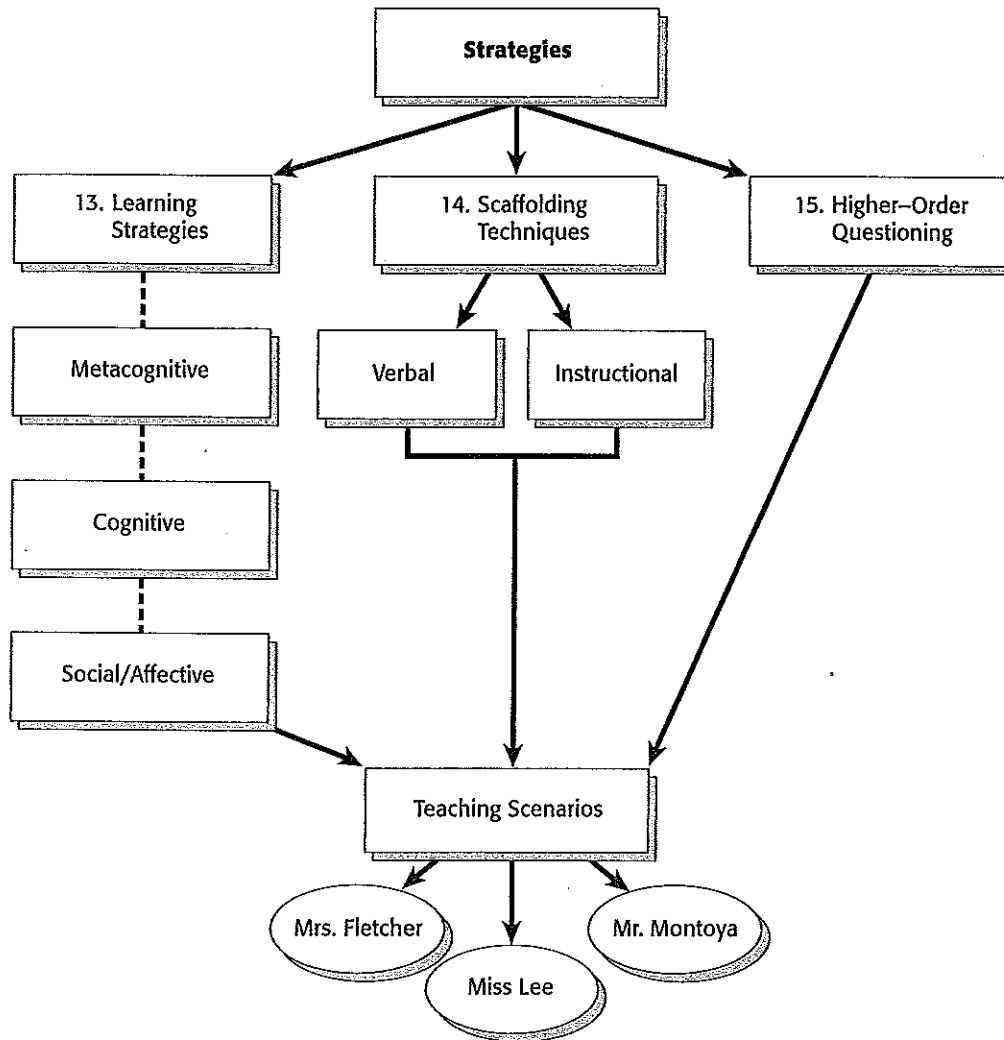


# Strategies



## Objectives

After reading, discussing, and engaging in activities related to this chapter, you will be able to meet the following content and language objectives.

### Content Objectives

Select learning strategies appropriate to a lesson's objectives

Incorporate explicit instruction and student practice of metacognitive and cognitive strategies in lesson plans

Identify techniques for scaffolding verbal, procedural, and instructional understanding

### Language Objectives

Identify language learning strategies to use with students

Discuss the importance of asking higher-order questions to students of all English proficiency levels

Write a set of questions with increasing levels of difficulty on one topic

To this point, we have discussed elements of effective planning, background building, and comprehensibility for English learners (ELs). This chapter examines how we teach students to access information in memory, help them connect what they know to what they are learning, assist them in problem solving, and promote retention of newly learned information. This involves the explicit teaching of learning strategies that facilitate the learning process. Techniques and methods for learning and retaining information are systematically taught, reviewed, and assessed in effective SIOP® classrooms.

The lessons on the tropical rain forest found later in this chapter illustrate how three seventh-grade science teachers incorporate the teaching of strategies into their classrooms.

## Background

As introduced in Chapter 3, researchers have learned that information is retained and connected in the brain through “mental pathways” that are linked to an individual’s existing schemata (Anderson, 1984; Barnhardt, 1997). If the schemata for a particular topic are well developed and personally meaningful, new information is easier to retain and recall, and proficient learners initiate and activate their associations between the new and old learning.

In cognitive theory, this initiation and activation are described as the mental processes that enhance comprehension, learning, and retention of information. Competent language learners actively engage these cognitive skills, and researchers know these



learners are effective, in part, because they have special ways of processing the new information they are learning. These mental processes are called *learning strategies* because they are “the special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information” (O’Malley & Chamot, 1990, p. 1).



## SIOP® FEATURE 13:

### Ample Opportunities Provided for Students to Use Learning Strategies

There is considerable evidence that explicitly and carefully teaching students a variety of self-regulating strategies improves student learning and reading (Fisher, Frey, & Williams, 2002; Neufeld, 2005; Pressley, 2000; 2002; 2005; Shearer, Ruddell, & Vogt, 2001). Self-regulated learning “emphasizes autonomy and control by the individual who monitors, directs, and regulates actions toward goals of information acquisition, expanding expertise, and self-improvement” (Paris, 2001, p. 89).

