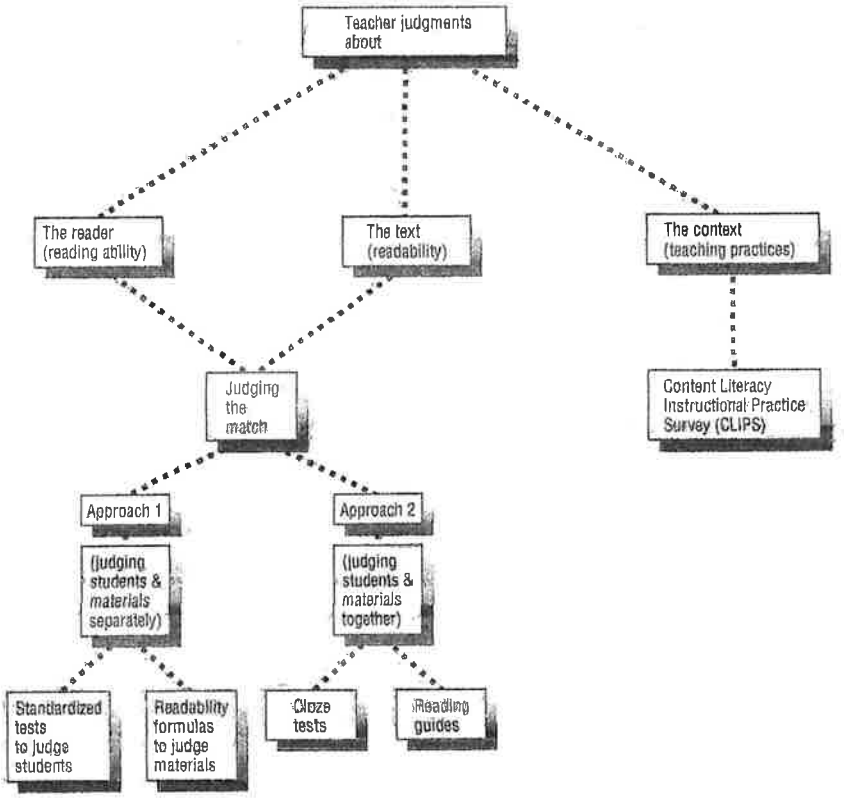
CHAPTER 3

Getting to Know Your Students, Your Materials, and Your Teaching



We can attempt nothing great, but from a sense of the difficulties we have to encounter.

—William Hazlitt

Have you ever been asked to perform a task that was too difficult? It might have involved solving a math problem, taking part in a sport, attempting an advanced musical piece, or responding to an essay exam question. It might also have involved reading an especially difficult book. You may still recall feelings of anxiety, frustration, and failure as you

attempted the task. Depending on a host of factors—the assistance and encouragement you may have received, your determination, and the amount of time available to you—you might eventually have succeeded in performing the task.

When teachers in content subjects ask their students to read specific materials or to undertake written work, some of these students may feel a similar kind of frustration. Unfortunately, even experienced teachers often do little to assist students in contending with challenging materials (Yates, Cuthrell, & Rose, 2011). This book offers a variety of techniques aimed at minimizing such frustration. Some of the techniques are devoted to helping all students learn through reading and writing, and some are designed to help special learners. Before teachers can knowledgeably choose among such techniques, however, they must know something about the reading and writing abilities of their students. They must judge whether these abilities are equal to the demands that planned literacy activities are likely to involve. In this chapter, we offer relatively quick, informal methods of gathering such information.

Objectives

After reading this chapter you should be able to

1. describe the three dimensions of assessment necessary for content literacy-based instruction;
2. define independent, instructional, and frustration reading levels;
3. identify the strengths and limitations of readability formulas;
4. apply the Raygor (1977) readability formula to a prose selection;
5. determine the Lexile level of a text;
6. state the guidelines for constructing cloze tests;
7. interpret cloze scores in terms of approximate reading levels;
8. describe the components of a content literacy inventory;
9. interpret the results of such an inventory; and
10. describe an approach to assessing your own teaching and the literacy demands it places on your students.

Three Dimensions of Classroom Assessment

Historically, a common assumption among teachers has been that, if a student experiences problems, the source of the difficulty must lie within the student. This deficit model is now being replaced with a more realistic view that problems can sometimes be traced to the match between a given student and the materials and methods used for instruction. Lipson and Wixson (2008) speak of the need to assess not only the reader but the text and context as well. Kinney and Harry (1991) have recommended extending this three-dimensional approach to assessment to content classrooms as well as the reading clinic.

This idea is consistent with the notion discussed in Chapter 1 that the adequacy of a student's literacy skills is relative to the literacy demands made by a particular class. In this chapter, we present ways of acquiring information about all three dimensions of your students' literacy performance: student ability, instructional materials, and teaching methods. The remaining chapters describe ways of achieving a balance among the three dimensions so that content literacy becomes a powerful asset.

What Is Reading Ability?

A reading clinician typically devotes many pages to describing the reading ability of a given student, especially a student with problems. Such a description entails a report of the many subskills that underlie reading ability, as well as other factors bearing on school performance.

While debate continues over how best to teach reading, few experts would deny that reading ability involves the capacity to coordinate a number of mental processes that enable the reader to form a reasonable idea of the meaning represented by print. A description of these processes is beyond the scope of this book, but we must nevertheless consider the sorts of behaviors we would accept as evidence of reading ability. Which of the following, for example, would you be inclined to accept?

1. Ability to answer questions after reading
2. Ability to summarize what has been read
3. Ability to decide which of two statements is aligned with an author's views
4. Ability to guess missing words periodically deleted from a passage
5. Ability to choose from among several pictures the one that best represents the content of a selection
6. Ability to "retell" the information or events of the selection
7. Ability to apply the information contained in a selection to some new problem or situation

All of these tasks have been used as yardsticks of a reader's ability to comprehend. While they differ in what they demand, all appear to tap comprehension in some manner. All can be quantified, if desired, so that reading ability can be described in numerical terms. Just as a coach might describe an athlete's sprinting ability by referring to average speed in the hundred-meter dash, a teacher might gauge a student's reading ability in terms of the percentage of questions answered, the thoroughness of a retelling, or the number of key points contained in a written summary.

This process is not as simple as it sounds, however. Let's consider just a few of the factors that might influence your own performance on a test about this textbook. To begin with, if this is the first reading-related course you've taken, you're not likely to do as well as the student who has had prior coursework in reading. The effects of background knowledge on reading comprehension are enormous. Second, assume that your instructor has given you highly detailed objective tests on Chapters 1 and 2 and then, without warning, asks for a written summary and critique of Chapter 3. Your expectations would have ill-prepared you for such a task. Third, consider two classmates of equivalent background who differ in terms of their motivation to learn from this book. Would you predict higher comprehension scores for the more highly motivated student? You should. Our point is that reading ability is not easy to measure because a host of factors affect it. Even under the best of circumstances, reading ability cannot be reduced to a single number or test score. Scores can help us gain rather crude impressions of reading ability, but we must resist the notion that they represent precise measurements.

