 1993; Ezell, 1992; Tierney & Readence, 2005).

Student Predictions and Hypotheses

Posing questions prior to reading has the advantage of focusing students on specific aspects of content. Of course, this result can happen only if the students tacitly consent to use such questions to guide their comprehension. There is a danger that teacher-supplied questions may be ignored. In the next chapter, we will examine how reading guides can help ensure that prereading questions are taken seriously by requiring students to jot down answers as they read. For now, let's consider a more open-ended approach, one calculated to increase students' level of mental engagement. What if the teacher asks them to form predictions about what a reading selection will contain? Their focus, once they begin to read, will then be to test their predictions and learn why they were right or wrong.

Possible Sentences. There are many ways of evoking predictions, and one of the cleverest is an approach called Possible Sentences (Moore & Moore, 1986). This technique blends technical vocabulary introduction with purpose setting and is excellent for content units (Stahl, 1999). It stresses clusters of related terms and the relationships among terms. The procedure is quite simple:

- Choose six to eight unfamiliar words from the new unit.
- Choose an additional four to six words likely to be familiar.
- Put these ten to twelve words on the board.
- Provide short definitions, drawing on student knowledge wherever possible.
- Ask students to think of sentences that use at least two of the words and that express ideas they think they may discover when they read.
- Write these sentences on the board as the students dictate them.
- Include both right and wrong guesses.
- Make sure every word is used in at least one sentence.
- When the students are finished providing sentences, ask them to read the material.
- Afterward, discuss the sentences on the board, noting whether each could be true, based now on the reading.
- If a sentence is true, leave it alone. If it is not, discuss how to modify it to make it true.

Stahl and Kapinus (1991) found that possible sentences improved both vocabulary knowledge and comprehension of material containing targeted words. In fact, it proved more effective than another very useful approach, semantic mapping.

You've undoubtedly noticed our use of objectives as embedded purpose-setting devices in all the chapters you've read. How effective have they been for you? (Have you taken the time to read them?) Would secondary or middle-grade students be likely to read them? What if a teacher deliberately discussed such objectives before the students read? Would you predict that their comprehension would improve?

Stating Objectives and Outcomes

One of the most direct ways to set purposes is to make clear to students precisely what they should know or be able to do once they have completed a selection. Consider the teacher about to assign the Pluto article, who says to students:

After you've read, you should be able to describe the conditions on Pluto.

Naturally, the outcomes or objectives of reading can always be cast in question form and vice versa. Questions have the advantage of merging rather naturally into a postreading discussion.

Instead of stating the outcome, the teacher might have asked students to read in order to answer this question:

What are conditions like on Pluto?

Compare the two approaches. Do see any advantage of objectives over questions, or vice versa?

Graphic Organizers

In Chapter 6, we discussed how presenting new technical terms by means of graphic organizers can be an effective method of building prior knowledge. Graphic organizers also provide a means of setting purposes for reading. Students who are familiar with the nature of organizers from exposure to them in textbooks and discussions are in a position to produce organizers of their own. A purpose for reading can be to complete, or in some cases to construct, a graphic organizer. This approach can be very effective when several guidelines are observed:

1. Familiarize students with the nature of graphic organizers by introducing organizers frequently in your discussion of course material and by calling attention to the different types of organizers and their characteristics.

2. Suggest the three-step process for construction of a graphic organizer presented in Chapter 6. You will recall that these steps include (a) listing key terms, (b) identifying within the list clusters of closely related terms, and (c) designing a diagram that best predicts the relationship among the terms in a given cluster.

3. Do not begin by requiring students to follow this three-step process in its entirety. Instead provide them with the opportunity to complete graphic organizers by inserting terms at appropriate positions. As students acquire experience in completing the diagrams, present them with progressively more demanding tasks. Such a progression might proceed as follows:

   a. From a list, students select terms and write them into the appropriate positions within a partially drawn organizer.
   b. Without a list, students write terms into a partially drawn organizer, selecting them from the reading material in general.
   c. Students construct an organizer, given only a cluster of terms but no diagram.
   d. Students produce a viable organizer without the teacher's having specified which terms or the type of organizer.

The first three steps in this progression are illustrated in Figure 7.5, which is again based on our reading selection about the planet Pluto.

