from students’ difficulty with cognitive processing (working memory, comprehension monitoring) or general knowledge (word meanings), not from decoding problems (Perfetti, Marpon, & Foltz, 1996). Both cognition (discussed in Chapter 8) and general language abilities (discussed in Chapter 11)—syntax and semantics, especially—are relevant here.

**Syntax**

Syntax refers to the grammatical structure of language, whether spoken or written (see Chapter 11). Although there are many other aspects of syntax that make differences in our language, one particular aspect—word order—helps illustrate the importance of syntax. The sentence “Jane kissed John” means something different from “John kissed Jane” or from “Jane was kissed by John.” The slight differences in the relationships among the words modify the meaning in subtle but important ways. Clearly, if one has difficulty understanding the subtleties of syntax, one might get the wrong idea from the sentences, even if one can read one of these sentences without hesitation.

Some students who have decoding problems sometimes have difficulty with certain aspects of syntax, particularly morphology. Students who read neither accurately nor fluently apparently also have difficulty with the kinds of tasks and make the sorts of errors illustrated in Figure 12.1, especially those tasks that use nonsense words (Lovett, 1987; Rack, Snowling, & Olson, 1992). These findings are essentially consistent with early research showing similar difficulties (e.g., Kass, 1966). It is interesting to speculate that the automatic skills required in giving morphological variations of words may also be required in fluent, accurate decoding.

Problems in understanding the syntax of written sentences may result in problems in reading comprehension (Clay & Imlach, 1971; Pfleum & Bryan, 1981; Resnick, 1970; Stanovich, Cunningham, & Freeman, 1984). When reading, older students make greater use of syntax than do younger readers. Students with reading problems do not use the clusters of words that occur in English to guide their parsing of what they read, and they make other mistakes that indicate they are not using syntax to help make sense of passages. However, when students with reading problems are compared with their younger peers who have the same level of decoding skills, the older students are just as adept at using semantic and syntactic cues. In fact, they may depend on these aspects of language too much. Thus, their understanding of what they read apparently is not inhibited as much by their problems with syntax as it is by their problems with decoding.

**Semantics**

Semantics refers to the meaning of language. Semantic cues are hints that help readers understand the ideas of a passage and also help in decoding. For example, consider the following sentence: “The student turned in her paper.” The meaning of the first part of the sentence helps reduce the number of possible words that could complete the sentence. The missing word will probably be a noun, but it probably will not be pajasas or eat because those have little to do with students and school. It is not likely to be grades or classroom because teachers, not students, turn in grades, and almost no one turns in classrooms. A reader would find words such as paper, book, homework, and test to be sensible possibilities.

Many students with comprehension deficits have inferior performance on other language tasks that draw on their semantic skills (Golinkoff & Rosinski, 1976; Kavale, 1980; Lomax, 1983; Nation, Marshall, & Snowling, 2001; Perfetti &
Hogaboam, 1975; Pfau & Bryan, 1981). Students with poor comprehension do not differ from their nondisabled peers in reading familiar words, but they are much slower in reading unfamiliar words and are more likely to make mistakes that change the meaning of the passage. When asked to reason aloud while deducing answers to comprehension questions, competent readers use efficient strategies and reach accurate conclusions; students with learning disabilities use inefficient strategies and produce incorrect answers. Students with learning disabilities make more mistakes when naming pictures that have long names, and their mistakes show their problems with phonology. Other students who have less substantial problems with comprehension do not stumble over long names for objects but name them more slowly and make more mistakes than peers who do not have disabilities (especially for names that are infrequent).

One of the important assertions of advocates of the explorer approach (Rozin & Gleitman, 1977) is that children should use context (a combination of syntax and semantics) to guide their reading. According to an often-cited study (Goodman, 1965), children read words in context much better than they do in lists. People have interpreted these results as indicating that the context in the passages must have facilitated the decoding of words. More recent research (e.g., Nicholson, 1991) has revealed that the improvement probably resulted from the research methods. In the original study, children always read the lists first. After they saw the words in the lists, reading them in the passages was easier, so they made fewer mistakes on words in passages. Actually, poor readers probably rely on context to compensate for their deficits in decoding (e.g., Stanovich, 1980, 1986b). Jamal’s approach to reading early in first grade illustrates this. He used his verbal skills to cover for problems in decoding.

Even if one can decode words accurately and rapidly, a limited vocabulary can prevent making connections between words and their meanings (Roth, Speece, & Cooper, 2002). Many students with learning disabilities also have minor vocabulary deficits that contribute to their lower scores on comprehension tests (Ackerman, Peters, & Dykman, 1971; Perfetti, 1991; see also Chapter 11). They have difficulty ascribing related words with their meanings, a factor that is clearly important in understanding text. Unfortunately, the orthography of words (their spelling), which guides their pronunciation, does not help much in deriving their meaning (unless the reader has a strong background in other languages, especially Latin). "One can learn to pronounce most written words, familiar or not, by learning the rules that relate spelling and sound ... but word meaning must be learned on a case-by-case basis" (Rueckl & Droe, 1994, p. 571). Effective programs can teach students to decode print, but it takes a powerful, sustained effort to overcome the deficits in vocabulary that some students also bring with them to school (Becker, 1977). The implication is plain: Teachers of students with learning disabilities must not only teach decoding competence, they often must also teach vocabulary (and other aspects of reading comprehension).

In addition to vocabulary, other factors also influence students’ understanding of what they can decode. General knowledge—what is sometimes called world knowledge—affects reading comprehension (Gersten, Fuchs, Williams, & Baker, 2001; Williams, 1991; Williams, 2003). Students may use their previous experiences of events or situations to guide comprehension. For example, a student who has taken train trips would likely have an easier time understanding a reading assignment about a surly conductor than would a student who has traveled only by car or bus.

Ironically, world knowledge can sometimes interfere with the reading comprehension of students with learning disabilities, especially gist or theme comprehension. Gist comprehension is the ability to understand the theme of a narrative. For some students with learning disabilities, background knowledge intrudes too much into their interpretation of what they read. For example, whereas students without learning disabilities might base their interpretations on the information in the passage they have read, some students with learning disabilities might focus on a thematically less important part of the passage because of its similarity to something in their own experience. Students may read a passage about a child who wears a blue sweater and is supposed to remember to buy cat food on the way home. The child in the story forgets to buy the food and then feels miserable when it is time to feed the family kitten. Although most students would focus on the theme of responsibility for pets, some students with learning disabilities may focus on less relevant parts of the passage. For example, asked to discuss the meaning of the passage, a student with learning disabilities might reply, "Oh, yeah, I had a blue sweater. One day I wore it and it got stained at school. My mom was mad at me." Students who often make idiosyncratic responses make more mistakes in identifying the themes of passages they read. Students with learning disabilities have specific difficulty getting the main points of the passages and are somewhat more likely to give answers that reflect idiosyncratic information (Gersten et al., 2001; Wilder & Williams, 2001; Williams, 1991; 2003; Williams et al., 2002).

These findings indicate that instruction for students with learning disabilities should be comprehensive and thorough. As developed in other chapters, there are no magic solutions in learning disabilities. Despite the great importance of such factors as phonemic awareness in understanding reading problems, learning disabilities will not be overcome by identifying and remediating one simple or key factor. Teachers must not only teach rudimentary reading skills, but also teach higher-order thinking skills (Carnine & Kame'enui, 1992).

How Is Reading Performance Assessed?

Schools identify students as having learning disabilities so that the identified students can receive additional services. To identify these students, schools must screen large numbers of students and then evaluate these individuals more closely to determine eligibility (see Chapter 3). Often screening and eligibility assessments use comprehensive measures of reading performance.

Once pupils have been identified, teachers need to determine specific instructional needs and plan instruction for them. Sometimes the assessments used in determining eligibility can also be used to identify students’ unique educational needs.
Once these unique educational needs have been determined, teachers can plan individual education programs. The process of identifying unique educational needs is sometimes called diagnosis. However, teachers may also need to conduct additional assessments to plan instructional programs.

When programs have been developed for students, teachers need to make sure that students are benefiting from the instructional programs they receive. To do so, teachers must monitor student progress. Progress monitoring refers to a process of checking frequently on students' actual performance to determine whether education programs are working.