Even though we must face severe limitations in measuring reading ability, we can still make some fairly accurate quantitative statements about it. We know that reading ability typically increases with a student's age, as the student becomes more skilled and acquires more and more knowledge of the world to bring to bear while reading. When we say that reading ability increases, we are actually suggesting a numerical scale, or continuum, beginning at zero (no ability whatever)

FIGURE 3.1
Some ways of describing the extent of reading ability

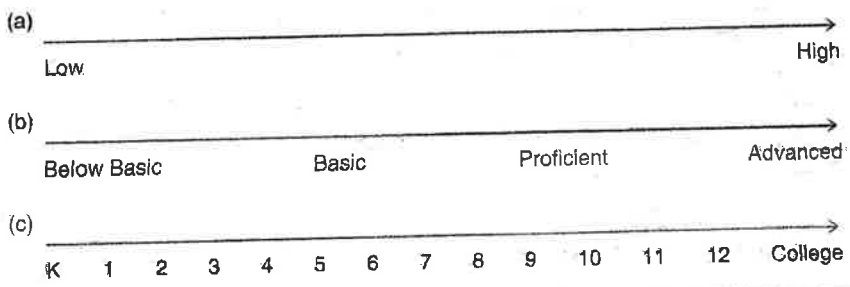


FIGURE 3.2
Definitions of terms used by the National Assessment of Educational Progress to describe reading ability

GRADE 8	
Basic	Eighth-grade students performing at the Basic level should demonstrate a literal understanding of what they read and be able to make some interpretations. When reading text appropriate to eighth grade, they should be able to identify specific aspects of the text that reflect the overall meaning, extend the ideas in the text by making simple inferences, recognize and relate interpretations and connections among ideas in the text to personal experience, and draw conclusions based on the text.
Proficient	Eighth-grade students performing at the Proficient level should be able to show an overall understanding of the text, including inferential as well as literal information. When reading text appropriate to eighth grade, they should be able to extend the ideas in the text by making clear inferences from it, by drawing conclusions, and by making connections to their own experiences—including other reading experiences. Proficient eighth graders should be able to identify some of the devices authors use in composing text.
Advanced	Eighth-grade students performing at the Advanced level should be able to describe the more abstract themes and ideas of the overall text. When reading text appropriate to eighth grade, they should be able to analyze both meaning and form and support their analyses explicitly with examples from the text; they should be able to extend text information by relating it to their experiences and to world events. At this level, student responses should be thorough, thoughtful, and extensive.

Source: National Center for Educational Statistics (2004). Available at http://nces.ed.gov/nationsreportcard/reading/achieveall.asp.

and progressing upward. We can describe points on this scale in various ways. Figure 3.1(a) is perhaps the simplest system, characterizing ability as ranging from low to high. This approach is hard to fault in general, but unless we carefully define these terms, the system is not very useful. Figure 3.1(b) uses terms adopted by the National Assessment of Educational Progress (NAEP) to describe reading ability as it relates to students at the fourth, eighth, and twelfth grades. The NAEP terms are defined in Figure 3.2. Such terms make it possible to place readers of different ages on the same continuum. Perhaps the most common way of demarcating the scale of reading ability is by using grade levels, as in Figure 3.1(c), where the 3 represents the ability of the average third-grader, and so on.

Of course, all of these approaches can be applied to writing ability as well. One of the scoring rubrics used in the NAEP writing assessment appears in Figure 3.3. It has more performance levels than the reading framework.

Many teachers have trouble thinking about reading ability in grade-level terms because of difficulties inherent in the grade-equivalent scores produced by standardized tests. Indeed, these difficulties are so grave that in 1980 the International Reading Association formally condemned the use of such scores. We wish to make clear, however, that the scale depicted in Figure 3.1(c) is an abstract assessment and merely portrays the typical progression of overall ability as students move through school. Figure 3.1(c) has nothing to do with grade-equivalent scores, which amount to crude estimates of a given student's position on the scale. We stress that such a position can *never* be determined precisely. However, the notion of a grade-level continuum has been a useful one in conceptualizing what is meant by reading ability.

FIGURE 3.3

Rubric used by the National Assessment of Educational Progress to evaluate informative writing at grade 8

6 Excellent Response

- Develops and shapes information with well-chosen details across the response.
- Is well organized with strong transitions.
- Sustains variety in sentence structure and exhibits good word choice.
- Errors in grammar, spelling, and punctuation are few and do not interfere with understanding.

5 Skillful Response

- Develops and shapes information with details in parts of the response.
- Is clearly organized, but may lack some transitions and/or have occasional lapses in continuity.
- Exhibits some variety in sentence structure and some good word choices.
- Errors in grammar, spelling, and punctuation do not interfere with understanding.

4 Sufficient Response

- Develops information with some details.
- Organized with ideas that are generally related, but has few or no transitions.
- Exhibits control over sentence boundaries and sentence structure, but sentences and word choice may be simple and unvaried.
- Errors in grammar, spelling, and punctuation do not interfere with understanding.

3 Uneven Response (may be characterized by one or more of the following)

- Presents some clear information, but is list-like, undeveloped, or repetitive OR offers no more than a well-written beginning.
- Is unevenly organized; the response may be disjointed.
- Exhibits uneven control over sentence boundaries and sentence structure; may have some inaccurate word choices.
- Errors in grammar, spelling, and punctuation sometimes interfere with understanding.

2 Insufficient Response (may be characterized by one or more of the following)

- Presents fragmented information OR may be very repetitive OR may be very undeveloped.
- Is very disorganized; thoughts are tenuously connected OR the response is too brief to detect organization.
- Minimal control over sentence boundaries and sentence structure; word choice may often be inaccurate.
- Errors in grammar or usage (such as missing words or incorrect word use or word order), spelling, and punctuation interfere with understanding in much of the response.

1 Unsatisfactory Response (may be characterized by one or more of the following)

- Attempts to respond to task, but provides little or no coherent information; may only paraphrase the task.
- Has no apparent organization OR consists of a single statement.
- Minimal or no control over sentence boundaries and sentence structure; word choice may be inaccurate in much or all of the response.
- A multiplicity of errors in grammar or usage (such as missing words or incorrect word use or word order), spelling, and punctuation severely impedes understanding across the response.

Source: National Center for Educational Statistics (2004). Available at http://nces.ed.gov/nationsreportcard/writing/scale.asp.

NET Worth

NAEP

Read more about the National Assessment of Educational Progress (NAEP). Find information about the NAEP as well as useful research summaries through the U.S. Department of Education's National Center for Education Statistics.

http://nces.ed.gov/pubsearch

Levels of Reading Ability

Our grade-level depiction of reading ability is helpful in making an important point. To suggest that, given accurate measurements, a student can be placed at a particular point along the scale is actually an oversimplification. Reading specialists work under the useful assumption that individuals typically possess not one level of reading ability but three! (See Figure 3.4.)