ConStruct. Vaughan (1982) has suggested a technique in which students with some familiarity with organizers read for the purpose of constructing a single, comprehensive organizer. In this process of *con*cept *struct*uring (ConStruct), the students initially read rapidly, striving only to produce a sketchy, skeletal diagram that involves the main topic and major subtopics. The students read a second time (more carefully) with the goal of elaborating on this scant beginning. A much more detailed organizer results. After studying this diagram, the students read for a third time to clear up any remaining points of confusion. The ConStruct approach clearly requires that students be familiar with graphic organizers in advance, and Vaughan suggests modeling them before using ConStruct itself.

FIGURE 7.5
Three ways of implementing a timeline based on the Pluto passage

(a) The teacher instructs students to place the phrases below on the timeline.

Discovery of Pluto
Pluto's passage inside Neptune's orbit
Pluto's passage outside Neptune's orbit
Pluto's most recent close approach to the sun

1900 '10 '20 '30 '40 '50 '60 '70 '80 '90 2000 2010

(b) The teacher lists the four events and instructs the students to create a timeline.

(c) The teacher instructs the students to create a timeline in which key events in Pluto's history are represented, but the teacher does not list these events.

Charts

A good approach to many factually rich reading selections is to provide students with a chart that requires them to categorize information they encounter while reading (McKenna, 2002). The teacher provides students with the structure of the chart, including column headings and, in some cases, the entire *first* column. The feature analysis chart can serve as a purpose-setting device as well as a means, discussed in Chapter 6, of presenting the terms in a prereading discussion. Figure 7.6 depicts how such a chart might be used to guide students through the Pluto selection. Note that the column headings are completely provided, and, in addition, the first column has been completed to further limit the students' focus as they read. Completing an example or two while explaining the chart to students can be helpful.

As in the case of graphic organizers, students will become accustomed to the nature of feature analysis charts when teachers make frequent use of them during the introduction of technical vocabulary. They should come to consider completing such charts while they read as a natural application of charting activities.

FIGURE 7.6
A feature analysis chart for a reading selection on Pluto

The following chart allows students to integrate information about Pluto with information previously learned about other planets.

Planets	Mainly gaseous	Larger than Earth	Has at least one moon	Has an atmo-sphere	Has rings	Nearer sun than Earth
Mercury						
Venus						
Earth						
Mars						
Jupiter						
Saturn						
Uranus						
Neptune						
Pluto						

A wide variety of charts is available, and feature analysis is only one of many possibilities. To illustrate the range of types, we have included a very simple T-chart in Figure 7.7, also based on the Pluto passage. Like the feature analysis chart, it requires higher-level thinking (inferential and critical). As with the construction of graphic organizers, the completion of charts helps to make reading an active process, one that engages students as they read.

Problem Solution

Providing students with the opportunity to apply what has been learned to the solution of a problem is a good way to direct comprehension toward a higher-level purpose. Dahlberg (1990) argues that students are already experienced problem solvers in out-of-school contexts and that teachers can and should tap their ability. Let's begin by differentiating between two types of problems useful for setting purposes.

One involves mathematics and science content designed to develop students' abilities to solve a particular kind of problem (e.g., solving a second-degree equation using the quadratic

FIGURE 7.7
A T-chart for a reading selection on Pluto

The teacher instructs students to read in order to complete the chart below.

Evidence that argues *against* the existence of life on Pluto	Evidence that argues *for* the existence of life on Pluto

formula or computing force vectors in beginning physics). This type of problem solving differs very little from the technique of merely making the objectives of a reading assignment clear in advance. That is, learning to solve problems of a particular kind is one type of objective that a teacher might specify prior to reading. Naturally, the material to be read focuses on problems of precisely this sort.

The second kind of problem-solving purpose is considerably different. It involves presenting students with a single, overarching problem that can be approached using the information acquired through reading. The selection to be read, however, may not directly focus on such problems. For example, the social studies teacher might assign students the task of creating a plan to contend with their community's air pollution problem. This teacher instructs the students to consider carefully the information acquired by reading a specific selection on air pollution together with information presented through class discussion and lecture. A math teacher might begin a trigonometry unit by providing students with a diagram of their school grounds complete with precise measurements and angles, suggesting to them the need for determining specific missing measurements. Their study of the trigonometry materials should eventually permit them to solve the myriad problems such a framework might provide. These are examples of what Dahlberg (1990) calls "real life problems" (p. 14), the sort most likely to motivate students by demonstrating how content relates to their lives. As a third example, consider again our Pluto selection. A science teacher might provide the following task to students prior to reading:

> Imagine that you are assigned the task of designing a space suit for use on a mission to Pluto. Begin your assignment by reading the selection to discover what conditions are like there. Then describe the special characteristics your suit might need to possess.