Screening

Some school systems develop explicit practices for assessing students' reading competence and then examining more closely those whose reading skills fall below a certain level (say, the 20th percentile). To identify students in this way, schools use screening tests, often general achievement batteries such as the Iowa Test of Basic Skills (Hoover, Dunbar, & Frisbie, 2001). However, individually administered achievement batteries, such as the Peabody Individual Achievement Test—Revised, or PIAT (Markward, 1989), and the Woodcock-Johnson-III (McGrew & Woodcock, 2001), as well as some devoted specifically to diagnosing reading problems, probably are the instruments most commonly used to identify students with reading disabilities.

Although tests may help identify students who need to be assessed more carefully, teachers are often key in screening for referral and initiate nearly 75% of referrals for special education (Lloyd et al., 1991). Teachers' judgments may be imperfect, but more than anyone else, they have experience with a wide range of students and usually with the student in question (Gerber & Semmel, 1984). Furthermore, they are sensitive to subtle variations in student characteristics that may not be evident from standardized testing.

Teachers probably do not base their evaluations on reading performance alone (Cooper & Speece, 1988; Speece & Cooper, 1990), but many of the important clues in identifying reading problems have to do with reading performance. Although some clues are false leads (e.g., reversals of letters' orientation or letter order do not indicate learning disabilities), other clues are particularly important. Students' reading fluency provides probably the most valuable indication of reading competence. In fact, fluency in saying sounds for individual letters is a good predictor of reading performance (Speece, Mills, Ritchey, & Hillman, 2002).

**Jamal was different from some of the other children—boys, mostly—I've had who had LD. He really struggled when it came to letters. It was as if he spoke in ideas and had no understanding about words and parts of words. I had instructed right away in the fall with him.**

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### Informal Reading Inventories

An informal reading inventory (IRI) is a series of reading passages or word lists graded in order of difficulty. A student reads from the series of lists or passages, beginning with one the teacher thinks is likely to be easy. If the student reads well at a given level, the teacher gives the next most difficult level. The student continues to progress through increasingly more difficult lists or passages until the student makes many mistakes. However, IRIs are not as trustworthy as more formal measures of reading and therefore must be used carefully.

As the student reads, the teacher monitors performance and the kinds of errors being made (e.g., omitted word, mispronunciation, hesitation). If the IRI is composed of passages, the teacher may ask questions to probe the student's understanding of the material. The teacher records the errors and answers for later scrutiny.
The teacher can classify the mistakes students make in reading during IRLs. Figure 12.1 shows a classification system. Such a system not only provides an informal perspective about a student's strengths and weaknesses, but also can suggest the reasons for some errors. Such information aids in designing instructional interventions to address deficits. For example, if a student makes many mistakes on words involving vowel conversions (e.g., con ← cone, rid ← ride), the teacher might plan specific instructional lessons to help the student read words of this spelling pattern correctly (Deno, 1997; Howell & Davidson, 1997; Howell, Fox, & Morehead, 1993).

**Clinical Teaching**

Using some concepts related to IRLs, Lovitt and his colleagues (Eaton & Lovitt, 1972; Haring, Lovitt, Eaton, & Hansen, 1976; Lovitt & Fantasia, 1980; Lovitt & Hansen, 1976a, b) conducted seminal studies about systematically identifying where in a series of reading materials students should begin reading. The methods used by Lovitt and his colleagues are sometimes called clinical (or trial) teaching, because they are based on specific experiences with individual students. Sometimes clinical teaching is used in a pejorative way to refer to “flying by the seat of one’s pants.” In the work by Lovitt and his colleagues, however, the methods were carefully shaped by applied behavior analysis.

Clinical teaching is surely the most informal method of assessment. In it, one tests students’ performance by presenting lessons and observing whether they succeed (Lloyd & Blandford, 1991). Clinical teaching requires a teacher to sequence lessons carefully so each successive lesson is more difficult than the last and easier than the next. If students perform well on one lesson but have trouble with subsequent ones, the teacher knows to begin instruction at the point at which they began having difficulty. Because it is integral to instruction, clinical teaching should be a fundamental part of assessment for instructional planning (Howell & Davidson, 1997; Zigmond & Miller, 1986).

Clinical teaching as an assessment strategy should focus first on a student's most likely problem areas. In decoding, these areas would include phonemic awareness, letter-sound knowledge, single-word decoding (probably of both real and nonsense words), and passage reading. Regarding comprehension, clinical teaching should focus on the extent to which students remember information from what they have read; comprehension can be assessed clinically by having students verbally retell the content of a passage they have read.

**Monitoring Student Progress**

The use of simple performance measures to monitor progress in reading has helped reshape assessment. The concepts, which were promoted early in the history of learning disabilities (e.g.,Lovitt, 1967), became commonplace in the 1980s and 1990s. Monitoring progress is an important part of reading instruction, because it allows teachers to make changes in reading programs according to individual student needs. If students with learning disabilities are working on new material and making little progress, it is probably wise to change the instruction they are receiving rather than continue with ineffective teaching practices. If they are repeating material on which they are already fluent, they are wasting their time; teachers should move them ahead (Deno, 1997; Howell & Davidson, 1997). The students of teachers who use curriculum-based assessment (CBA) to monitor progress have higher scores than about two-thirds of the students whose teachers do not use it (Fuchs & Fuchs, 1986b).

As with clinical teaching and informal reading inventories, progress-monitoring systems for assessing students’ progress can be constructed using classroom reading materials. They are also sometimes incorporated into instructional programs.

**Reading Program Assessments**

In keeping with the popularity of portfolio assessment, some reading instruction programs have incorporated systems for monitoring progress within the reading program. For example, *Handwriting Inventory* (Alvermann et al., 1993) provides assessment guides to accompany each of the levels of its reading programs. In addition to the manuals, under the heading “Ongoing Assessment,” there are directions for portfolio assessments, evaluations of writing, and tests of dictation and writing as well as recommendations for conducting observations, preparing anecdotal records, holding conferences, and administering self-assessments. Traditional reading programs often provide unit tests to be administered at specific times during the school year (e.g., after completing a specific part of the curriculum, at midyear, at the end of the year, etc.). Teachers are advised to set aside entire class periods for testing; test items often resemble the familiar multiple-choice items.

In contrast, the mastery tests that accompany the *Corrective Reading* program (CRP; Englemann, Hanner, & Johnson, 1999) are scheduled to occur much more frequently (about every five to ten lessons) and are brief and explicitly connected to what students have been learning. Figure 12.2 (page 380) gives an example of a mastery test from CRP. This test would be given as part of a regular lesson, and students would read the words independently. Based on their performance, the teacher would move students to the next lesson or repeat the lesson to address any difficulties. Depending on their performance as a group, students may complete one level of the program in as few as 30 days by skipping unneeded lessons or as many as 70 days by adding extra practice for those who need it. The mastery tests also allow teachers to restructure groups. For example, if one student in a group is performing at a high level, the teacher can move the student to a higher group to facilitate progress.

**Curriculum-Based Measurement**

Curriculum-based measurement (CBM) has been part of the learning disabilities field since the 1960s. Much of the early impetus for this approach came from work by Lovitt (1967) and Deno (Deno & Mirkin, 1977), which was continued and amplified by others as well as by Lovitt and Deno themselves (e.g., Deno, 1997; Fuchs & Deno, 1991; Lovitt & Fantasia, 1980; Starlin, 1971). Although distinctions can be made among different variants of what might be called direct assessment (Fuchs &
Task A: Word Reading
1. Read these words.
2. (Test item) Touch the ball of the arrow for flash. Sound it out. (Understand 1, 1 ah.) Whishash. (The student should not pause between sounds.)
3. (Test item) Touch the ball of the arrow. Say it fast. (Slish right.) Fish.
4. (Repeat steps 2 and 3 for cats, fins, sheet, tan, dim.)

Task B: Word Reading the Fast Way
1. Now you'll read these words the fast way.
2. (Test item) Touch the ball of the arrow for flash. Pause 4 seconds. What word? (Slish right.) Fan.
3. (Repeat step 2 for cats, fins, sheet, tan, dim.)

Evaluating test results
If more than 25 percent of the students made more than one error, repeat Lessons 16 and 17. Then test.


Deno, 1991; Howell & Nolen, 2000). CBM and its cousins, applied behavior analy- sis (Lovitt, 1975) and precision teaching (Starlin, 1971), share the same basic tenets.