Three types of learning strategies have been identified in the research literature (O’Malley & Chamot, 1990). These include:

1. **Metacognitive Strategies.** The process of purposefully monitoring our thinking is referred to as metacognition (Baker & Brown, 1984). Metacognition is characterized by (1) matching thinking and problem-solving strategies to particular learning situations, (2) clarifying purposes for learning, (3) monitoring one’s own comprehension through self-questioning, and (4) taking corrective action if understanding fails (Dermody & Speaker, 1995). The use of metacognitive strategies implies awareness, reflection, and interaction, and strategies are used in an integrated, interrelated, and recursive manner (Dole, Duffy, Roehler, & Pearson, 1991; Pressley, 2000). Studies have found that when metacognitive strategies are taught explicitly, reading comprehension is improved (Duffy, 2002; McLaughlin, 2003; Snow, Griffin & Burns, 2005; Vogt & Nagano, 2003).
2. **Cognitive Strategies.** Along with metacognitive strategies, cognitive strategies help students organize the information they are expected to learn through the process of self-regulated learning (Paris, 2001). Cognitive strategies are directly related to individual learning tasks and are used by learners when they mentally and/or physically manipulate material, or when they apply a specific technique to a learning task (Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989; Slater & Horstman, 2002). Previewing a story prior to reading, establishing a purpose for reading, consciously making connections between personal experiences and what is happening in a story, taking notes during a lecture, completing a graphic organizer, and creating a semantic map are all examples of cognitive strategies that learners use to enhance their understandings (McLaughlin & Allen, 2002).
3. **Social/Affective Strategies.** These are identified in the research literature on cognitive psychology as the social and affective influences on learning (O’Malley & Chamot, 1990). For example, learning can be enhanced when people interact with each other to clarify a confusing point or when they participate in a group discussion or cooperative learning group to solve a problem.

FIGURE 5.1 *Continuum of Strategies*

<i>Teacher-Centered</i>	<i>Teacher-Assisted</i>	<i>Peer-Assisted</i>	<i>Student-Centered</i>
Lecture	Drill and practice	Role playing	Rehearsal strategies
Direct instruction	Discovery learning	Peer tutoring	Repeated readings
Demonstration	Brainstorming	Reciprocal teaching	Selective underlining
Recitation	Discussion	Cooperative learning	Two-column notes
			Elaboration strategies
			Mental imagery
			Guided imagery
			Creating analogies
			Organizational strategies
			Clustering
			Graphic organizers
			Outlining

Muth and Alvermann, 1999

In a somewhat different scheme, Muth and Alvermann (1999, p. 233) suggest there is a continuum of strategies that occurs during the teaching–learning process (see Figure 5.1)—from teacher-centered, teacher-assisted, peer-assisted, and student-centered.

The ultimate goal is for students to develop independence in self-monitoring and self-regulation through practice with peer-assisted and student-centered strategies. Many English learners, however, have difficulty initiating an active role in using these strategies because they are focusing mental energy on their developing language skills. Therefore, effective SIOP® teachers scaffold ELs by providing many opportunities for them to use a variety of learning strategies that have been found to be especially effective.

Whatever strategies are emphasized, learned, and used, it is generally agreed that they should be taught through explicit instruction, careful modeling, and scaffolding (Duffy, 2002). Additionally, Lipson and Wixson (2008) suggest that teaching a variety of strategies is not enough. Rather, learners need not only *declarative* knowledge (What is a strategy?) but they also need *procedural* knowledge (How do I use it?), and *conditional* knowledge (When and why do I use it?). When teachers model strategy use and then provide appropriate scaffolding while children are practicing strategies, they are likely to become more effective strategy users (Fisher, Frey, & Williams, 2002; Pressley & Woloshyn, 1995).

When teaching learning strategies, effective SIOP® teachers employ a variety of approaches, such as the following:



**Mnemonics:** A memory system often involving visualization and/or acronyms. For example, to help students remember how to spell some challenging words here are some helpful and fun mnemonics. Hopefully, they'll also remember the phrases!

*Because:* Big Elephants Can Always Understand Small Elephants

*Arithmetic:* A Rat In The House May Eat The Ice Cream

*Geography:* General Eisenhower's Oldest Girl Rode A Pony Home Yesterday

*Rhythm:* Rhythm Helps Your Two Hips Move

*Necessary:* Not Every Cat Eats Sardines (Some Are Really Yummy)

*Argument:* A Rude Girl Undresses; My Eyes Need Taping!

*Ocean:* Only Cats' Eyes Are Narrow

*Potassium:* One tea; two sugars

*Desserts:* Two Sugars Sweet

These mnemonics were found on the Web site [www.fun-with-words.com](http://www.fun-with-words.com). Additional mnemonics, word games, tongue twisters, and other spelling and vocabulary ideas are also available on the Web site.



To see an example of SQP2RS, please view the corresponding video clip (Chapter 5, Module 2) on the accompanying CD.



**SQP2RS (“Squeepers”):** An instructional framework for teaching content with expository texts that includes the following steps (Vogt, 2000; Vogt, 2002):

1. **Survey:** Students preview and scan the text to be read for about one minute to determine key concepts that will be learned.
2. **Question:** In groups, students generate questions likely to be answered by reading the text; teacher posts student questions on chart paper and marks with multiple asterisks those that are frequently suggested by the groups.
3. **Predict:** As a whole class, students come up with three or four key concepts they think they will learn while reading; the predictions are based on the previously generated questions, especially those marked with asterisks.
4. **Read:** While reading (with partners or small groups, or with the teacher in a small group), students search for answers to their generated questions and confirm or disconfirm their predictions; sticky notes or strips are used to mark answers to questions and spots where predictions have been confirmed.
5. **Respond:** Students answer questions (not necessarily in writing) with partners or group members and formulate new ones for the next section of text to be read (if the text is lengthy); teacher leads discussion of key concepts, clarifying any misunderstandings.
6. **Summarize:** Orally or in writing, alone or with a partner or group, students summarize the text’s key concepts, using key vocabulary where appropriate.