At the *independent* level, materials are easily understood by the reader without outside assistance. For example, a popular novel you might read for pleasure is likely to be at this level. At the *instructional* level, materials are more difficult; the help of a teacher may be needed for the reader to comprehend them adequately. Reading is challenging but not prohibitive. At the *frustration* level, as the phrase suggests, materials are apt to be so trying that the reader gives up. Even the help of an instructor cannot make the reading sufficiently comprehensible.

It is important to realize that these levels differ from one individual to another. The novel that might fall at your independent level would frustrate a young child. It is also important to note that our caution about measurement applies here also. Although we can speak about John's independent level or Susan's instructional level in the abstract, these levels cannot be precisely measured, only estimated.

The definitions provided in Figure 3.4 are conventional ways of dealing with the fact that John might have, for example, more than a single independent level. After all, if he can read third-grade materials independently, he can read comparable materials of second- or first-grade difficulty. To avoid confusion, the independent level is therefore taken to be the *highest* level of independent performance. Likewise, the frustration level is assumed to be the *lowest* level at which comprehension breaks down and frustration occurs. We assume that still more difficult materials would have a similar effect. We have depicted this relationship for a particular, hypothetical child in Figure 3.5. Between the independent level of third grade and the frustration level of sixth lie two instructional levels (fourth and fifth grades), sometimes called the ***instructional range.***

FIGURE 3.4
Definitions of the three levels of reading ability

Independent Level	The highest level at which there is good comprehension without assistance
Instructional Level	Any level at which there is good comprehension as long as assistance is available
Frustration Level	The lowest level at which comprehension is inadequate even when assistance is available

FIGURE 3.5
Depiction of the three levels of reading ability

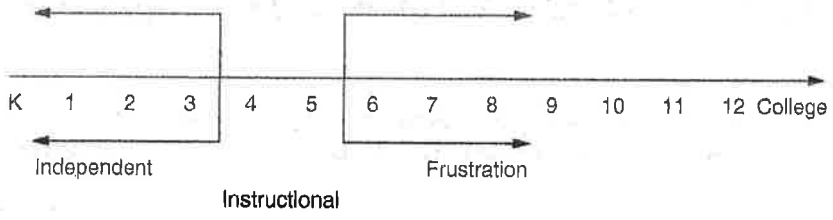
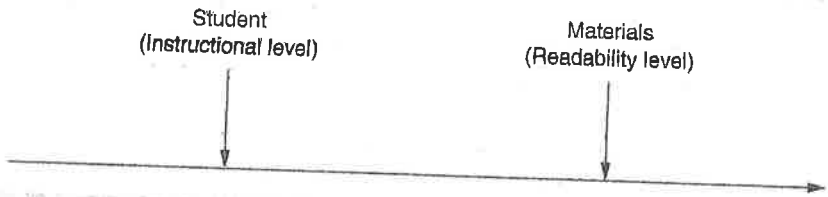


FIGURE 3.6
Example of a poor match between a student and materials



Reading Ability and Readability

We have spoken not only of placing *students*, theoretically, on a grade-level continuum, but also of placing *materials* on the same scale. The more difficult the reading, the higher the placement. The same continuum can thus serve as a frame of reference (though an admittedly imperfect one) for placing students *and* materials. When grade-level designations are applied to students, we speak of *reading ability;* when they are applied to materials, we speak of *readability.*

We use the term *readability* to refer to the overall difficulty level of a book (or some other unit of text) and admit that the choice of terms is unfortunate. This is because the word *readable* is also used to denote ideas such as how legible the print is or how enjoyable the writing proves to be (Bang-Jensen, 2010; Fry, 1998, 2002; Hoke, 1999; Klare, 1988; Kucer, 2010; McTigue & Slough, 2010). For our purposes, however, the term refers in a general way to difficulty and can be thought of as synonymous with *comprehensibility* or *understandability* (terms that are more cumbersome but less ambiguous).

An advantage of using the same scale to characterize both students and materials is that it enables us to judge whether the two are suitably matched. When the reading ability of a student falls significantly below the readability of the materials the student is asked to read, as in Figure 3.6, the match is clearly unsuitable, and the results can be disastrous. Again, remember that our placement of materials and students along the continuum is theoretical. Precise measurements of this kind are not possible. Moreover, we confess to oversimplifying the notion of readability for purposes of our illustration. (Some of the factors that affect readability lie within the *reader.*) However, Figure 3.6 is a defensible depiction for our purposes and makes clear the need to determine whether the match between students and reading materials is viable. We now examine ways teachers can make such a determination.

Judging the Match between Students and Materials

Let's consider Mr. Ross, a tenth-grade biology teacher who will use a textbook adopted by his school district. He is free to modify or even abandon the text if he chooses, but he lacks the funds to use an alternative text. Mr. Ross must determine whether his class will be able to read the typical assignments he plans to make from the book. In the process, he will identify those students who are likely to have substantial problems with the text.

Mr. Ross has two choices: (1) He can estimate the students' reading ability and the readability of the text and then compare the two measures, or (2) he can construct a brief reading and writing task based on the text itself and judge the students' success with this task. Each of these approaches has distinct advantages and drawbacks. Keep in mind that the two approaches are not mutually exclusive. It is possible to do both!

Approach 1: Assessing Students and Materials Separately

Mr. Ross can evaluate his students and his text independently by examining test scores on file for his pupils and by applying any of several common measures of readability to his book. The chief advantage of this approach is that it can be accomplished outside class, even before the start of the school year. The disadvantages, however, are formidable. The measures available to Mr. Ross are relatively crude estimates of the information he needs, and he can never really be certain

about the suitability of the text until his students actually begin to interact with it. Later in the chapter, we will look briefly at the measures Mr. Ross would use in this approach.

Standardized Tests. In most U.S. schools, standardized tests are administered once a year. These measurements are designed to assess groups rather than individual students, but because of their availability, teachers often attempt to use such tests in making tentative decisions about their students. Up to a point, this practice can be beneficial, but we stress the word *tentative*. The following guidelines will help you arrive at reasonable conclusions about the reading ability of your students based on standardized tests.

1. Refer only to the reading comprehension subtest.
2. Ignore all norms but the percentile rank. (Ignore—in particular—the grade-equivalent score.)
3. Tentatively classify students as average, above average, or below average using the following guide:

   0–22: below average
   23–39: borderline
   40–59: average
   60–76: borderline
   77–99: above average

When Mr. Ross finds that Richard has scored at the 47th percentile rank on a standardized subtest of reading comprehension, he can reasonably assume that Richard's reading ability is roughly commensurate with his grade level. Because Richard is a sophomore, his ability level is likely to be near tenth grade. This is as far as Mr. Ross can proceed, however, in translating Richard's score into a grade level. If the score were higher—perhaps in at least the 80th percentile rank—Mr. Ross could say only that Richard's ability level is probably higher than tenth grade.