To use CBM in reading, teachers have students read aloud several times a week for perhaps 1 or 2 minutes at a time. During their learning of foundational decoding skills, students may read from lists of words, and as they move into work on fluency, they may read from passages of both fiction and nonfiction. Although it is not mandatory, the reading passages for CBM assessments often are taken directly from the school's reading materials (Fuchs & Deno, 1994). Fluency measures of children’s reading of pseudo- or nonwords such as saf, rip, and keep are sensitive indicators of how well students can decode when reading passages composed of real words (Speece, Mills, Ritchey, & Hillman, 2002).

Assessment procedures such as CBM compare favorably with traditional achievement tests in reading. Not only do CBM reading measures correlate highly with achievement test scores, but they also permit teachers to gather other useful information. CBM measures permit teachers to make their instruction more efficient, thus helping students progress at an optimal pace (Howell et al., 1993, 1997; Howell & Nolen, 2000).

Overview of Assessment Methods
A national panel of experts on reading assessment examined a wide range of reading assessment instruments and procedures to provide assistance to states that were seeking federal funds under the Reading First program (Kame'enui, 2002). The panel identified many instruments and then rigorously reviewed the usefulness of each of them. The result of their review was a list of acceptable in- struments for assessing different aspects of early reading (phonemic awareness, phonics, fluency, vocabulary, and reading comprehension). Table 12.3 provides an overview of the experts' analysis for the areas of screening, diagnosis, and progress monitoring.

<table>
<thead>
<tr>
<th>TABLE 12.3</th>
<th>Instruments for Assessing Reading Performance in Kindergarten through Third Grade</th>
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<tbody>
<tr>
<td>CBM Oral Reading Fluency</td>
<td>Screening</td>
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<tr>
<td>PA</td>
<td>Ph</td>
</tr>
<tr>
<td>Comprehensive Test of Phonological Processing</td>
<td></td>
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<tr>
<td>Degrees of Reading Power</td>
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<tr>
<td>Dynamic Indicators of Basic Early Literacy Skills</td>
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<tr>
<td>Early Reading Diagnostic Assessment</td>
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<tr>
<td>Gray Oral Reading Test—IV</td>
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<tr>
<td>Iowa Test of Basic Skills</td>
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<tr>
<td>Letter-Sound Fluency</td>
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<tr>
<td>Lindamood Auditory Conceptualization Test</td>
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<tr>
<td>Peabody Picture Vocabulary Test—III</td>
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<tr>
<td>Phonological Awareness Test</td>
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<tr>
<td>Test of Language Development—Primary—3</td>
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<tr>
<td>Test of Word Knowledge</td>
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<tr>
<td>Test of Word Reading Efficiency</td>
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<tr>
<td>Texas Primary Reading Inventory</td>
<td></td>
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<tr>
<td>Wechsler Individual Achievement Test—III</td>
<td></td>
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<tr>
<td>Woodcock Reading Mastery Test—Revised</td>
<td></td>
</tr>
<tr>
<td>Woodcock-Johnson—III—Test of Achievement</td>
<td></td>
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<tr>
<td>Yopp-Singer Test of Phoneme Segmentation</td>
<td></td>
</tr>
</tbody>
</table>

Note: PA = phonemic awareness, Ph = phonics, F1 = fluency, Vo = vocabulary, RC = reading comprehension. Also, instruments may be useful in areas indicated at only certain grade levels, not necessary at all levels.
How Common Are Reading Problems in Learning Disabilities?

Some authorities suggest that reading disabilities are quite common, affecting from 15 to 20% or more of children and adolescents (Lyon, 1997; Shaywitz, 2003). Determining exactly how many students have reading disabilities depends on the same variables that influence estimates of the prevalence of learning disabilities, including (1) how the problem is defined, (2) how it is measured, and (3) how samples are selected to study prevalence.

Prior to the changes in IDEA in 2003–2004, many states defined learning disabilities as a discrepancy between ability and achievement (see Chapters 1 and 3). Although authorities have raised questions about the appropriateness of discrepancy between IQ and achievement as the basis for identifying students with learning disabilities (Fletcher et al., 2002; Joshi, Williams, & Wood, 1998; Stanovich, 1991) that are leading to changes in how students are identified, the available evidence about prevalence still comes from studies using discrepancy.

Studies of the prevalence of reading disabilities indicate that between 6.2 and 7.5% of children have reading achievement scores that are substantially lower than their IQs (Lewis, Hitch, & Walker, 1994; Shaywitz, Shaywitz, Fletcher, & Escobar, 1990). Although not all students whose aptitude-achievement discrepancies are this great will be identified as having learning disabilities, many of them will. There are also likely to be other students (e.g., those with arithmetic problems) who would qualify for learning disability services but who do not have markedly discrepant scores between ability and reading measures.

Differences in the prevalence of reading disabilities by gender is another matter of concern. In some studies, strict formulas for classifying students as having reading disabilities reveal about equal numbers of boys and girls. However, when one counts the number of children receiving services instead of the results from using the strict research formula, more boys than girls qualify (Shaywitz et al., 1990). The difference between school- and research-identified cases appears to be a consequence of differential referral of boys and girls for services, probably prompted by the boys' behavior (Shaywitz et al., 1990). In other studies, however, research-based formulas reveal that boys outnumber girls about 2 to 1 (Lewis et al., 1994). Because we know that teachers base referral on more than just reading problems (Speece & Cooper, 1990), we can suspect that other factors such as behavior contribute to the differences between prevalence numbers based on teacher referrals and tests.

Another factor affecting prevalence is the interplay of reading disabilities with learning disabilities. There almost surely are some students who would meet the standards for having a reading disability but who might not be identified as having learning disabilities and some who would meet the standards for learning disabilities but not for reading disabilities. Students in the former group might have difficulties that are not severe enough to warrant special education services, and those in the latter group might have disabilities in other areas. That most, but not all, students with learning disabilities have problems with reading reinforces the theme that individuals with learning disabilities form a diverse group.

How Can Instruction Help Prevent Reading Disabilities?

The alphabetic principle is the critical underlying concept that people must grasp to become competent readers. The alphabetic principle is deceptively simple: Printed words are composed of symbols that represent sounds; the order of the printed words represents the sequence of sounds when people spoke. Said another way: "Print is talk written down." Children do not have to learn to recite the alphabetic principle, but they have to learn how to apply it in converting print to spoken language equivalents. Instruction must show them how to apply it consistently and efficiently.

Summarizing across research in many areas (developmental psychology, neuropsychology, linguistics, etc.), eminent authorities have found implications for beginning reading instruction.

From all these different perspectives, two inescapable conclusions emerge. The first is that mastering the alphabetic principle is essential to becoming proficient in the skill of reading, and the second is that instructional techniques (namely, phonics) that teach children to distinguish more than one sound from the sounds that do not. This seems to be especially the case for children who are at risk in some way for having difficulty learning to read. (Rayner, Foorman, Perfetti, Pesetsky, & Seidenburg, 2001, p. 68)

Many students begin formal schooling already knowing how to read, and others have so much familiarity with English phonology and letters that they rapidly grasp the alphabetic principle. For these students, the quality of instruction probably makes very little difference; they will learn to read no matter what literacy experience they have in the early grades.

For students who do not have those advantages, the quality of early literacy instruction is critically important. Most students with learning disabilities fall into this group. Their teachers must provide instruction that very plainly shows them the various aspects of the alphabetic principle—segmenting, blending, phoneme-grapheme correspondences, etc. Early instruction must be explicit, provide the scaffolding needed, include adequate practice opportunities, and incorporate other critical aspects of effective instructional design (see Kame'enui, Carnine, Dixon, Simmons, & Coyne, 2002).

Because a capable beginning reader requires that students master the various skills discussed in this chapter. As children learn these skills, they progress from identifying a few words as if they were pictures or logos to solving the code and employing the alphabetic principle. Researchers have described this progression in some detail (Ehri & Richardson, 1998; Moats, 1999). One such view is shown in Table 12.4 (page 384). Progressing to the stage of orthographic reading shown in Table 12.4 puts a learner at the threshold of becoming a capable adult reader.