Read Mr. Montoya’s lesson later in this chapter to see Squeepers in action. Also, for more information on Squeepers, see Vogt & Echevarria, 2008.



**GIST:** This summarization procedure assists students in “getting the gist” from extended text (Cunningham, 1982; as cited in Muth & Alvermann, 1999). GIST stands for Generating Interactions between Schemata and Texts. Together, students and teacher read a section of text (150 to 300 words) printed on a transparency or handout. After reading, assist students in underlining ten or more words or concepts that are deemed “most important” to understanding the text. List these words or phrases on the board. Without the text, together write a summary sentence or two using as many of the listed words as possible. Repeat the process through subsequent sections of the text. When finished, write a topic sentence to precede the summary sentences; the end result can be edited into a summary paragraph.



**Rehearsal strategies:** Rehearsal is used when verbatim recall of information is needed (McCormick & Pressley, 1997; Muth & Alvermann, 1999). Visual aids, such as flash cards, engage students during rehearsal; and cognitive strategies, such as underlining and note-taking, help students commit information to memory.



**Graphic organizers:** These are graphic representations of key concepts and vocabulary. Teachers present them as schematic diagrams of information being taught, and students use them to organize the information they are learning. Barton, Heidama, & Jordan (2002) recommend the use of graphic organizers to help students comprehend math and science textbooks. Examples include Venn diagrams, timelines, flow charts, semantic maps, and so forth. See Buehl (2001) and Vogt & Echevarria (2008) for more examples.



**Comprehension strategies:** Dole, Duffy, Roehler, and Pearson (1991) and Baker (2004) recommend that students' comprehension of text is enhanced when teachers incorporate instruction that includes strategies such as prediction, self-questioning, monitoring, determining importance, and summarizing. These strategies were identified in what has come to be known as the "proficient reader research" because (1) proficient readers use them in all kinds of text; (2) they can be taught; and (3) the more they are taught explicitly and practiced, the more likely students are to use them independently in their own reading. In their studies involving diverse readers, Duffy (2002) and Fisher, Frey, & Williams (2002) report that reading test scores can be elevated through explicit scaffolded instruction of these and other similar metacognitive strategies.



**Directed Reading-Thinking Activity (DRTA)** (Stauffer, 1969; Ruddell, 2005; Vogt & Echevarria, 2008): DR-TA is a very effective activity for encouraging strategic thinking while students are reading or listening to narrative (fiction) text. It can be used in grades K–12 with the steps given below; only the difficulty level of the text changes. Reading materials are rich, interesting, and if possible, cliff-hanging stories in which there is some question as to how the story may end. Throughout the reading of a story or book, the teacher and students stop periodically and contemplate predictions about what might follow logically in the next section of the text. Begin the lesson with a question about what the class members think the story or book will be about, based on the title. As students respond, include a variety of probes, such as:

- "With a title like . . . , what do you think this story will be about?"
- "Let's read to find out."
- Revisit predictions: "Did . . . happen? If not, why not?"
- "What do you think is going to happen next? What makes you think so?"
- "Where did you get that idea?"
- "What made you think that?"
- "Tell me more about that . . ."

It is important that teachers revisit previously made predictions after chunks of text are read so that students come to understand how predictions (and their confirmation or

disconfirmation) impact their comprehension. Students can “vote” on which predictions are most likely and explain why, as they focus their thinking on character (and author) motivations, problems characters face, reasons for characters’ behaviors, and how the plot unfolds. Note that DR-TA is also effective for longer novels, with chapter-to-chapter discussions focusing on what students think will happen, what really happened, and why.



**CALLA:** One of the most widely accepted methods for teaching strategies to English learners is the Cognitive Academic Language Learning Approach (CALLA) created by Chamot and O’Malley (1987, 1994). It is an instructional model for content and language learning that incorporates student development of learning strategies. Developed initially for intermediate and advanced ESL students in content-based ESL classes, it has had wider application over the years in sheltered classes as well. The CALLA method incorporates the three previously identified categories of learning strategies: metacognitive, cognitive, and socioaffective. Through carefully designed lesson plans tied to the content curriculum, teachers explicitly teach the learning strategies and have students apply them in instructional tasks. These plans are based on the following propositions (Chamot & O’Malley, 1994, p. 196):

1. Mentally active learners are better learners.
2. Strategies can be taught.
3. Learning strategies transfer to new tasks.
4. Academic language learning is more effective with learning strategies.



## SIOP® FEATURE 14:

### Scaffolding Techniques Consistently Used, Assisting And Supporting Student Understanding



To see an example of scaffolding, please view the corresponding video clip (Chapter 5, Module 1) on the accompanying CD.

Scaffolding is a term associated with Vygotsky’s (1978) notion of the Zone of Proximal Development (ZPD). In essence, the ZPD is the difference between what a child can accomplish alone and what he or she can accomplish with the assistance of a more experienced individual. In the classroom, teachers scaffold instruction when they provide substantial amounts of support and assistance in the earliest stages of teaching a new concept or strategy, and then gradually decrease the amount of support as the learners acquire experience through multiple practice opportunities (Vacca, 2002).