If these restrictions seem overly prohibitive, remember that they are based on sound psychometric principles. Remember, too, that the test has already been given. Mr. Ross need only consult a roster of results (usually generated by a computer) in order to make these tentative judgments about his students.

Measures of Readability. Mr. Ross's next step would be to estimate the text's level of difficulty. Think for a moment about what makes a reading selection easy or difficult. As we noted earlier, some of the factors we might list lie within the reader rather than the selection (the familiarity of the topic, for example). If we limit ourselves to the writing itself, the factors we might list would include at least the following (Miller & McKenna, 1989):

Sentence length
Vocabulary
Grammatical complexity
Organization
Cohesion
Abstractness
Clarity
Assumptions about prior knowledge

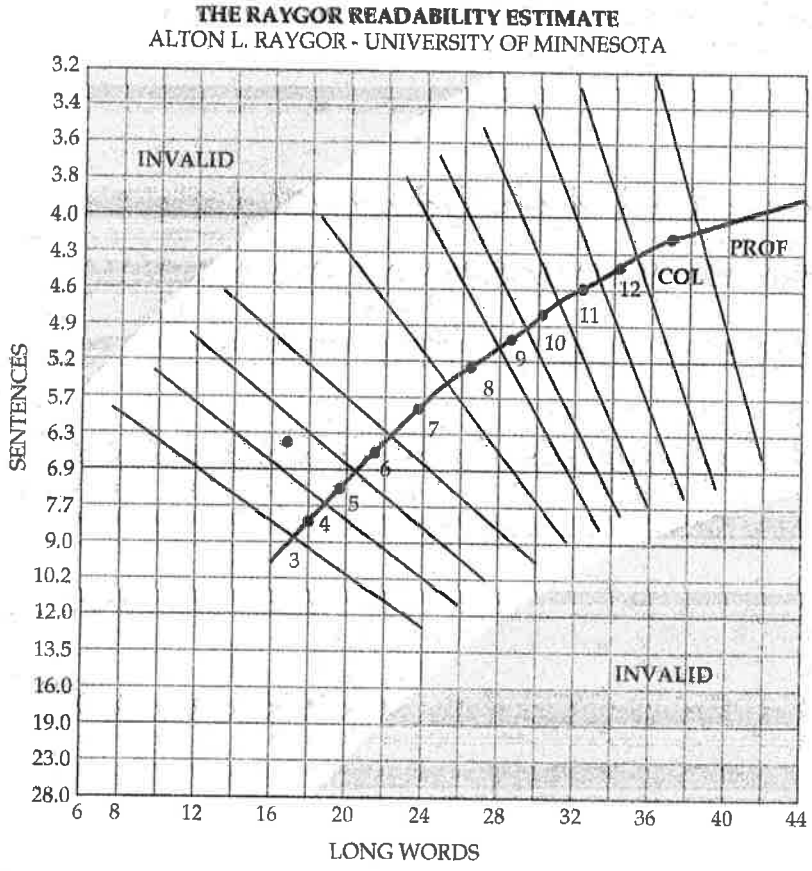
Attempting to arrive at an overall estimate of difficulty level by considering these factors is not an easy task. As you might expect, some teachers are better than others at doing so (Frager, 1984). In an effort to make the process of estimating readability more systematic, researchers have offered several methods. The oldest involves the use of numeric formulas that account for a few of the factors just mentioned. A second approach involves comparing a selection with a sequence of passages of progressive difficulty (Singer, 1975). The third and newest alternative entails structured (though subjective) considerations of numerous textual factors (Binkley, 1988; Zakaluk & Samuels, 1988). Currently, we believe that formulas offer teachers the most practical alternative, one that will result in defensible estimates of text difficulty (Fry, 1989).

Readability formulas typically account for only the first two of the eight factors listed previously: sentence length and vocabulary. This is a severe limitation indeed, and yet formulas succeed in predicting a remarkable amount of the variance in student comprehension

performance on different prose materials. Although there are newer formulas that attempt to account for more factors, they are quite time-consuming (unless computerized). Our experience is that teachers may be willing to apply a formula only if it is sufficiently simple to use. We will consider only one such formula, the readability estimate developed by Raygor (1977).

Raygor's formula has the advantages of being extremely quick to administer and of correlating well with more complex formulas, as well as with student performance measures. The steps in using the formula and its accompanying chart appear in Figure 3.7. As you can see, the formula requires first computing the average length of sentences in three representative selections of

FIGURE 3.7
The Raygor readability estimate



Directions:

Count out three 100-word passages at the beginning, middle, and end of a selection or book. Count out proper nouns, but not numerals.

1. Count sentences in each passage, estimating to nearest tenth.
2. Count words with six or more letters.
3. Average the sentence length and word length over the three samples and plot the average on the graph.

Example:

	Sentences	6+ Words
A	6.0	15
B	6.8	19
C	6.4	17
Total	19.2	51
Average	6.4	17

Note mark on graph. Grade level is about 5.

Source: From "The Raygor Readability Estimate: A Quick and Easy Way to Determine Difficulty" (p. 261) by Alton Raygor, in *Reading Theory, Research, and Practice: Twenty-Sixth Yearbook of the National Reading Conference* by P. D. Pearson (Ed.), 1977, Clemson, SC: National Reading Conference. Copyright © 1977 by the National Reading Conference Inc. Reprinted by permission of the National Reading Conference.

100 words each and next determining the proportion of words with six or more letters in these selections. These two numbers are then used to plot a point on the graph. For most selections the point will fall in one of the numbered sections. The number is the grade-level estimate.

Let's assume that Mr. Ross applies the Raygor formula to his textbook and produces a twelfth-grade estimate. Comparing this estimate with Richard's tenth-grade reading ability level might lead Mr. Ross to predict that Richard will have difficulties with the book. This may be the case, but there are two problems with Mr. Ross's reasoning. One is that both the estimate of Richard's ability and the estimate of the book's readability are highly suspect. Either or both may be off the mark. The other is that the difference between grade levels in the secondary years is smaller than that at the elementary level. No one, for example, could fail to note the difference between first- and second-grade materials, but the difference between eleventh- and twelfth-grade materials is quite small.

What we are suggesting is that, in order to predict serious difficulty, it is necessary to identify a large difference between our estimate of (1) a student's reading level and (2) the readability of assigned materials. If Richard's percentile rank on the standardized test were below the average for tenth-graders, and if the Raygor formula had placed the text at the college level, Mr. Ross would have had a better foundation for his fears. Because of the availability of standardized test results and the quickness of applying the Raygor formula, Approach 1 can be useful in obtaining an "early warning" about those students most likely to have difficulty.

A convenient way to apply a readability formula is the Lexile Framework, an online resource that provides a quick way to learn the approximate difficulty level of any book. Lexiles are difficulty estimates that range from 200 to 1,700 (from *Danny and the Dinosaur* to Darwin). Corresponding grade-level ranges and familiar titles are provided to give you a frame of reference. We have constructed a quick cross-reference guide in Figure 3.8.