Becoming a capable adult reader requires that people acquire five generalized competencies (Anderson, Hiebert, Wilkinson, & Scott, 1985), the first of which is based on mastery of the alphabetic principle:

1. Fluency. Capable readers recognize words readily. They appear to read effortlessly. They can do this because they have practiced "reading" (turning print into alphabetic principle - the idea that symbols represent the sounds and that the order of sounds follows the sequence of letters in a word.)
<table>
<thead>
<tr>
<th>STAGE</th>
<th>CHILD'S CHARACTERISTICS</th>
<th>APPROPRIATE ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logographic</td>
<td>Recognizes a few words by special cues (usually visual) such as shape, typeface, or</td>
<td>Early- and middle-level phonological awareness tasks such as rhyming and phoneme</td>
</tr>
<tr>
<td></td>
<td>unusual letters</td>
<td>counting</td>
</tr>
<tr>
<td>Novice</td>
<td>Uses some phonological awareness skills and letter sounds to cue words, but isn't</td>
<td>Advanced phonological awareness activities (segmenting and blending), direct</td>
</tr>
<tr>
<td></td>
<td>proficient with sounding out</td>
<td>teaching of letter-sound correspondence, and practice with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>decoding simple words</td>
</tr>
<tr>
<td>Alphabetic</td>
<td>Able to use known letter-sound combinations and blending to decode simple words</td>
<td>Extensive practice with decoding, particularly with words that illustrate</td>
</tr>
<tr>
<td></td>
<td>readily</td>
<td>common spelling patterns and reading of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>simple passages</td>
</tr>
<tr>
<td>Orthographic</td>
<td>Automatic word-reading skills and advancing fluency in reading passages</td>
<td>Work on reading novel words by analogy and extensive practice with texts at the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>right difficulty level</td>
</tr>
</tbody>
</table>


spoken language) enough that it is automatic (requires no conscious work). When readers are fluent decoders, they are free to devote their attention to learning from and enjoying what they read.

2. World knowledge. Capable readers use their knowledge of the world to construct the meaning of what they read. They do more than simply extract the meaning from the text; they try to make what they are reading correspond with what they have experienced. Young readers (especially those with disabilities) sometimes construct mistaken representations of what they read; their personal experience may intrude to such a great extent that they read what they think should be on the page, not what is actually there. As readers become more sophisticated, they can suspend their own beliefs and ideas, follow an author’s argument, and acquire new world knowledge from the text.

3. Flexible strategy use. Capable readers adapt their reading to fit the material they are reading and their understanding of it. When they encounter unfamiliar or difficult words, they slow down and read more carefully. When they realize that they have not been understanding what they have been reading, they employ strategies such as rereading. To help themselves remember what they have read, they use strategies such as paraphrasing and others discussed in Chapter 11.

4. Motivation. Capable readers read because of what it gives them. They may gain new knowledge, learn the resolution of a story, or avoid doing some less pleasant task, such as housework. Early in the acquisition of reading skill, there is little intrinsic reinforcement in reading for children; they may pursue it because they have been told it is fun, but they have not had enough practice with it to find reading easy and inherently interesting. Later, if people read well, reading new information becomes very rewarding.

5. Continued reading. Capable readers not only learn fundamental reading skills, but also continue to read. As they do so, they become more and more skillful. Reading becomes a lifelong pursuit.

The major stumbling block in becoming a capable adult reader is developing fluency in decoding. Fluent decoding requires mastery of the alphabetic principle. For students who acquire fluent decoding skills, reading usually is reinforcing enough to provide motivation and continued reading. The limits on their understanding of what they read are imposed by their world knowledge and ability to use strategies flexibly. For students who do not acquire fluent decoding skills, reading is not rewarding, and therefore continuing to read is unlikely. When they are stumbling through a passage, they are not able to apply what they know about the world or use strategies their accomplished peers use.

Teaching Phonemic Awareness

Since nearly the inception of the field, authorities in learning disabilities have recommended teaching what we now call phonemic awareness. Although recent emphasis on them makes the skills of analysis and blending seem new, they were fundamental parts of the instructional practices incorporated into programs for students who have difficulty learning to read (Chall, 1967; Engelmann, 1967b; Williams, 1977, 1980).

As evidence linking poor phonemic awareness to reading disabilities accumulated during the 1970s and 1980s, more and more people began to examine the utility of teaching phonological skills to students. By the early 1990s, it was plain that young children who learned to manipulate the sounds of their spoken language had much lower chances of developing reading disabilities than did their peers who did not learn phonological skills.

There is a wealth of evidence on the benefits of teaching phonological skills to beginning readers. Most studies show the benefits of teaching students segmenting, blending, and similar skills (Ball & Blachman, 1988; Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1991, 1993; Caster, Kolinski, Morris, & Berkelson, 1986; Cunningham, 1990; Harford et al., 1994; Lundberg, Frost, & Peterson, 1988; Torgesen, Morgan, & Davis, 1990; Vellutino & Scanlon, 1987; Williams, 1980). But phonemic segmentation training alone is not sufficient. Indeed, improving phonemic segmentation may not improve blending (Slocum, O’Connor, & Jenkins, 1993), so children should be taught both segmentation and blending skills (Pullen, 2002; Torgesen et al., 1992), how to apply the phonological skills they learn (Cunningham, 1990), and how to connect letters with letter sounds (Foorman, Francis, Noivy, & Liberman, 1991; National Reading Panel, 2000). Children’s facility with phonological tasks also appears to be promoted in part by learning about letters themselves (Wagner, Torgesen, & Rashotte, 1994).
In fact, although phonemic awareness tasks should start as simple spoken-language activities, they should rapidly become associated with letters. Beginning these features. Combining phonemic awareness training with instruction in letter-sound knowledge provides greater benefits for children’s literacy than providing phonemic awareness training alone (National Reading Panel, 2000; Schneider, Rogh, & Ennenmoser, 2000). Teachers who do not teach phonological skills at all, teach only some of the relevant skills, or do not connect phonology with letters are not likely to prevent learning disabilities. Some research even suggests that children who develop strong phonological skills may be able to compensate for genetic risk for reading problems (Snowling, Gallagher, & Frith, 2003; see Chapter 2).

Once the importance of teaching phonological skills became apparent, many authorities on early reading began to provide guides for teachers showing how to promote the acquisition of phonemic awareness. Teachers need to know how to teach phonemic awareness skills (Moats, 2000; Torgesen & Mathes, 1999). Figure 12.3 lists selected examples of these guides, authored by leading researchers in early literacy. In addition, strong early reading programs incorporate phonemic awareness training.

Teaching Phonics

The U.S. Congress initiated one of the most ambitious undertakings in the area of reading in 1997 by forming the National Reading Panel (NRP) and chartering it with assessing the scientific evidence about teaching reading. The NRP was composed of individuals with extensive knowledge of the research and who did not have a vested interest in any one outcome of the review; members could not be authors of commercial programs or tests that might benefit from the panel’s findings. After conducting a series of hearings around the country to learn what teachers, parents, and others considered important, the panel began collecting research articles to review.

The NRP identified thousands of studies about different aspects of reading and then focused more closely on the most scientifically rigorous of them. As one part of their study, the NRP focused on methods for teaching phonics, and they analyzed those studies to identify effective instructional methods and practices. They reported on the relative effectiveness of three alternative—analytic phonics, synthetic phonics, and miscellaneous phonics—ways to teach phonics and compared them to the control condition.

- **Miscellaneous phonics**—teaching students to read unfamiliar words by analogy, to spell spoken words so that they will learn how to read them, or embedding phonics instruction in reading of text
- **Analytic phonics**—teaching students to study sounds they have learned previously and identify letter-sound relations in them; this is done so children do not have to pronounce sounds in isolation
- **Synthetic phonics**—teaching students letters for sounds and how to convert letters and letter combinations into sounds (phonemes) and then blend the sounds to form recognizable words (as illustrated earlier in Table 12.1)

Figure 12.4 shows the results of the NRP review. On the whole, all three methods of teaching phonics produced better outcomes for children than not teaching phonics (the control). Although differences between the three methods were not as striking, the synthetic methods appeared the strongest. Many experts in learning

![Figure 12.4: Effectiveness of Different Approaches to Phonics Instruction](image)
disabilities advocated systematic methods of reading instruction, even before the NRP reported its study (Bail & Blackman, 1988; Bateman, 1996; Carline et al., 2004; Chall, 1967; Engelmann, 1967b; Simmons & Kane’emi, 1998; Williams, 1980).

**Teaching Other Aspects of Early Reading**

As is true for the instruction in phonemic awareness and phonics, instruction in fluency, vocabulary, and reading comprehension must be explicit and systematic. There is extensive evidence on effective instruction in promoting fluency (Chard, Vaughn, & Tyler, 2002; Kuhn & Stahl, 2003), for example, that shows how providing adequate opportunities to practice reading aloud is important. But, equally or even more important, teachers must provide feedback to students about how fluently and accurately they read and must set clear goals and show students how they are progressing toward meeting those goals.