Two types of scaffolding can be used effectively with English learners. One is *verbal scaffolding*, in which teachers, aware of ELs’ existing levels of language development, use prompting, questioning, and elaboration to facilitate students’ movement to higher levels of language proficiency, comprehension, and thinking. Effective teacher–student interaction promotes confidence when it is geared to a student’s language competence. The following are examples of verbal scaffolding:

- **Paraphrasing**—restating a student’s response in order to model correct English usage
- **Using “think-alouds”**—carefully structured models of how effective strategy users think and monitor their understandings (Baumann, Jones, & Seifert-Kessell, 1993); for example, when teaching students how to preview a chapter, the teacher might

think aloud as follows: “When I’m preparing to read a chapter or article, I ask myself, ‘What is the main concept I’m supposed to learn? If I look at the big bold heading at the top of the page, I’ll get an idea. The heading might be black, or it could be another color. I see here that it’s \_\_\_\_\_.’ Now I need to look at the other headings on the pages to see if they will help me figure out what I’m supposed to learn. Usually I think about what I already know about the topic. If I know something about it, it helps me understand better.”

- **Reinforcing contextual definitions**—an example is “Aborigines, the people native to Australia, were being forced from their homes.” The phrase “the people native to Australia” provides a definition of the word “Aborigines” within the context of the sentence.
- **Providing correct pronunciation by repeating students’ responses**—When teachers repeat English learners’ correct responses, enunciating carefully and naturally, students have another opportunity to hear the content information, and correct English pronunciation and inflection are reinforced.
- **Slowing speech, increasing pauses, and speaking in phrases**—Teachers provide scaffolding for ELs’ language acquisition when they slow down the rate of speech, pause between phrases, and allow students the wait time they may need to process information in English (see Chapter 4 for more information about Comprehensible Input).

In addition to this important verbal scaffolding, effective teachers incorporate instructional approaches that provide *procedural scaffolding*. These include, but are not limited to, the following:

1. Using an instructional framework that includes explicit teaching, modeling, and practice opportunities with others, and expectations for independent application (see Figure 5.2)
2. One-on-one teaching, coaching, and modeling
3. Small group instruction with children practicing a newly learned strategy with another more experienced student
4. Partnering or grouping students for reading activities, with more experienced readers assisting those with less experience (Nagel, 2001)

In addition, teachers can use *instructional scaffolding* to enhance student learning. For example, graphic organizers can be used as a prereading tool to prepare students for

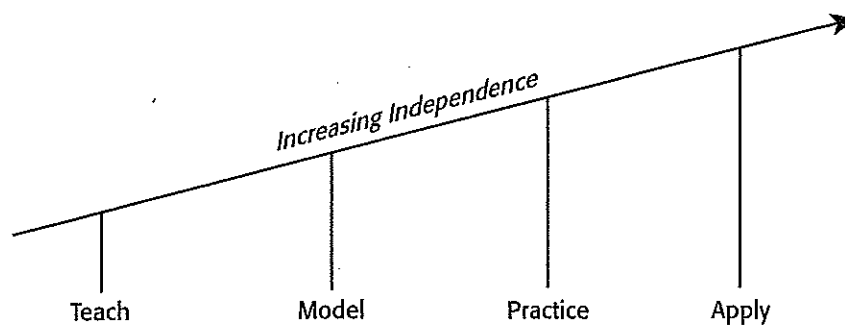


FIGURE 5.2 Scaffolding Model: Teach, Model, Practice, Apply



the content of a textbook chapter. The organizer can also be used to illustrate a chapter's text structure, such as comparative or chronological (Vost & Echevarria, 2008). Think of how the graphic organizers are used in this book and how they assist you in comprehending and organizing the text content.



## SIOP® FEATURE 15:

### A Variety of Questions or Tasks That Promote Higher-Order Thinking Skills

Another way that effective SIOP® teachers can promote strategy use is by asking questions that promote critical thinking (Fordham, 2006). More than forty years ago, Bloom and colleagues (1956) introduced a taxonomy of educational objectives that includes six levels: Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation. This taxonomy was formulated on the principle that learning proceeds from concrete knowledge to abstract values, or from the denotative to the connotative. Educators adopted this taxonomy as a hierarchy of questioning that, when used in the classroom, elicits varied levels of student thinking.

In 2001, D. R. Krathwohl (who originally worked with Benjamin Bloom) and colleagues published a revised taxonomy: *Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives* (see Anderson & Krathwohl, 2001). In the revised taxonomy the six levels include (simplified here):

1. Remember
  - a. Recognizing
  - b. Recalling
2. Understand
  - a. Interpreting
  - b. Exemplifying
  - c. Classifying
  - d. Summarizing
  - e. Inferring
  - f. Comparing
  - g. Explaining
3. Apply
  - a. Executing
  - b. Implementing
4. Analyze
  - a. Differentiating
  - b. Organizing
  - c. Attributing
5. Evaluate
  - a. Checking
  - b. Critiquing

6. Create
  - a. Generating
  - b. Planning
  - c. Producing

Whichever taxonomy teachers choose to use for their lessons, it is important that they carefully plan higher-order questions prior to lesson delivery. It is just too difficult to think of higher-order questions “on your feet.”

In fact, researchers have found that of the approximately 80,000 questions the average teacher asks annually, 80 percent of them are at the Literal or Knowledge level (Gall, 1984; Watson & Young, 1986). This is especially problematic with English learners. As children are acquiring proficiency in English, it is tempting to rely on simple questions that result in yes/no or other one-word responses.

It is possible, however, to reduce the linguistic demands of responses while still promoting higher levels of thinking. For example, in a study of plant reproduction, the following question requires little thought: “Are seeds sometimes carried by the wind?” A nod or one-word response is almost automatic if the question is understood. A higher-level question such as the following requires analysis: “Which of these seeds would be more likely to be carried by the wind: the round one or smooth one? Or this one that has fuzzy hairs? Why do you think so?” Encouraging students to respond with higher levels of thinking requires teachers to consciously plan and incorporate questions at a variety of levels.