Summary Writing

It is my ambition to say in ten sentences what everyone else says in a whole book.

FRIEDRICH NIETZSCHE

Reading for the purpose of later composing a summary of what is read has a number of distinct advantages. It stresses the interconnectedness of reading and writing. It gives students the opportunity to reconsider content and to reorder it within their own thinking. It also compels students to identify the most important ideas contained in a reading selection. In fact, the most important comprehension skill underlying the ability to summarize is the capacity to distinguish more important from less important information. Finally, summarization is suitable for use with any kind of prose material, expository or narrative. It is perhaps an especially useful device with (1) selections containing a large amount of detailed, though not always highly pertinent, information and (2) narrative selections that involve extremely complex sequences of events (see Coffman, 1994).

Hill (1991) has suggested that students often find it more difficult to write summaries of expository material (such as textbook chapters) than of narrative selections. Teachers might be wise to begin summary writing with material organized chronologically (e.g., historical accounts and descriptions of processes). In Chapter 11, we specifically describe a writing activity aimed at summarizing the steps of a process.

Writing good summaries is usually an acquired skill, however, and some direct instruction may be needed. Two recommendations for guiding students in writing summaries have been examined in recent years: (1) a "chaining" approach and (2) a guided approach. Both have proved effective.

In the first approach to expository summaries, the teacher suggests that students write a single summarizing sentence for each section of the assigned reading selection. For example, for a textbook chapter that is divided by a number of subheads, the students might compose one sentence per subsection. The resulting summary is the "chaining" together of these summarizing sentences. Miller and McKenna (1989) have suggested the additional step of segmenting the resulting summary into paragraphs based on major chapter sections. Students also write a topic sentence for each of these paragraphs. Cunningham (1982) conducted a study in which he found that this technique significantly enchanced the comprehension of fourth graders.

The second approach to teaching students how to summarize involves providing them with general guidelines. Bean and Steenwyk (1984) found that instruction based on the following six

rules (originally suggested by Kintsch and van Dijk, 1978) resulted in significantly better products than those produced by students who had not been taught the rules:

1. Delete unnecessary and trivial material.
2. Delete material that is important but redundant.
3. Substitute a higher-order term for a list of terms.
4. Substitute a higher-order term for components of an action or process.
5. Select and incorporate topic sentences.
6. Where there are no topic sentences, write them.

One caution about the use of summary writing as a purpose-setting technique is that it tends to focus the attention of students on the most important information they encounter. Not surprisingly, Rinehart, Stahl, and Erickson (1986) found that comprehension of details was not enhanced through summary writing. Whenever a selection presents a large amount of factual information, teachers might consider using summarization as a postreading activity and relying on other techniques to ensure that comprehension is adequately detailed. For this reason, we return to the subject of summary writing in Chapter 11. A further limitation is that summary writing is teacher directed despite its apparent open-endedness.

Outlining

When students read for the purpose of outlining a selection, two important benefits can result (Fernandez, 1998; Kneale, 1998). One is that the *product* they produce—the outline itself—can have later usefulness as a review guide. The other is that the *process* of outlining as they read encourages them to see important relationships that exist among ideas. Disadvantages of outlining are that it can be highly tedious and that many materials are not amenable to outlining (such as narratives and loosely structured nonfiction).

Like summarizing, outlining may require some direct attention from teachers if students are to engage in it successfully. Because one of the most important skills underlying successful outlining is the classification of concepts into categories and subcategories, it is advisable to precede any use of outlining with practice in such vocabulary techniques as List-Group-Label and nested categorizing (presented in Chapter 11). These techniques should adequately familiarize students with the logic skills needed in outlining. Once students are familiar with the notion of subcategorizing ideas, the teacher can provide sample outlines. These are complete, model outlines that represent the content of a given selection. For example, after students have completed a textbook chapter, the teacher might distribute an outline of its content, pointing out key characteristics of the outline and advising students to keep it as a review aid. The teacher should then progress toward providing students with incomplete outlines prior to reading—outlines in which the innermost entries are deleted and marked only with appropriate letters or numbers. These "shells" have most of the entries intact but omit certain details that the students must identify and insert. Figure 7.8 provides an example based on the Pluto selection in Figure 7.2.