The situation in reading comprehension is similar (Gersten et al., 2001; Williams, 2003). Helping students get the main idea of passages, for example, requires that teachers ensure that their students know the concept of “main idea,” correct for some students’ tendency to attend to less important aspects of what they are reading, teach verbal paraphrasing, and so forth. For some students, these aspects of reading comprehension seem to come naturally, but for those with learning disabilities, careful instruction is required.

We discuss specific procedures for teaching fluency and comprehension in a later section of this chapter.

**Putting it All Together**

Combining sustained, systematic, and explicit teaching of phonemic awareness, phonics, fluency, vocabulary, and reading comprehension can prevent reading problems for many students. Based on their analyses of whether reading instructional programs included these important components, some states (Alabama, Michigan, New Jersey, Massachusetts, Washington, California) recommended commercial reading programs to their schools. The curricula they recommended included Legacy of Literacy (published by Houghton Mifflin), Open Court (SRA/McGraw-Hill), Reading Mastery (SRA/McGraw-Hill), Success for All, Trophies (Harcourt), and Universal Literacy System (Voyager Learning). Special education teachers who work with young children in their general education classrooms are likely to encounter one of these commercial programs. They will need to know how to identify gaps in the program and provide additional support for students who struggle with early reading.

Many schools in the United States are adopting a comprehensive approach to reading instruction for young children that provides different levels of support depending on how well students are learning reading skills. These approaches go by a variety of names—levels, basals, and so forth—but all share the characteristics illustrated in the Current Trends and Issues box on pages 390–391. They are aimed at preventing reading problems by providing additional services for students who need more intense levels of instruction to ensure that they acquire fundamental literacy skills. Educational and psychological research is clear about what counts as effective reading instruction. The challenge is to implement that effective reading instruction broadly, across general education and special education, for millions of students (Denton, Vaughn, & Fletcher, 2003).

**How Can Instruction Help Remediate Learning Disabilities in Reading?**

In many cases, early reading instruction fails. Too often, when young children are not learning to read, teachers and parents decide they are “not ready” for reading. The children are passed along while people wait for them to mature. These young children who have been passed along before older children who cannot read, lose ground in content knowledge, develop low self-concepts, and are at risk for dropping out of school. As helpful as early and systematic instruction may be, there are still students who fall behind their peers (Hiebert & Taylor, 2002; Snow et al., 1998).

When students have not acquired reading skills during developmental reading instruction (instruction usually provided in general education settings in the primary grades), teachers usually must provide instruction designed to correct or remediate their reading deficits. Instruction designed to correct reading deficits is often called remedial, or corrective, reading. In this section, we discuss historical approaches and contemporary approaches to remedial reading and briefly describe some effective teaching procedures for remedial reading.

**Historical Approaches**

One of the strongest currents in the history of learning disabilities has been an emphasis on sensory modalities. Because of the emphasis on sensory modalities, many methods in teaching disabilities were called multisensory approaches or identified by the initials for the modalities: VAKT—for visual (seeing), auditory (hearing), kinesthetic (body or muscle feeling), and tactile (touch). Concern with modalities forms the basis for three historically important approaches to remedial instruction. Each approach is associated with one of the pioneers in learning disabilities: Fernald (1943), Orton (1937), and Kirk (1976).

**Fernald Approach**

Fernald (1943) is probably the figure most readily associated with multisensory approach. The rationale for the Fernald Word Learning Approach is that by being taught to use as many senses as possible, the child comes to have additional experiences or cues in learning to read. If the child is weak in any one modality, the other modalities will help convey the information. In practice, Fernald’s approach is not confined to reading; it is also used in spelling and writing instruction. It is essentially a language-experience and whole-word approach. Fernald believed that overcoming the reading problems of failing students with reading would be easier in a nonreading material was of interest to them. Therefore, stories are written down as suggested by the students, with as much help from the teacher as needed, and then read.
Applying Prevention Concepts to Beginning Reading

Can we prevent reading disabilities?

Some educators believe a reliable approach to helping young children avoid reading problems is to provide a comprehensive system of services arranged in "levels" or "tiers." (Three-tiered, or three-level, systems of early reading instruction provide increasingly intense instruction depending on students' needs. As with levels of prevention (see the Current Trends and Issues box on page 38), the tiers of reading instruction are designed to be primary, secondary, and tertiary, with the primary tier being the least intense and the tertiary level being the most intense. The idea of a three-level system is shown in Figure A, based on a model for prevent-

![Diagram showing reading blocks and intervention levels](image)

**FIGURE A Reading-Behavior Linkages**

- **Reading Block: 1.5 hours Parent-Community Partnership Parent Advisory Board**
- **Curriculum Implementation: Open Court, Reading Mastery, Programmed Reading Peer Tutoring/Computer Instruction**
- **Classroom Intervention: Primary, Secondary**
- **Behavioral Implementation: Classroom Rules Instruction Group Contingencies Teacher Praise Ration 4:1**
- **School-wide Intervention Primary**
- **Setting Specific Rules and Instructions Teacher Support Team Behavior Incentive Programs**
- **Individualized Intervention: Tertiary**
- **Functional Assessment Individual Contingencies Home-School Collaboration**
- **Student Performance Outcomes**
- **Reduced disruptive behavior Increased appropriate interaction Improved esteem, mental health**
- **Increased academic engagement Reading skills acquisition Increased reading fluency**

Students also select words they wish to learn and then work on them, repeatedly tracing and saying words until they can write them from memory. Mastered words are kept in a file so students may refer back to them as needed. Ferrand was opposed to having students "sound out" words; she emphasized the reading and writing of words as wholes. Although there are strong advocates of the Ferrand approach who maintain that case studies of its successful use, there is only limited research evidence demonstrating its effectiveness (Thorpe, Lampke, Nash, & Chiang, 1981).

level intervention. Secondary intervention often in-
cludes (1) additional time devoted to basic practices,
with literacy activities, (2) small-group teaching or vol-
teer or peer tutoring, (3) specific focus on critical
skills such as blending, and (4) frequent monitoring of
progress. Often, when students make sufficient prog-
ress at the secondary level of intervention, these sup-
ports are discontinued.

Tertiary. When primary and secondary interven-
tion prove inadequate, as reflected in progress
monitoring data, schools employing a three-tiered
model will increase the intensity of intervention even
more. Students receiving tertiary services will not
only continue to receive primary and secondary
services, but will also receive additional small-group
instruction with more emphasis on critical decoding
skills and with other progress monitoring.

![Image of Hegge-Kirk-Kirk Approach](image)

**Hegge-Kirk-Kirk Approach**

Although not always considered a multisensory approach, Hegge, Kirk, and Kirk (1970) emphasized use of multiple modalities during reading instruction. The Remedial Reading Drills of the Hegge-Kirk-Kirk approach are designed to help stu-
dents remember phoneme-grapheme relationships by providing extensive practice and by simplifying the relationships between letters and their sounds (e.g., using only one sound for a letter until it has been thoroughly mastered; see Cantine, 1976; in How Can Instruction Help Remediate Learning Disabilities in Reading? 390, Chapter 12).
the program, students are taught to (1) say sounds for individual letters, (2) blend combinations of sounds, (3) write letters for sounds from memory, and (4) practice reading words aloud from prescribed word lists. Practice in reading from connected prose has to be provided by the teacher because the program is limited to reading letters and words in isolation. Revised versions of the materials, Phonics Remedial Reading Lessons (Kirk, Kirk, & Münstorf, 1985), appeared in the 1980s.

Orton-Gillingham Approach

Based on work the authors did with Orton in the 1930s, another multisensory approach to reading has been advocated by Gillingham and Stillman (1965). It is often known as the Orton-Gillingham approach. Gillingham and Stillman made Orton's recommendations into a practical procedure. They created a program designed to remediate not only problems in reading, but also related problems as spelling and handwriting. Thus, students are taught to see a letter (visual) and say it as sound (auditory), hear a sound (auditory) and write it (kinesthetic), and so forth. After mastering the first ten letter associations, the student begins work on blending letters into words. Spelling and story reading are gradually introduced as the student develops facility with the vocabulary that can be built from the mastered grapheme-phoneme associations.