Teachers can also assist students in becoming strategic when they teach them how to determine levels of questions they are asked. For example, if a student recognizes that a question is at the literal level, he’ll know the answer can be found right in the text. Similarly, if he identifies a question as inferential, he’ll know he’ll have to “think and search” or read between the lines to find the answer. This process has been named QAR (Question-Answer Relationships) (Raphael, 1984; Raphael, Highfield, & Au, 2006). (See detailed explanation in Vogt & Echevarria, 2008.)

When students are able to determine levels of questions, they can be taught to ask their own questions of varying levels. This complements the goal of developing hypotheses using the scientific method, and it also benefits the research skills students must learn and practice. For example, Burke (2002) explains the importance of students writing their own research questions *before* they use the Internet to find information so that they “steer” rather than “surf” for answers. Also, QAR is a powerful addition to SQP2RS (p. 98), as students are writing their questions.

Successful learners know how to use question-asking to help them construct meaning while they read (Taboada & Guthrie, 2006). They ask questions and challenge what the author says if something does not make sense to them. Beck and McKeown (2002, 2006), recommend using the instructional approach Questioning the Author (QtA) to develop students’ comprehension of textbook material, which sometimes can be disjointed and lacking in connections between ideas and key concepts. QtA values the depth and quality of students’ interactions with texts, and their responses to authors’ intended meanings. It assists students in developing the ability to read text closely, as if the author were there to be questioned and challenged. We encourage you to learn more about both QAR and QtA in order to enhance your students’ comprehension of text material and to assist them in developing self-regulating strategies related to questioning.

## The Lesson

The lesson described in this chapter is taken from a seventh-grade unit on the tropical rain forest.

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### UNIT: The Rain Forest (Seventh Grade)

The three classrooms described in the teaching scenarios in this chapter are heterogeneously mixed with native English speakers and English learners who have mixed levels of fluency. The middle school is in a suburban community, and Hispanic English learners make up approximately 75 percent of the student population.

Mrs. Fletcher, Miss Lee, and Mr. Montoya are each teaching a unit on the tropical rain forest. They are all using the same article taken from a science news magazine designed for middle school students.

State content standards for seventh-grade Earth science include the following:

1. Students know Earth processes today are similar to those that occurred in the past and slow geologic processes have large cumulative effects over long periods of time.
  2. Students know the history of life on Earth has been disrupted by major catastrophic events (e.g., major volcanic eruptions or the impact of asteroids).
  3. Students know how to explain significant developments and extinctions of plants and animals on the geological time scale.
  4. Students know how light can be reflected, refracted, transmitted, and absorbed by matter.
- 

The following teaching scenarios take place during the first day of the unit on the rain forest.

## Teaching Scenarios

To demonstrate how Mrs. Fletcher, Miss Lee, and Mr. Montoya planned instruction for their students, including their English learners, we look at how each designed a lesson on the rain forest.

### Mrs. Fletcher

Mrs. Fletcher began her lesson by distributing the rain forest article to the students and asking them to read together the title, "Our Burning Forests." She then directed them to predict from the title and opening photograph what they thought the article would be about. One boy said, "It looks like the jungle." Another said, "I think it's about parrots." One of the girls responded, "I think it's about burning forests." Mrs. Fletcher then began reading the article, stopping once to ask the class, "What do you think will happen to the animals in this rain forest?" When she had finished orally reading the article, she asked the students if they had any questions.

One of the children asked, "Why do people burn the rain forests if it's so bad?" Mrs. Fletcher replied that the wood is very valuable and people want to make money from the sale of it. Because there were no further questions, she asked each student to write a letter to the editor of the local newspaper explaining why we should save the rain forests. Several of the students began writing, while others reread the article. A few appeared confused about

how to start and Mrs. Fletcher helped them individually. When they had finished writing their letters, Mrs. Fletcher asked for volunteers to read their papers aloud. After a brief discussion of the letters, Mrs. Fletcher collected them and dismissed the students for lunch.

On the SIOP® form in Figure 5.3, rate Mrs. Fletcher's lesson on each of the Strategies features.

#### Miss Lee

Miss Lee introduced the magazine article by presenting a brief lecture on the rain forest and by showing a variety of photographs. She then divided the students into groups of four and asked one person in each group to read the article to the other group members. When the students were finished reading, Miss Lee distributed worksheets. The children were instructed to independently write the answers to the following questions:

1. How much of the Earth's surface is covered by rain forests?
2. What percent of the Earth's species are found in the rain forest?
3. What are three products that come from the rain forests?
4. Why are the rain forests being burned or cut?
5. Who are the people that are doing the burning and cutting?
6. One of the birds found in the rain forest is a \_\_\_\_\_.

FIGURE 5.3 Strategies Component of the SIOP® Model: Mrs. Fletcher's Lesson

	4	3	2	1	0
13. Ample opportunities provided for students to use learning strategies		Inadequate opportunities provided for students to use learning strategies		No opportunity provided for students to use learning strategies	
14. Scaffolding techniques consistently used, assisting and supporting student understanding (e.g., think-alouds)		Scaffolding techniques occasionally used		Scaffolding techniques not used	
15. A variety of questions or tasks that promote higher-order thinking skills (e.g., literal, analytical, and interpretive questions)		Infrequent questions or tasks that promote higher-order thinking skills		No questions or tasks that promote higher-order thinking skills	

7. Global warming is believed to be caused by \_\_\_\_\_.
8. I hope the rain forests are not all cut down because \_\_\_\_\_.

In addition to their rain forest article, Miss Lee encouraged students to use the class computers to search the Internet for the answers to these questions. She told them to type in “rain forest” on a search engine to begin their search.

When the students were finished writing their responses, they were to compare them to those of their group members. Miss Lee directed them to use the article to fix any answers the group thought were incorrect. She explained that they needed to come to agreement and record their group answer on a clean worksheet. For question #8, students were to decide which of the students’ responses in their group was the best.

On the SIOP® form in Figure 5.4, rate Miss Lee’s lesson on each of the Strategies features.