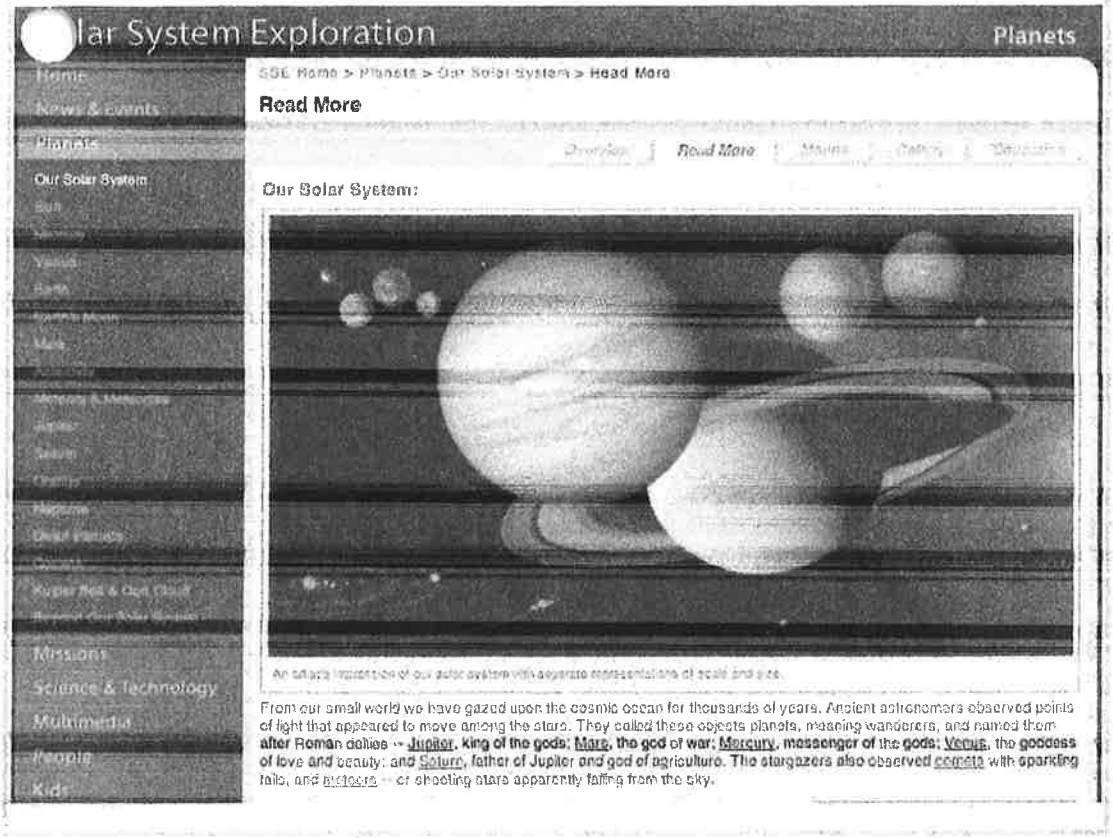
There are several ways to use the Lexile Framework. First, you can look up a title in the extensive online database. Most content area textbooks are included. Second, you can upload a file from your computer. Such a file could contain a text sample that you have scanned or keyboarded, a sample of student work, or any other text. It must be saved as plain text, however (the .txt extension).

You can also use the Lexile Analyzer to judge the match between a book and a student's reading level. Most tests of reading comprehension, including group achievement measures, now

FIGURE 3.8
Correspondence of lexiles to approximate grade levels

Lexile Range	Grade Range
1,500–1,700	Graduate School
1,320–1,490	Undergraduate
1,210–1,310	Grade 12
1,100–1,200	Grades 10–11
1,040–1,090	Grades 8–9
1,000–1,030	Grades 7–8
950–990	Grades 6–7
930–940	Grade 6
870–920	Grades 5–6
810–860	Grade 5
790–800	Grades 4–5
700–780	Grade 4
620–690	Grades 3–4
500–610	Grade 3
430–490	Grades 2–3
370–420	Grade 2
330–360	Grades 1–2
200–320	Grade 1

FIGURE 3.9
The NASA solar system passage in its online form



report student scores as lexiles. By comparing the student's lexile score with that of the materials that the student is asked to read, a teacher can quickly judge the potential difficulty the student is likely to experience.

Make no mistake, however. Lexile scores are based on readability formulas, which have been applied in advance to all of the books in the database and which are automatically computed for any text you upload. Like the formulas themselves, lexiles should be regarded as estimates and not as precise measures.

Readability in Digital Settings. Look back at the sample text from the NASA Web site (Figure 1.3). According to the Raygor formula, the readability of this passage is grade 11. (Feel free to check our work!) The lexile for the passage is 1,120, approximately grades 11–12. Needless to say, this level of agreement is reassuring. Keep in mind, however, that we have examined only the text of the passage. On the NASA Web site, considerably more is involved. Figure 3.9 presents the beginning of the passage in its online setting. Some of the features, such as the illustrations and links to key words, may make the passage itself easier to read. Other features, like the complex array of choices represented in the side and top menu bars, offer nonlinear choices that may confuse or distract some students. These complications cloud the issue of readability in digital environments and should raise a caution as teachers ask students to interact with such sources.

Knowledge must come through action; you can have no test which is not fanciful, save by trial.
SOPHOCLES

Approach 2: Assessing Students and Materials Together

In this section, we examine the second approach to judging the match between assigned materials and student ability. This approach involves constructing a short exercise over a brief portion of the material in order to appraise student performance. A disadvantage of this approach is that it requires class time. However, because the time is spent on materials the instructor has

decided to assign anyway, few teachers object to such assessment. Basing reading evaluation on the materials to be read can lead to far more accurate predictions than those obtained through Approach 1.

There are two principal methods of constructing such exercises: the cloze test and the content literacy inventory—two vastly different techniques that yield surprisingly similar information.

Cloze Testing. The cloze procedure has been used for four decades to assess reading comprehension, and it is extraordinarily well researched (Kolic-Vehovec & Bajsanski, 2007; McKenna & Robinson, 1980). In a cloze test, some of the words in a passage are replaced with blanks. The student is asked to infer them—to "close" the gaps—on the basis of context.

Many cloze formats have been used, but nearly all the extensive research studies done to determine scoring guidelines have used the same format. Therefore, it is essential to follow these same guidelines when constructing your own cloze tests. These guidelines are summarized by McKenna and Stahl (2009):

- Start with a passage of about 300 words. Shorter passages may be used, but reliability could be jeopardized.
- Choose any word as the first to be deleted, but leave a sentence or two intact at the beginning of the test.
- Thereafter, mark every fifth word, until 50 have been marked.
- Word-process the test so that the words you've marked are replaced by blanks.
- The blanks must be of equal length.
- For younger students, leave blanks of around 15 spaces to give students room to write.
- For older students, you may wish to number the blanks so that students can write their answers on a separate sheet. Doing so also makes scoring easier.