Studies of the Orton-Gillingham approach reveal improved reading and spelling for elementary school children (e.g., Joshi, Dahlgren, & Bouwhuij Gooden, 2002; Kline & Kline, 1975; Oakland, Black, Stanford, Nussbaum, & Balin, 1998; Vickery, Reynolds, & Cochran, 1987) and improved spelling for college students (Goyer, & Goyer, 1993). On average, however, studies of the Orton-Gillingham method show benefits lying somewhere between the comparison and the analytic phonics methods shown in Figure 12.4 (National Reading Panel, 2000). Nevertheless, some of the method's features are consistent with other effective approaches.

Contemporary Approaches

More recent approaches to remedial reading have not necessarily adhered to the theoretical views of the past but have sought to ensure that students rapidly learn the alphabetic principle and then develop phonemic awareness and comprehension skills. Shankon was fortunate enough to have received effective remedial reading instruction when she was in elementary school. As a result, in her middle-school years, her progress in some other areas was not delayed. In fact, she developed a love of reading. In the Case Connections box on page 393, Mr. Marron, Shannon's first special education teacher, who helped her learn to read, describes how he taught her.

Part of the reason that Shannon made strong progress was because the special education situation made it possible for her to work with her in small groups. Small group instruction is a part of many interventions and is probably responsible for some of the benefits these methods demonstrate (Elbaum, Vaughn, Hughes, & Moody, 2000). Although Shannon's instruction took place in small groups, it also incorporated Direct Instruction, strategy training, CBR, and other factors that many consider critical for successful remediation (Lovett, Barron, & Benson, 2003).

Success depends on the nature of instruction teachers provide. Although historically important methods are still used in special education today, other methods are more common. Major contenders in remedial reading such as Reading Recovery, Corrective Reading, and computer-assisted instruction illustrate the kinds of interventions in use today.
Reading Recovery

Reading Recovery (Clay, 1985; Funnell, 1989) has been among the most popular methods advocated in reading disabilities. This intensive, tutorial approach is designed to help developmental readers who are likely to have difficulty acquiring reading skills. However, concern about the utility of Reading Recovery has decreased its popularity recently. Reading Recovery is based on several valuable practices: (1) screen first-graders early in the school year; (2) select the lowest rank (usually the lowest 20%); (3) deliver intensive instruction to the selected students. Reading Recovery also emphasizes reading of familiar texts and promotes writing of words in ways that encourage discovery of phonological relationships. After encouraging early studies, more rigorous evaluations of the Reading Recovery program soon became available. For example, in one study, researchers compared the growth of three groups of students. One group received a standard remedial program, one group received regular Reading Recovery, and a third group received a modified version of Reading Recovery. The modified version of the Reading Recovery program was more explicit than the usual version; it provided practice in phonemic awareness and showed the students the symbol-sound relationships. Students in both the regular and the modified Reading Recovery programs improved more than their peers in the control group. However, the students in the Reading Recovery group that also received instruction in phonological skills progressed more rapidly (Ivanese & Tunnner, 1993).

Researchers have aggregated numerous studies about Reading Recovery to assess whether it is effective in many studies or just one or two. Generally, they found that although Reading Recovery has short-lived and very special benefits, it provides nowhere near the acceleration required for students who need to catch up with their peers (Chapman, Tunnner, & Prochnow, 2001; Denton & Mathes, 2002; Fawcett, Nicholson, Moss, Nicholson, &Reason, 2001; Grossen, Couter, & Ruggles, 1996; Hebert, 1994). According to its own standards (whether students can read a specific book), Reading Recovery looks pretty good. When teachers assess its benefits on generalization tasks (reading other books) or sustained benefits (improvements several years later), the results are less encouraging.

Corrective Reading Program

The DI materials for remedial reading are called the Corrective Reading Program (CRP; Engelmann et al., 1999). Corrective Reading is designed to teach students general-case strategies for attacking and solving types of reading tasks. A sound-it-out strategy is a general-case procedure for decoding; this is based on a task analysis similar to the one provided in Table 12.1 (page 366). Because corrective readers already know some things about the alphabetic code, in Corrective Reading, there is relatively less emphasis on teaching the basics of the strategy (e.g., individual sounds for letters) and more emphasis on teaching use of those skills to increase reading accuracy.

Corrective Reading includes scripted daily lessons designed to teach the component skills needed for fluent, accurate decoding. Students read from carefully structured word lists and then participate in group and individual reading of stories. Research shows that Corrective Reading improves the reading of pupils with learning disabilities and may be particularly valuable for students who have relatively greater deficits in reading (Adams & Carnine, 2003; Lloyd, Epstein, & Cullinan, 1981; Maggs & Maggs, 1979; Plassam & Pascarella, 1980; Polloway, Epstein, Polloway, Patton, & Ball, 1986; White, 1988).

Computer-Assisted Instruction

Despite the potential value of computer-assisted practice in learning, technology has little value in teaching the decoding aspects of reading, because students themselves must turn the written letters into sounds. Given rules, computers can convert print to sound, but when computers do this, students do not get the practice they need to gain proficiency. Also, students will likely rely on the computer's decoding of the words rather than learning how to do it themselves.

Computer technology has not advanced far enough to make sophisticated comparisons between a student's reading of a word and its correct pronunciation. Despite progress in speech-recognition technology, computers cannot decipher subtle differences in pronunciation. Thus, clinical experience and experimental evidence (e.g., Farmer, Klien, & Bryson, 1992) show that computers can have only limited value listening to students read. Computers can, however, be used to improve students' reading of individual words (Cohen, Torgesen, & Torgesen, 1988; Olson, Wise, Ring, & Johnson, 1997; Rashotte & Torgesen, 1985; Torgesen, Waters, Cohen, & Torgesen, 1988; Wise, Ring, & Olson, 2000; Wise & Olson, 1998; Wise, Olson, Ring, & Johnson, 1998).

Although there is little evidence that brain problems cause reading problems, there is mounting evidence that this view may not be true. In at least two studies (Simos et al., 2002; Temple et al., 2003), there is evidence that providing intensive remedial instruction actually changes brain functions. The Today's Technology box on page 396 shows how modern medicine is revealing that teaching changes brains.

Instructional Tactics

There are many specific techniques teachers can use to help students acquire reading skills. We describe some that have been effective with students with reading problems.

Fluency Enhancement

When students do not read fluently, their rendition of a passage is choppy, halting, and stumbling. But problems of dysfluency reading also affect other areas. For example, students with reading problems may read material about science at only half the speed of their nondisabled peers (Parmar, Detucu, & Janczak, 1994). When students can read accurately but slowly (see guidelines in Table 12.2, page 371), they will probably benefit from instruction designed to improve fluency.

Students should have opportunities to practice reading fluently, and there are many ways to provide these. One popular method for providing practice is called repeated readings (e.g., National Reading Panel, 2000; Samuels, 1979, 1981; Samuels, 1998).
peated reading occur mostly when the same passage is reread, otherwise, repeated reading helps mostly to the extent that there are common words in the practiced passage and in the material read later.

Another way to provide additional practice is to give a preview of the reading materials (e.g., the teacher may lead students in a discussion of the story in a passage they are about to read). Although previews may take different forms, the most widely studied method with students who have reading problems is for someone else to read the passage aloud before the students read it themselves. The previewer is usually an adult, but a peer may read the passage, or it can be tape recorded. Multiple studies show that previewing improves the rate and accuracy of students’ reading of passages (Rose, 1984a, b, c, Rose & Sherry, 1984; Rose & Beattie, 1986; Salced & Nowack, 1988).

**Peer-Mediated Instruction**

Peer-mediated instruction occurs when one student provides instruction for another student. Peer-mediated instruction has been used extensively in special education and has been used in both reading and other areas of instruction (Ehlik, Fuchs, & Fuchs, 1992; Burish, 2000; Greenwood, Delquadri, & Carta, 1988; Maheedy, Harper, & Sacca, 1988; Mastropieri et al., 2001). It is sometimes called peer tutoring or classwide peer tutoring (CWPT). Although there are many variations on classwide peer tutoring, most have common features.