**Mr. Montoya (see Figure 5.6 for complete lesson plan)**

After distributing the magazine article on the tropical rain forest to his class, Mr. Montoya engaged his students in a SQP2RS activity (known as “Squeepers”) (see p. 98). First, students were directed to preview and think about the article. He asked them to take one to two minutes individually or with a partner to preview the text material by examining illustrations, photographs, bold or italicized print, charts, and chapter questions (Survey). This was a familiar process for his students because he had previously taught and modeled

FIGURE 5.4 *Strategies Component of the SIOP® Model: Miss Lee's Lesson*

	4	3	2	1	0
13. Ample opportunities provided for students to use learning strategies		Inadequate opportunities provided for students to use learning strategies			No opportunity provided for students to use learning strategies
14. Scaffolding techniques consistently used, assisting and supporting student understanding (e.g., think-alouds)		Scaffolding techniques occasionally used			Scaffolding techniques not used
15. A variety of questions or tasks that promote higher-order thinking skills (e.g., literal, analytical, and interpretive questions)		Infrequent questions or tasks that promote higher-order thinking skills			No questions or tasks that promote higher-order thinking skills

how to conduct a text survey. After one minute, Mr. Montoya stopped the survey and directed the students to work with a partner to write two or three questions they thought they would find answers to by reading the article (Question). When finished, the partners shared their questions with another pair and then with the class. As the groups shared their questions, Mr. Montoya marked with asterisks those questions that were generated by more than one group. From the questions, the class predicted five important things they thought they would learn from the article (Predict), and Mr. Montoya recorded them on chart paper.

Mr. Montoya then read aloud the first section of the article while the students followed along in their copies of the text. After he had read four paragraphs, Mr. Montoya referred students to the list of predictions on the board. Next to each prediction that had been confirmed so far in the reading, a "+" was written, while one prediction that was disconfirmed was marked with a "-." One prediction that was unlikely to be discussed in the remainder of the article was marked with a question mark. A few additional questions and predictions were then generated by the class prior to Mr. Montoya's directions to quietly read the next section of the text (about six paragraphs) with a partner or a triad (Read).

When students finished the group reading activity, they were directed to find two or three vocabulary words they thought were important to the topic of the rain forest (VSS see p. 108). Mr. Montoya led the class in a brief discussion of the vocabulary words, and the class voted on ten that they felt were most important. These were posted on the board for future discussion during the unit on the rain forest.

In groups, the students then reviewed the questions that had been posed earlier to see if they had found answers in their reading, and they used sticky notes and strips to indicate in the article where the answers could be found. They checked their predictions according to the process Mr. Montoya had previously modeled (Respond). Next, each student wrote summary sentences about what they had read, using VSS words (Summarize).

Toward the end of the class, Mr. Montoya displayed a transparency with the following questions:

1. Why are we dependent on the rain forests for our survival on Earth?
2. Compare and contrast the arguments of foresters and environmentalists. With which argument do you most agree? Why?
3. Imagine the Earth in one hundred years. How would you describe it if the present rate of deforestation continues?
4. Pretend you are the president of the United States. Write a letter to the president of the lumber company that is responsible for the overseas burning of many acres of rain forest. Try to convince her to stop destroying the rain forest and practice sustainable lumber development.

After reading the questions aloud, Mr. Montoya briefly asked each student to select one. For homework, he asked students to copy the question they chose and to discuss it with parents or caregivers that evening. Students were asked to jot notes as to how they would answer the question, using the information from the article insights they had gained through their discussions at home, and VSS words. He announced that these questions would be debated during the next day's class.

On the SIOP<sup>®</sup> form in Figure 5.5, rate Mr. Montoya's lesson on each of the Strategies features.

FIGURE 5.5 Strategies Component of the SIOP® Model: Mr. Montoya's Lesson

	4	3	2	1	0
13. Ample opportunities provided for students to use learning strategies			Inadequate opportunities provided for students to use learning strategies		No opportunity provided for students to use learning strategies
14. Scaffolding techniques consistently used throughout lesson, assisting and supporting student understanding (e.g., think-alouds)			Scaffolding techniques occasionally used		Scaffolding techniques not used
15. A variety of questions or tasks that promote higher-order thinking skills (e.g., literal, analytical, and interpretive questions)			Infrequent questions or tasks that promote higher-order thinking skills		No questions or tasks that promote higher-order thinking skills

FIGURE 5.6 SIOP® Lesson: Tropical Rain Forests (Science) Grade: 7

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to . . . ; HOTS = Higher Order Thinking Skills

**Content Standards:**  
*Earth and Life History—Earth Sciences*

- Students know Earth processes today are similar to those that occurred in the past, and slow processes have large cumulative effects over long periods of time.
- Students know the history of life on Earth has been disrupted by major catastrophic events (e.g., major volcanic eruptions or the impact of asteroids).
- Students know how to explain significant developments and extinctions of plants and animals on the Earth's timeline.

**Physical Science**

- Students know how light can be reflected, refracted, transmitted, and absorbed by matter.

**Key Vocabulary:** Vocabulary Self-Collection Strategy (VSS); students will select key vocab after reading; Teacher choices for VSS: *rain forest; deforestation; ozone layer*

**HOTS:**

1. Why are we dependent on the rain forests for our survival on earth?

**Visuals/ Resources:** Article on deforestation of tropical rain forests; photographs from space depicting hole in the ozone layer; chart paper and markers

2. Compare and contrast the arguments of foresters and environmentalists. With which argument do you most agree? Why?
3. Imagine the Earth in one hundred years. How would you describe it if the present rate of deforestation continues?
4. Pretend you are the president of the U.S. Write a letter to the president of the lumber company that is responsible for the overseas burning of many acres of rain forest. Try to convince her to stop destroying the rain forest and practice sustainable lumber development.