Surprisingly, the point in the text at which the passage is selected makes little difference. Cloze items are not very dependent on preceding material. Try to choose a passage that is (1) largely typical of the material presented in the text and (2) relatively free of non-English inclusions, such as formulas and equations.

In administering the test, acquaint students in advance with the idea of a cloze exercise. Examples should be provided and thoroughly discussed. Inform students that a good score is much lower than one that would be considered good on more traditional tests. Also, make it clear that scores will not affect their grades. The testing itself is untimed.

Scoring is simple: Correct answers must be the exact words deleted, with the exception of minor misspellings. Resist the temptation to give credit for synonyms and other reasonable responses. Otherwise, scoring becomes subjective and time-consuming, and results can no longer be evaluated on the basis of research—all of which has credited verbatim responses only. Studies have clearly shown that counting synonyms adds nothing to the discriminating power of the test (Henk, 1981; McKenna, 1976; Miller & Coleman, 1967) and increases the subjectivity of scoring (Henk & Selders, 1984). The scoring guide established through criterion studies is as follows:

Independent level	60 percent or higher
Instructional level	40 to 59 percent
Frustration level	39 percent or lower

These guidelines should not be applied too rigorously. Scores in the vicinity of 40 percent or 60 percent should be regarded as borderline. As a general rule, however, these criteria are quite useful and have shown remarkable stability across populations. Investigations of upper elementary students have resulted in similar findings (Bormuth, 1967; Clariana, 1991; Rankin & Culhane, 1969), as have studies of high school students (Peterson, Paradis, & Peters, 1973), vocational-technical and college students (Peterson, Peters, & Paradis, 1972), and reading-disabled students (Peterson & Carroll, 1974).

An example of a cloze test appears in Figure 3.10. If you are unfamiliar with the technique, we suggest you try your hand at cloze completion. Check your answers at the end of the chapter (see Figure 3.12, page 52).

FIGURE 3.10
Sample cloze test

The term *hurricane* has its origin in the indigenous religions of old civilizations. The Mayan storm god was named *Hunraken*. A _____(1)_____ considered evil by the _____(2)_____ people of the Caribbean _____(3)_____ called *Huracan*. Hurricanes may _____(4)_____ be considered evil but _____(5)_____ are one of nature's _____(6)_____ powerful storms. Their potential _____(7)_____ loss of life and _____(8)_____ of property is tremendous. _____(9)_____ in hurricane-prone areas _____(10)_____ to be prepared for _____(11)_____ and tropical storms. Even _____(12)_____ areas, well away from _____(13)_____ coastline, can experience destructive _____(14)_____, tornadoes, and floods from _____(15)_____ storms and hurricanes.

Tropical _____(16)_____ and tropical storms, while _____(17)_____ less dangerous than hurricanes, _____(18)_____ can be deadly. The _____(19)_____ of tropical depressions and _____(20)_____ storms are usually not _____(21)_____ greatest threat. Heavy rains, _____(22)_____, and severe weather, such _____(23)_____ tornadoes, create the greatest _____(24)_____ from tropical storms and _____(25)_____.

On average, each year, _____(26)_____ tropical storms, six of _____(27)_____ become hurricanes, develop in _____(28)_____ Atlantic Ocean, Caribbean Sea, _____(29)_____ Gulf of Mexico. In _____(30)_____ typical three-year span, _____(31)_____ U.S. coastline is struck _____(32)_____ average five times by _____(33)_____, two of which will _____(34)_____ designated as major hurricanes.

_____(35)_____ cyclones are sometimes steered _____(36)_____ weak and erratic winds, _____(37)_____ forecasting a challenge. Warnings _____(38)_____ from the National Oceanic _____(39)_____ Atmospheric Administration's (NOAA) National _____(40)_____ Center continue to improve _____(41)_____ have greatly diminished hurricane _____(42)_____ in the United States. _____(43)_____ improved warnings, property damage _____(44)_____ to increase due to _____(45)_____ population on our coastlines. _____(46)_____ agencies, such as the _____(47)_____ Emergency Management Agency (FEMA), _____(48)_____ organizations such as the _____(49)_____ Red Cross, have combined _____(50)_____ state and local agencies, rescue and relief organizations, the private sector, and the news media to improve preparedness efforts.

The *Saffir-Simpson Hurricane Scale* is a 1 to 5 rating based on the hurricane's intensity. This scale estimates potential property damage.

Source: U.S. Department of Commerce (2001). *Hurricanes—Unleashing Nature's Fury*. Available at http://hurricanes.noaa.gov.

Reading Guides. An alternative to cloze testing is the reading guide, a teacher-made device intended primarily to help students locate, consider, and write about important information in assigned reading materials. A reading guide typically consists of a few photocopied pages containing questions to answer, charts and diagrams to complete, and other tasks to undertake while reading. Using a guide is an open-book experience, during which students go back and forth from the text to the guide. To help students keep their place, teachers often incorporate page numbers and subheadings into each guide. No two guides are alike, and there is no best way to construct one. The key is to direct students to information the teacher feels is important.

In Chapter 8, we will examine in detail how to construct reading guides and use them in content area instruction. We preview them here because guides can provide valuable assessment information about how well students can comprehend assigned materials. A reading guide requires students to write. This writing—whether it involves answers to questions, charts, diagrams, paragraphs, or other forms—provides evidence of how well the students comprehend. This evidence can be very useful at the beginning of a new school year. A teacher who asks students to open their books to a particular passage and complete a guide as they read will readily discern which students are likely to find the material too difficult as the year progresses.

Judging the Context of Instruction

Knowing the match between the reading ability of students and the readability of materials is an important first step. There is another dimension to students' literacy performance in content classes, however. This is the context in which literacy is used. Context is often broadly defined

to include socioeconomic background, cultural considerations, and similar factors (Lipson & Wixson, 2008; Rowsell & Pahl, 2007). Our approach is narrower, however. We limit our discussion of context to the instructional methods a teacher uses and to the literacy demands that these methods make on students.

This idea may suggest a kind of assessment quite new to you because it requires taking stock of your own instructional practice. This is not an empty exercise in matters that are self-evident. Many teachers fail to reflect adequately on the effects their day-to-day classroom behaviors may have on student performance. To assist you, we have constructed a self-administered survey, the Content Literacy Instructional Practice Survey (CLIPS), which appears in Figure 3.11. If you have not yet begun to teach, you can still take the survey on the basis of your intentions as a future teacher.

[Reading] is a means whereby we may learn not only to understand ourselves and the world about us but whereby we may find our place in the world.

ELIZABETH NETERER

The survey touches on many issues that we examine in detail later in this book. We encourage you to respond to all the items, however, and to return to the survey at the conclusion of the course. At that time, you may discover areas in which your philosophy has changed.