There are four, primary components to the CWPT program: (a) weekly competing teams, (b) a highly structured tutoring procedure, (c) daily point earning and public posting of pupil performance, and (d) direct practice in functional instructional activities. In using CWPT, the teacher’s role changes from primary “deliver” of instruction to facilitator and monitor of peer-teaching activities (Maheedy, Harper, & Mallere, 2003, p. 1)

The tutoring procedures often involve the tutor following an explicit script. The script tells the tutor what questions to ask, what answers to expect, and what to do if the answers are correct or incorrect. For example, a tutor might ask the tutee to say the sounds for individual letters presented on flash cards. If the tutee says the correct sound, the tutor would acknowledge the accuracy of the answer and give the next card. If the tutee says the wrong sound or does not know the sound, the tutor would supply the correct sound and give the tutee another chance to answer correctly. Obviously, such instruction requires that the tutors know the correct and incorrect answers. Thus, peer tutoring plans must be developed and implemented carefully.

Peer tutoring has been applied to teaching both beginning and remedial reading as well as content areas such as high school science (Mastropieri et al., 2001; Mastropieri, Scraggs, & Grezts, 2003; Mathes, Torgesen, & Allor, 2001; Mathes & Fuchs, 1993). Not only can teachers use peer-mediated strategies with learners of different ages and subject areas, but they can also apply it to teaching different aspects of reading. Researchers have demonstrated peer-mediated instruction in teaching decoding, fluency, and comprehension (Fuchs et al., 2000; Mastropieri, Scraggs, Spencer, & Fontana, 2003; Mathes, Fuchs, Fuchs, Henley, & Sanders, 1994).
Recurrent Teaching

Recurrent teaching integrates features of different instructional models, particularly the cognitive and constructivist views of learning disabilities (see Chapter 10). It emphasizes scaffolded instruction, an important feature of instruction for students with learning disabilities (Kame'enui & Carnine, 1998). Although it can be conducted in a tutorial format, recurrent teaching often refers to an instructional procedure that takes place in a collaborative learning group and features guided practice in a carefully planned application of four concrete strategies to the task of text comprehension: questioning, summarizing, clarifying, and predicting. The teacher and group of students take turns leading discussions regarding the context of the text they are jointly attempting to understand (Palincsar & Brown, 1995, p. 213).

Advocates of recurrent teaching stress the importance of having instruction occur within a social context, of initially providing supports (prompts or scaffolds) to help students perform activities, and of having students demonstrate their increasing competence by explaining to others how to do things. In teaching students reading comprehension, instructors model how to derive ideas from a text, help students do so by asking questions, and have students explain to teachers and peers what they have learned from reading a passage. Recurrent teaching is also readily applied to composition instruction (Klinger & Vaughn, 1998).

Comprehension Strategies

Although it is crucial for students to be able to decode the printed word fluently, competent decoding does not ensure adequate comprehension of the material. Thus, teachers must also teach students how to use strategies to comprehend what they read. But strategy training by itself may not be sufficient. Furthermore, students rarely know how to extract themes from what they read. Research on reading comprehension in learning disabilities has led to methods that address these needs, including procedural facilitation, enhanced strategy training, and gist comprehension training (Gersten, Fuchs, Williams, & Barker, 2001).

Procedural Facilitation One method for improving comprehension that has gained substantial currency in the last few decades is the use of procedural facilitation, in which students are taught a strategy or set of procedures for accomplishing a task. A valuable application of procedural facilitation to reading comprehension is called story grammar, which is a general or fairly standard system for organizing the content of what one reads or writes (see discussion in Chapter 15). One would expect to find a story grammar that includes important questions with answers in a passage of prose: Who was involved? Where did the action take place? What happened? This strategy and others like it have been used successfully with students with learning disabilities (e.g., Carnine & Kinds, 1983; Gaddis & Jitendra, 1999; Gurney, Gersten, Dimino, & Carnine, 1990; Mathes et al., 1994; Idol & Croll, 1987). Moreover, the connection between using story grammar for reading comprehension and for written expression makes it a good candidate for inclusion in an integrated language arts program for students with learning disabilities.

Strategy Training Teachers can also teach students general-case strategies for comprehension skills. For example, there are strategies to help students answer questions about the sequence of events in stories they read. Sequence questions require readers to indicate which event happened first, next, and last in the story. Many students have difficulty with this type of task. Teachers can show them how to locate each part of the possible answer in the story and mark it. Then the students can determine the order of those parts and use that order to answer the question (Carnine, Prill, & Armstrong, 1978). Another type of comprehension task has students answer questions that require understanding sentences with clauses. Passive voice clauses often cause confusion; a sentence of this type is “Henry, who was kissed by Joan, ran home crying” (Kame’enui, Carnine, & Maga, 1980). Students can be taught to restate the original sentence as two separate sentences so they can answer questions about it (e.g., “Who did the kissing? Who was crying?”).

Borkowski and his colleagues (e.g., Grotelushen, Borkowski, & Hale, 1991) maintain that strategy training in itself is insufficient. They agree that teaching students to use strategies is very important, but add that students also need to persist in using strategies and to attribute their success to their efforts (see also Chapter 14). In one study, Borkowski, Wehling, and Carr (1988) had teachers demonstrate the use of strategies with memory tasks so that students learned that using those strategies improved their performance on the memory tasks. Then the teachers taught the students a strategy for summarizing the main ideas and other aspects of what they read. Later, the teachers modeled how to use the strategies even under difficult conditions. When the teachers made mistakes, they reverted to using the strategies, thus illustrating the value of persistence in using the original plan. Throughout the demonstrations and practice sessions, the teachers emphasized positive attributes for success. Students who received the entire package of training had better scores on comprehension measures than those who were taught only the reading comprehension strategy.

Learning strategies instruction is often associated with the work of University of Kansas researchers, who have developed many useful techniques that can be taught to adolescents with learning disabilities (see Deshler, Elia, & Lenz, 1996; Lenz, 2000). As students move from learning to read into reading to learn, especially in the secondary grades, they must acquire skills that permit them to comprehend what they read in science, social studies, and other content areas. Deshler and colleagues have promoted many strategies to meet this need. Included among them are systems to teach students paraphrasing (read the paragraph; ask yourself questions; restate the main idea), a first-semester strategy for recalling key content (scan the text for key terms; create a mnemonic based on the letters of the terms), and others.

Gist Comprehension Training One of the most challenging things to teach students with learning disabilities is gist comprehension. As discussed earlier in this chapter, Williams (1991) found students with learning disabilities particularly deficient in getting the theme or message from what they read. In subsequent research, Williams evaluated an instructional program for helping students identify and interpret main themes. She and her colleagues taught upper-elementary-school-aged students a general strategy for extracting themes from what they read. This strategy encouraged
PORTFOLIO-BUILDING ACTIVITY

Demonstrating Mastery of the CEC Standards

Use the information in Chapter 12 to create a reading summative table with the following headings: Methods, Skills, Descriptions, Strengths, Concerns, Research. See the Companion Website (www.ablongman.com/hallahan) for specific directions on how to create your table and an example to follow. Questions to think about as you progress:

- What research-supported instructional interventions can special education teachers use that will enhance reading performance skills for individuals with learning disabilities?
- Of these interventions, which ones emphasize the development, maintenance, and generalization of reading skills across environments?
- How can special education teachers use reading interventions to help general education teachers integrate individuals with learning disabilities into inclusion classrooms?
- Are assistive technologies for reading appropriate for students with learning disabilities to use at all ages and grade levels? If so, why, or why not?

SUMMARY

- What is reading?
  - Reading has been defined in many different ways.
  - Reading is a tool for learning content and for entertainment.
- What are the major elements of reading?
  - Reading requires mastery of the alphabetic principle.
  - Reading requires fluent decoding.
  - Reading requires comprehension of context.
- What problems do students with learning disabilities have in reading?
  - Students who have difficulty with reading may have problems with the phonology of the English language, decoding of print, fluency in decoding, or comprehending what they have read.
  - Students may have difficulty with any one of these aspects of reading or with several of the areas.
- How is reading performance assessed?
  - Educators may screen large numbers of students to identify those who need help with reading.
  - They may use various instruments to diagnose problems—this is to pinpoint the areas of difficulty and plan programs to correct these problems.
  - Educators should use simple assessments of students’ reading performance so that they can monitor progress and make instruction efficient.
- How common are reading problems in learning disabilities?
  - The prevalence of reading problems depends on the criteria researchers use to decide whether an individual has or does not have problems.