FIGURE 7.8

Portion of a shell outline for the Pluto passage

I. Background
- **A.** Location:
- **B.** Features:

II. History
- **A.** Discovery:
- **B.** Key Events:

III. Sources of Information
- **A.** Earth-based:
- **B.** Next step:

In this example, colons indicate points at which students should enter information. The space provided by the teacher should correspond to what the students are expected to record.

Some authorities argue that the final goal of using outlining as a purpose-setting technique is to enable the student to outline a selection without the assistance of a shell. Our opinion is that this goal may be unrealistic for many students, and it is certainly problematic with respect to many of the reading materials they are apt to encounter. We believe it is nearly always better to provide a partially completed shell outline. This practice affords students a degree of structure, content, and focus as they read. Such a technique is similar to providing students with a chart or incomplete graphic organizer for purpose setting. It is also similar to Lazarus's idea of *guided notes* (Lazarus, 1988, 1989, 1991, 1993, 1996; Lazarus & McKenna, 1991) and to the notion of reading guides, techniques we will explore in Chapter 8.

Varying and Combining Techniques

Being able to use a variety of purpose-setting techniques provides four powerful advantages. First, it allows teachers to introduce elements of novelty and variety that are now well recognized as ingredients of effective instruction. Second, teachers can match the type of technique to the nature of the material to be read. Third, they can combine two or more techniques for use with the same reading assignment. Finally, from exposure to a variety of techniques, students not only learn that reading should be purposeful but they also acquire an array of methods for making it so. Eventually, they can use these methods independently.

In the next chapter, we examine ways in which purpose-setting techniques can be varied and combined to produce content literacy guides. These devices focus students' attention on the most important aspects of content, make reading an active rather than a passive process, integrate writing and reading, lead to the production of a useful review guide, and provide students with a resource to assist them in responding during class discussions. Such guides are based entirely on the various approaches to purpose setting described in this chapter.

SUMMARY

The most effective reading is purposeful. Good readers have relatively clear notions of what they hope to accomplish through reading. Good teachers therefore either provide students with specific purposes prior to an assignment or help them establish their own purposes. A variety of techniques is available for purpose setting, and in some the teacher plays a more direct role than in others. The degree to which the teacher directs student purposes depends both on the nature of the material and on the philosophy of the teacher.

Prereading questions are among the most versatile devices for setting purposes. They are well suited to developing multiple levels of comprehension (literal, inferential, and critical); they are useful with virtually any reading selection; they are often embedded by textbook authors; and they can be posed by students as well as teachers.

Numerous alternatives to prereading questions are available. Teachers can lead students to form predictions, or hypotheses, that they will then "test" by reading. This approach is less teacher centered than many but is not equally useful with all assignments. In contrast, teachers can simply specify in advance the objectives, or outcomes, of reading. This approach is highly teacher directed and obviously well geared to explicit teaching.

Graphic organizers and charts provide students with the task of interpreting, classifying, and recording information as they read. In the former, they complete or construct a diagram; in the latter, they organize information in tabular form, given the headings of columns and the nature of rows. These techniques can be more or less teacher directed as desired.

Three relatively teacher-centered approaches have been used successfully in recent years. Providing students with problems to be solved is a traditional mainstay of math and science instruction but can be extended to many disciplines with a little creativity. Summary writing encourages students to integrate content and identify its most important components. Outlining has the advantage of giving students a useful review guide. It works best when the teacher provides an unfinished, or "shell," outline to be completed by students during reading.

This wide variety of techniques allows teachers to match method with materials and to combine approaches for use with the same reading selection. Exposure to a range of purpose-setting techniques also serves to model for students how they can make reading more deliberately purposeful as they work independently.

Getting Involved

1. Group achievement tests of reading comprehension usually present students with short passages followed by questions. Nearly all of these questions are either literal or inferential. Speculate about why this policy is so common.
2. Which method of setting purposes seems best matched to your teaching style and content? Would you consider adopting a variety of approaches?