Note that there is no provision for arriving at a total score. Each aspect of your teaching practice is considered independently, and the result is not a number but a profile you can use to modify your instruction, if need be, in order to achieve a better balance among the three dimensions—students, materials, and methods. In short, the survey allows you to become a little more reflective about your teaching and the extent to which it influences your students' ability to use reading and writing to learn content.

As a brief example, let's assume that Mr. Ross responds to the survey and that his profile reveals the following traits. We note first that his reading assignments are made daily and over a semester will include his entire biology text. His average daily reading assignment is more than 30 pages. Mr. Ross does not introduce technical vocabulary, nor does he ensure that students have specific purposes for which to read. From these responses alone, Mr. Ross might begin to think about some possibilities for improving his students' reading performance (and consequently the amount of biology they learn). He might, for example, become more selective in his assignments, using other means (such as lecture, discussion, and demonstration) to introduce some of the material. He might also try some of the techniques outlined in Chapters 5 through 8 in preparing his students for the assignments he does make. But Mr. Ross may never reach these conclusions unless his idea of assessment includes his own instructional practice and unless he occasionally reflects on that practice in a more or less structured way. The inventory presented in Figure 3.11 may help you achieve this kind of reflective practice.

FIGURE 3.11
Self-assess your own teaching

CONTENT LITERACY INSTRUCTIONAL PRACTICE SURVEY (CLIPS)

Frequency of Reading (Check one.)

_____ No reading
_____ Occasional reading (much reliance on lecture, demonstration)
_____ Frequent reading (most textbook chapters assigned)
_____ Daily or near-daily reading (all or nearly all textbook chapters assigned)

Amount of Reading (Check one.)

_____ No reading
_____ Average less than 10 pages per week (per course or subject)
_____ Average between 10 and 30 pages per week
_____ Average between 30 and 50 pages per week
_____ Average over 50 pages per week

Frequency of Writing (Check one.)

_____ No writing
_____ Occasional writing (once a week or less per course or subject)
_____ Frequent writing (more than once a week per course or subject)
_____ Daily or near-daily writing

Amount of Writing (Check one.)

_____ No writing
_____ Average less than 1 page per week (per course or subject)
_____ Average between 1 and 3 pages per week
_____ Average between 3 and 5 pages per week
_____ Average over 5 pages per week

Instructional Practice (Check all that apply to your teaching.)

_____ 1. I judge whether students' backgrounds are adequate before they read.
_____ 2. I try to refresh or add to students' knowledge before they read.
_____ 3. I introduce new technical terms before students read about them.
_____ 4. I stress the relationships among technical vocabulary terms.
_____ 5. I ensure that students have specific purposes for reading before they begin.
_____ 6. I relate postreading discussions to the original purposes students read to achieve.
_____ 7. I involve all students in class discussions.
_____ 8. I sometimes allow students to question and respond to one another during discussions.
_____ 9. I interact with students through journals or other forms of written interchange.
_____ 10. I provide opportunities for students to reinforce and extend their vocabulary knowledge after they read about new terms.
_____ 11. I provide opportunities for extended writing after some reading assignments.
_____ 12. I constantly look for ways to relate new material to previous material.
_____ 13. I occasionally assist students in developing good study habits and note-taking skills.
_____ 14. I occasionally discuss test-taking strategies with my students.
_____ 15. I talk with special educators in my school about students with special needs.
_____ 16. I modify reading assignments and other tasks, where appropriate, for special students.
_____ 17. I attempt to modify my teaching where possible to accommodate students with special needs.
_____ 18. I use alternative means of testing for special students when appropriate.
_____ 19. I attempt to discover which aspects of my subject specialty students would like to read more about.
_____ 20. My classroom is filled with examples of print materials related to my subject.
_____ 21. I occasionally apportion some time for free reading by students.
_____ 22. Whenever possible I point out links between course material and students' everyday lives.
_____ 23. I vary my teaching methods occasionally to avoid boredom.
_____ 24. I occasionally read aloud to my students.
_____ 25. When I can, I point out to students how course material is connected to other subject areas.
_____ 26. I try to provide students with choices as often as possible.
_____ 27. I find ways to integrate computers into my teaching.

Three Struggling Readers

In Chapter 2, we described the stages through which children pass as they become proficient readers (review Figure 2.2). Perhaps the best way to think of struggling readers—those having difficulty becoming proficient—was offered by Spear-Swerling and Sternberg (1996). They suggested that the vast majority of these students have gotten "off track" at a particular stage. Consider three such students.

Josh

Josh struggles to pronounce unfamiliar words. He sometimes guesses at them and sometimes attempts to sound them out from left to right. His pace is plodding and uncertain. He does,

NET Worth

IRA's Adolescent Literacy Site

This site combines IRA's board position regarding adolescent literacy with useful links.

www.reading.org/resources/issues/focus_adolescent.html

however, know a fair number of words by sight, and whenever he encounters one of them, he can pronounce it immediately. Josh has gone off track at the decoding stage. Unless he receives appropriate instruction in phonics and other word recognition skills, he will not progress.

Latrelle

Latrelle has a good store of words she recognizes at sight, and she can successfully pronounce almost any unfamiliar word she encounters while reading. Her pace is slow, however, and her oral reading is expressionless. She does not group words into meaningful phrases as she reads, and she tends to ignore punctuation. She needs plenty of practice in real reading, both oral and silent, if she is to become fluent.

Pablo

Pablo is a proficient oral reader, but when faced with new material, he often has problems comprehending. This difficulty is especially evident when he is asked to read nonfiction and when he is expected to draw logical conclusions about what he reads. He is a fair student when new content is thoroughly explained by his teacher, but he has problems whenever he must learn it on his own from print. Pablo represents the most common type of struggling reader at the middle and high school levels. He requires instruction in comprehension strategies as well as careful preparation and guidance when he needs to read new selections.

Teachers in content classrooms need to become aware of the Joshes, the Latrelles, and the Pablos they encounter in their classes. Day-to-day classroom interaction will soon provide all the evidence required to identify them. The hard part is then attempting to accommodate their problems while ensuring that content instruction takes place. While there is no "magic bullet" for meeting their needs, we will suggest steps you can take to do so throughout the remaining chapters of this book.

SUMMARY

To make instructional decisions that turn content literacy into an asset, a teacher must have three types of information: (1) the proficiency of the students, (2) the nature of the written materials, and (3) the literacy-related demands made by the teacher him- or herself. A balance of the three should be an important goal.

Reading ability is a concept that has proved very difficult to measure. Many formats have been used in testing it, and many scales have been devised for describing the extent of an individual's proficiency at reading. One of the most common is the use of grade levels. All attempts to measure or describe reading ability are imprecise.