- About as many 6 to 8% of school-age children have reading scores that are substantially lower than expected based on their general ability.
- Reading problems are the most common form of learning disabilities, but not all students with learning disabilities have reading problems.
- How can instruction help prevent reading disabilities?
  - Instruction can provide appropriate activities for teaching the alphabetic principle, including phonemic awareness, phonics, fluency, and comprehension.
  - Instruction that is systematic and explicit has the best record for preventing reading problems.
- How can instruction help remediate learning disabilities in reading?
  - Instruction should identify the unique educational needs of students with reading problems, address those needs directly (i.e., explicitly and systematically), and employ tactics that have consistently proven to be effective.
  - Historical approaches include the Fernald Wood Learning Approach, the Regge-Kirk Kirk Remedial Reading Drill, and the Orton-Gillingham approach. These approaches stress the multisensory, or VAKT, view.
  - Contemporary approaches include Reading Recovery, the Corrective Reading Program, and computer-aided instruction.
  - Instructional tactics include fluency enhancement practice, peer-mediated instruction, reciprocal teaching, and comprehension strategies, which include procedural facilitation, strategy strategy training, and gist comprehension training.
Comprehension Strategies—Industry Standards

● **What are they**

Five basic comprehension strategies proven to increase student understanding of text are predicting, summarizing, retelling, rereading, and questioning (Swanson & De La Paz, 1998). These strategies are particularly valuable for students with learning disabilities in helping address their inefficiency in recognizing semantic cues.

● **How to implement them**

When teaching strategies to students, teach only one strategy at a time. A new strategy should not be introduced until an old one is established. Most strategies will take more than three lessons before students are able to employ the strategy either independently or with less teacher support. When planning to introduce a new strategy, plan for one day of modeling and guiding students through the strategy prior to having them independently practice the strategy.

● **Predicting**

Prior to reading, activate and assess students’ prior knowledge through predicting activities. Students can make predictions based on the story title, a scanning of story pictures, or past experience with the topics, themes, or characters in the story. Predicting sets a purpose for learning and guides comprehension.

**Teacher:** Look at the title of our story—“Frog and Toad Are Friends.” What do you think this story is going to be about?

**Student:** Frog who can talk?

**Teacher:** Friendship, and what it means to be a friend.

**Student:** Swamps.

**Teacher:** Excellent. Let’s read the story to find out if our predictions are correct.

Predicting activities should be brief and can occur throughout the reading process. (Note: Spending a great deal of time on predicting can take away from the momentum of a lesson and detract from focused reading.)

● **Summarizing**

The goal of summarizing is for students to identify the main idea of a story. Teaching students strategies for summarizing helps them focus on main idea concepts. Two strategies for summarizing are the one-sentence summary and paragraph shrinking.

**One-sentence summarizing.** Have students read a paragraph or a short section of summaries with each other and then vote on who did the best job of summarizing in one sentence.

**Paragraph shrinking.** Ask students to name the “who” or “what” of the story. Then have students write who or what the paragraph was about in ten words or less. (Note: This technique is designed to help students identify the main idea of a paragraph but can also be used for a story.)

● **Retelling**

Allow opportunities for students to retell stories after they have read them or listened to them. Retellings can be scored for:

- inclusion of main idea,
- correct chronological sequence, or
- inclusion of characters, settings, and main events

● **Rereading**

Teach students a variety of rereading strategies.

- One strategy is the “look back” strategy. If a student does not know the answer to a question, teach students how to look back in the story to find the answer.
- Another strategy is reading for fluency. Teach students to reread a sentence or paragraph if they have difficulty with more than two words. Rereading of familiar books also encourages fluency (speed and accuracy when reading)—an important component to comprehension.

● **Questioning**

Have students ask the following questions when reading a selection of text: who, what, when, where, and how. These words can be printed on cards for a variety of instructional uses. Students reading in small groups can randomly select a card and answer the prompt, or students working in pairs can select a card and prompt their partner to answer the question. Teachers can also use the cards to select questions for students.

- Who?
- What?
- Where?
- When?
- How?

● **Additional Resources**


### Story Mapping

● **What is it?**

Story mapping is a visual organizer used to teach students structural elements of a story. Story maps allow students to relate story events and make connections among critical story elements. A basic map may only include the concepts of beginning, middle, and end, whereas a complex map may include questions about characters, setting, and events (see sample maps below). Teaching students structural elements of a story enables them to anticipate the type of information they should be looking for as they read and strengthens their recall of story events. The goal of story mapping is to have students internalize key features of stories. Students with learning disabilities typically have difficulty with such tasks as identifying characters and themes. The explicit and visual nature of story mapping supports development of these skills with students with learning disabilities.
Story mapping has been shown to be successful in increasing these students' ability to retell stories and remember key story features.

**How to do it**

Teachers can create their own story maps with headings to match their instructional goals. Appropriate headings can include story structure (e.g., characters, settings, and main events) or questions (e.g., who, what, when, where, and how). In the box, students will fill in answers to the prompts or questions. Below are two examples of story maps:

**Basic/Introductory Story Map**
- **Beginning:**
- **Middle:**
- **End:**

**Advanced Story Structure Map**
- **Characters:**
- **Main events:**
  1. 
  2. 
  3. 
- **Setting:**

**Themes/main ideas:**
- Setting:
- Where?
- When?

**Major Characters:**
- Name?
- Traits?
- Function in story?

**Initiating Event:**
- Problem/goal?

**Resolution:**
- Important Vocabulary:

When introducing story mapping to students, teachers should model how to complete the story map on several occasions prior to having students independently complete a map. Story mapping typically occurs after an initial reading of the story. During the modeling process, teachers should use self-instruction statements (think-alouds). For example:

**Teacher:** As I reread our story, I am filling in the names of the characters. We just met the main character. What is her name?

**Students:** Goldilocks.

**Teacher:** Excellent listening. I am going to list Goldilocks as our first character. As I do that, who can remind us what a character is?

**Students:** A person in the story.

**Teacher:** Wonderful definition. Yes, a character is a person in the story and Goldilocks is the first person we found. I will write her name in the section labeled "Characters." Let’s see if we find some more . . .

Once students have mastered the structural elements, teachers should fade out the graphic organizer.

**Additional Resource**
- Interactive story map Website at www.readwritethink.org/materials/storymap/
- Lesson plan and grading rubric Website at www.education-world.com/a_tsl/archives/011-lesson0019.shtml

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**Letter-Sound Matching**

**What is it?**

Letter-sound matching is a fundamental beginning phonics skill. A defining characteristic of students with learning disabilities is their difficulty with phonics. Explaining, direct instruction of letter-sound correspondences is a critical first step for students learning to read. Carnine, Silbert, and Kameenui (1996) recommend teaching students letter-sound correspondences in the following order: consonants, short vowels, consonant blends, consonant digraphs (e.g., /sh/, /th/, /sw/, /ch/, /ng/), silent e, long vowels/open syllable (e.g., /wel/, /tel/), vowel teams, and finally, digraphs (e.g., /ed/, /ou/, /aw/).

**How to do it**

One proven strategy for teaching students letter sounds is the model-lead-test approach. Although the strategy appears simplistic, this can be a powerful strategy. Having students practice the correct sound repeatedly reinforces the connection.

**Model-lead-test**
- Point to a letter and say the sound of the letter. (model)
- Point to a letter on a card, chart, or the board. State, “This letter makes the sound /mmm/ . What sound does this letter make?” Signal the students to respond with you. Remember to draw out continuous sounds and stop with stop sounds. (lead)
- Point to the letter. Ask the group or an individual student to say the matching sound as you point to a letter. (test)
- Repeat this process often for each letter. Repetition will reinforce the concept and increase the connection.

(Note: Continuous sounds are a, a (oo), o (oo), f, j (/f/), m, n, s, c (oo), t, s, t (oo), v, w, y, z. Stop sounds are b, c, d, g, h, j, k, p, q, t, v, x, z. Teaching students to stretch the continuous sounds leads the way for blending—a critical sounding out skill.)

Games and partner work are other excellent ways to increase the number of exposures (learning opportunities) students will have with a given letter-sound match.

**Flash cards**
- Students can work in partners to quiz each other on sounds. It is important that students practice the sounds correctly when working independently from the teacher. To ensure correct practice, the front of the flash card shows the letter, and the back of the flash card shows a representation or key word picture. For example, on the back of the S card there could be a picture of Sam the Snake.
- Students can track the sounds they got correctly and the sounds they need more practice with by placing the correct and incorrect flash cards in piles as they play.

**Bingo**
- Create a variety of student boards that have the letters that you are currently teaching. The "caller" (the teacher or a student) selects a letter from a bowl and makes the sound of that letter.
- Students cover the corresponding letter/letter combination if they have it on their board.

*Source: Krista L. Sayerski*