**Connections: Prior Knowledge/ Building Background/Previous Learning**

TW review previously taught steps to SQP2RS including how to effectively survey expository text. In small groups, SW list responses to the following: "Based on our reading and discussions from last week, what are three reasons why some animals and plants have become extinct over time?" SW review notes and text for answers, if necessary.

Content Objectives	Meaningful Activities	Review/Assessment
<ol style="list-style-type: none"> <li>1. SWBAT analyze the impact of deforestation of tropical rain forests on the environment.</li> </ol>	<ol style="list-style-type: none"> <li>1.1 TW review SQP2RS process for reading expository texts.</li> </ol>	<ol style="list-style-type: none"> <li>1.1 Summative assessment of content objective will be: answers to student-posed questions; class discussion; summary sentences; selection of question for oral debate of HOTS questions; tomorrow's debate</li> </ol>
<p><b>Language Objectives</b></p> <ol style="list-style-type: none"> <li>2. SWBAT ask questions and predict key concepts prior to reading about tropical rain forests.</li> <li>3. SWBAT select and define 2-3 key vocabulary words related to deforestation and rain forests.</li> <li>4. SWBAT write summary sentences about deforestation, tropical rain forests, and the impact on the environment.</li> </ol>	<ol style="list-style-type: none"> <li>2.1 SW in partners survey rainforest article to generate 2-3 questions they think will be answered by reading article; TW post questions, using asterisks to indicate multiple group responses.</li> <li>2.2 Class will predict 4-5 key concepts that will be learned by reading article.</li> <li>2.3 TW begin reading; SW read to confirm/disconfirm predictions.</li> <li>2.4 SW use sticky notes to find answers to posted questions; SW mark in text answers and confirmed predictions.</li> <li>3.1 SW with partners find and define 2-3 VSS words that are important to the topic of deforestation and the rain forests.</li> <li>3.2 TW lead discussion of VSS words, clarifying meanings, while SW explain why the selected VSS words related to the rain forest are important to know.</li> <li>4.1 SW write summary sentences on the impact of deforestation of rain forests, using key vocabulary selected during VSS.</li> </ol>	<ol style="list-style-type: none"> <li>2.1-2.2 Questions and predictions about the rain forest posted on chart paper</li> <li>2.3 SW show in text answers to questions; where predictions are confirmed.</li> <li>2.4 SW in small groups compare answers marked by sticky notes.</li> <li>3.1 VSS words and definitions</li> <li>4.1 Summary sentences and use of key vocabulary</li> </ol>

(Continued)



FIGURE 5.6 *Continued*

5. SWBAT orally defend a position on deforestation of the rain forests.	5.1 SW select a HOTS question to take home and discuss with parents or caretaker in preparation for informal debate tomorrow.	5.1 Selected questions
	5.2 TW review rules of informal debate.	

**Wrap-up:** Check for understanding of key vocabulary and clarify questions about the debate questions; review content and language objectives. Hold up fingers for level of understanding for each objective: 1 = I can do it; 2 = I think I can do it, but I still have questions; 3 = I need more information or review.

Lesson plan format created by Melissa Castillo & Nicole Teyechea

## Discussion of Lessons

### 13. *Ample Opportunities Provided for Students to Use Learning Strategies*

Mrs. Fletcher: 2

Miss Lee: 2

Mr. Montoya: 4

Mrs. Fletcher received a “2” for her use and teaching of strategies. She began the lesson by asking her students to make predictions from the title of the article, and three students responded. As typically happens with predictions based on titles, one girl repeated the title of the article in her prediction (“I think it will be about burning forests”), but Mrs. Fletcher did not probe the response to elicit deeper thinking about the topic. Further, she didn’t build upon or reinforce the other two students’ predictions, nor did she seek other predictions during the text reading. Often, teachers ask for predictions, accept them, and move on without expanding on them or coming back to revisit them later in a lesson.

Mrs. Fletcher’s lesson would have been strengthened if she had included additional strategies, and perhaps a graphic organizer or other means for students to organize the information they were learning. She also could have periodically stopped her oral reading to reinforce important concepts, clarify confusing points, and discuss predictions that were confirmed or disconfirmed. Even though Mrs. Fletcher had the students write a letter to the editor at the end of the reading—providing students with a chance to demonstrate their understanding—she missed the opportunity to model summarizing as a strategic process throughout the article. This would have made the letter-writing activity more accessible to English learners and struggling readers.

Miss Lee’s lesson also received a “2” for use of strategies. She encouraged her students to evaluate and determine importance during the discussions of the answers to the questions on the worksheet. Students were required to support their responses, clarify misunderstandings, and have consensus on the answers before turning in their papers. Her lesson would have been more effective if she had determined students’ prior knowledge about the rain forests, and actively engaged them in drawing on their background knowledge. Instead of just lecturing, she could have shown photographs and generated student predictions and questions about the content of the pictures.

Mr. Montoya’s lesson received a “4” on the learning strategies feature. He taught and modeled several important processing strategies when he engaged his students in the SQP2RS/Squeepers activity for the expository text selection: prediction, self-questioning,

monitoring and clarifying, evaluating, and summarizing. As Mr. Montoya led his students through the activity, he modeled and provided support in how to survey text, generate questions, make predictions, confirm or disconfirm predictions based on text information, and summarize information. Further, he incorporated Vocabulary Self-Collection Strategy (VSS), during which students carefully select and discuss vocabulary that is key to the topic being studied (Ruddell, 2005). Evidence shows that when students are guided in how to select important vocabulary, and in how to apply strategies through SQP2RS, their comprehension is enhanced (Blachowicz & Fisher, 2000; Shearer, Ruddell, & Vogt, 2001; Vogt, 2000; 2002).