A useful idea in conceptualizing an individual's reading ability is to speak of three distinct levels based on a grade-level frame of reference. The independent level is the highest, at which comprehension is good and no assistance is necessary. In contrast, the frustration level is the lowest, at which comprehension is poor even when help is available. The instructional level lies between these two and represents materials that are challenging but not frustrating—materials that are neither too easy nor too difficult and that are therefore appropriate for instructional purposes. Like reading ability in general, these three levels are never precisely measurable, but

The word *readability* refers to the overall difficulty of text and is often estimated in grade-level terms. A useful method is to think of a student's reading ability and an assignment's readability on the same scale so that the two can be compared and a judgment reached as to whether the match is a good one.

There are two approaches to making such a judgment. The first is to judge students and materials separately. The advantage of such an approach is that these assessments can be made without the use of regular class time. Students' reading levels can be estimated from standardized test results, which are typically available at the beginning of the school year. The readability of materials can be estimated through the use of formulas designed for this purpose. The difficulties with this approach are numerous, however. One problem is that, because standardized test results are not designed for use with readability formulas, they yield crude and misleading estimates. Another is that readability formulas tend to ignore a host of factors that influence the difficulty of text.

The second approach solves these problems by assessing students and materials together. A brief test is made from the actual materials students will be using, and the results can provide an instructor with useful information about whether the match between students and text will be a good one. A cloze test is one exercise of this sort. It involves systematically deleting words from a representative passage and then asking students to guess the missing words based on context. A more traditional approach is to ask the students to complete a reading guide as they read a short passage assigned by the teacher. The accuracy and quality of their responses to questions and other tasks will reveal much about their ability to read assigned material.

In addition to assessing students' abilities and the difficulty of assigned readings, it is also important for teachers to assess their instructional practices. An individual profile of such practices may assist teachers in recognizing which teaching behaviors may help and which may hinder students as they attempt to use literacy to learn content. Self-assessment can be organized through the Content Literacy Instructional Practice Survey presented in Figure 3.11.

Most of the struggling readers found in content classes from the upper elementary grades through high school can be described as having gone off track at a crucial developmental stage. Some may never have acquired sufficient skill at decoding, others may not be able to read fluently, and still others may be unable to read with good comprehension. Teachers must be aware of these types of students and attempt to accommodate their needs.

NET Worth

Federal Resources for Educational Excellence (FREE!)

This site offers hundreds of educational resources supported by federal government agencies in various subjects, including the arts, educational technology, foreign languages, health and safety, language arts, mathematics, science, social studies, and so on.

www.ed.gov/free

NET Worth

The Lexile Framework

Visit the Lexile Web site and look up a few titles with which you are familiar. How closely does your judgment match the Lexile result? The Lexile Framework was developed by MetaMetrics, Inc., through grants from the National Institute of Child Health and Human Development, the National Institutes of Health, and the U.S. Public Health Service. Its use is free, although you must register.

www.lexile.com

FIGURE 3.12
Answers to cloze test in Figure 3.10

The term *hurricane* has its origin in the indigenous religions of old civilizations. The Mayan storm god was named *Hunraken*. A ___god___ considered evil by the ___Taino___ people of the Caribbean ___was___ called *Huracan*. Hurricanes may ___not___ be considered evil but ___they___ are one of nature's ___most___ powerful storms. Their potential ___for___ loss of life and ___destruction___ of property is tremendous. ___Those___ in hurricane-prone areas ___need___ to be prepared for ___hurricanes___ and tropical storms. Even ___inland___ areas, well away from ___the___ coastline, can experience destructive ___winds___, tornadoes, and floods from ___tropical___ storms and hurricanes.

Tropical ___depressions___ and tropical storms, while ___generally___ less dangerous than hurricanes, ___still___ can be deadly. The ___winds___ of tropical depressions and ___tropical___ storms are usually not ___the___ greatest threat. Heavy rains, ___flooding___, and severe weather, such ___as___ tornadoes, create the greatest ___threats___ from tropical storms and ___depressions___.

On average, each year, ___ten___ tropical storms, six of ___which___ become hurricanes, develop in ___the___ Atlantic Ocean, Caribbean Sea, ___or___ Gulf of Mexico. In ___a___ typical three-year span, ___the___ U.S. coastline is struck ___on___ average five times by ___hurricanes___, two of which will ___be___ designated as major hurricanes.

___Tropical___ cyclones are sometimes steered ___by___ weak and erratic winds, ___making___ forecasting a challenge. Warnings ___issued___ from the National Oceanic ___and___ Atmospheric Administration's (NOAA) National ___Hurricane___ Center continue to improve ___and___ have greatly diminished hurricane ___fatalities___ in the United States. ___Despite___ improved warnings, property damage ___continues___ to increase due to ___growing___ population on our coastlines. ___Federal___ agencies, such as the ___Federal___ Emergency Management Agency (FEMA), ___and___ organizations such as the ___American___ Red Cross, have combined ___with___ state and local agencies, rescue and relief organizations, the private sector, and the news media to improve preparedness efforts.

The *Saffir-Simpson Hurricane Scale* is a 1 to 5 rating based on the hurricane's intensity. This scale estimates potential property damage.

Getting Involved

1. Apply the Raygor formula to samples you choose from this text. Do the results reinforce your own insights about its difficulty level? Do different portions of the text vary markedly in estimated readability, or are they relatively similar?
2. Figure 3.13 contains the information Mr. Ross might have collected about his tenth-grade biology students. Based on these data, which students, in your opinion, are most at risk of doing poorly on the literacy activities Mr. Ross may plan? For which students is the profile information unclear or contradictory? How might you explain these ambiguities? How might you deal with the contradictions? Would it help to give only one of the tests?
3. Remember that Figure 3.12 presents the answers to the cloze test in Figure 3.10. Use these answers to check your own answers to the cloze test.

FIGURE 3.13
Information for Mr. Ross's biology class

Student	Cloze Percentage	Reading Guide*
Maria	30	A
Tom	32	M
Kanesha	40	A
Rick	64	S
Sam	70	M
Sarah	20	S
Ming Fang	50	A
Tran	52	W
Bill	10	A
Lynn	18	W
Mike	40	M

*S = Strong, A = Adequate, M = Marginal, W = Weak

Go to the MyEducationLab (www.myeducationlab.com) for your course, where you can:

- Find learning outcomes along with the national standards that connect to these outcomes.
- Complete Assignments and Activities that can help you more deeply understand the chapter content.
- Apply and practice your understanding of the core teaching skills identified in the chapter with the Building Teaching Skills and Dispositions learning units.
- Check your comprehension on the content covered in the chapter by going to the Study Plan in the Book Resources for your text. Here you will be able to take a chapter quiz, receive feedback on your answers, and then access Review, Practice, and Enrichment activities to enhance your understanding of chapter content.
- Visit A+RISE. A+RISE® Standards2Strategy™ is an innovative and interactive online resource that offers new teachers in grades K-12 just in time, research-based instructional strategies that meet the linguistic needs of ELLs as they learn content, differentiate instruction for all grades and abilities, and are aligned to Common Core Elementary Language Arts standards (for the literacy strategies) and to English language proficiency standards in WIDA, Texas, California, and Florida.