#### 14. *Scaffolding Techniques Consistently Used, Assisting and Supporting Student Understanding*

Mrs. Fletcher: 1

Miss Lee: 3

Mr. Montoya: 4

Mrs. Fletcher's lesson received a "1" for scaffolding. She attempted to scaffold student learning by having the class orally read the title together and by reading the article to the students. This significantly reduced the reading demands of the text. However, if she continues to read everything aloud to the students, she won't be gradually reducing her support, and the students will be less likely to become independent readers. Therefore, her scaffolding might have been more effective if she had begun reading the article to the students and then had them complete the reading with a partner or group. Obviously, this presumes that the text difficulty is such that the students could successfully read it with help from one another.

Miss Lee's lesson received a "3" for scaffolding. She effectively scaffolded student learning in three ways. First, the photographs she displayed during her lecture provided additional support for students who had little background knowledge about the topic of rain forests. Second, by having the students complete the reading in their groups, the reading demands were reduced. Depending on the length of the article, she might have encouraged the reading involvement of more than one student in each group if she had suggested, for example, a "Page, Paragraph, or Pass" approach. With this activity, each student decides whether he or she wishes to read a page, a paragraph, or pass on the oral reading. English learners and reluctant readers may feel more comfortable having the option of choosing whether and how much they'll read aloud to their peers.

Miss Lee also scaffolded the students' answering of the questions on the worksheet. They had to answer the questions independently, but then were allowed to compare their responses to the other students' and decide on the correct answers together. This provided students the opportunity to demonstrate individual learning of the rain forest material, but also the chance to compare their understandings with those of their peers.

Mr. Montoya's lesson received a "4" for scaffolding. He incorporated a variety of techniques that provided support with the expectation that his students eventually would be able to apply the various strategies independently. He used several grouping configurations during the lesson, including whole class, small groups, triads, and partners. Students had the opportunity to confer with each other, receiving support and assistance if necessary. Mr. Montoya also carefully modeled the strategies for the students prior to requiring

application. The reading demands of the article were reduced when students were allowed to read it in pairs or triads. Choice also played a critical role in this lesson when students were encouraged to select key vocabulary and the question for homework that most interested them.

15. *A Variety of Questions and Tasks That Promote Higher-Order Thinking Skills*

Mrs. Fletcher: 0

Miss Lee: 1

Mr. Montoya: 4

Mrs. Fletcher's lesson received a "0" for questioning. She missed several opportunities to use questioning to engage her students' thinking. When the three children made their predictions, she could have probed with questions such as, "What made you think that?" "Tell me more about that," or "Why do you think it's about parrots?" Toward the end of the lesson, when one student asked why people still burn the rain forests, Mrs. Fletcher could have used the student's question to develop inquiry skills in her students, and these questions could then have motivated the letters to the editor. Instead, the letter-writing activity, while potentially meaningful, seemed somewhat removed from the article and brief discussion about the rain forests.

Miss Lee's lesson received a "1" for questioning. Although she incorporated questioning into her lesson by using the worksheet, the questions were essentially written at the literal level, with answers that could be found easily in the rain forest article. The activity would have required greater cognitive work on the part of the students if Miss Lee had written questions at various levels. Question 8 was the only one that required actual application and evaluation of the content concepts.

In addition, although Miss Lee tried to incorporate technology into her lesson, she did not provide enough guidance to help students find the information they needed in a timely fashion. She could have worked with students interested in using the Internet to refine their search procedures; generate some of their own questions about the rain forest; and use several key words to yield the information they were seeking while narrowing the resulting prospective Web sites.

Mr. Montoya's lesson received a "4" for questioning. He incorporated questioning throughout the lesson, first during the SQP2RS activity, when students generated their own questions based on the text information, and then with the debate/discussion questions. Note the varied levels of the questions: The first is a literal-level question, the second requires analysis and evaluation, the third requires application and synthesis, and the fourth requires synthesis and evaluation. Mr. Montoya effectively reduced the text's difficulty through the SQP2RS activity, not by lowering the cognitive demand of the questions.

## Summary

We frequently remind teachers, "Just because the students can't read well doesn't mean they can't think!" A similar adage to this might be said of English learners: "Just because they can't speak English proficiently doesn't mean they can't think!"

In this chapter, we have described how to promote critical and strategic thinking for all students, but most especially for ELs. Learning is made more effective when teachers

actively assist students in developing metacognitive, cognitive, and social/affective strategies, those that promote self-monitoring, self-regulation, and problem solving. We believe that students with developing English proficiency should not be denied effective, creative, and generative teaching while they are learning the language. Therefore, it is imperative that all teachers provide English learners with sufficient scaffolding, including verbal supports such as paraphrasing and frequent repetition, and instructional supports such as opportunities to work with more experienced individuals in flexible groups and the use of graphic organizers. While English learners are developing English proficiency, teachers must remember to include in their lessons higher-order questions that promote critical thinking.

## Discussion Questions

1. Describe a learning situation you participated in or observed in which the teacher modeled how to do something. Describe a recent lesson in which you modeled a process, directions students were to follow, or steps for an experiment. What did you have to do to ensure that students could follow your instruction? What worked and what didn't? How could the teacher have made things more clear?
2. The concept of scaffolding may be somewhat new for you. The definition in the glossary may be helpful, as may be the following construction analogy. Picture a high-rise building as it is under construction. As new stories are added, scaffolding is built along the outside of the previously constructed story (or level). This scaffolding allows access for the construction workers—they need to be able to get into the upper stories in order to continue the building process.  
Think of a content topic that you must teach that is challenging to students acquiring English as a second (or multiple) language. What types of scaffolds must you put in place for your students to successfully access your content and language objectives?
3. Here's a factual question a teacher might ask based on a social studies text: "Who was the first president of the United States?" Given the topic of the presidency, what are several additional questions you could ask that promote higher-order thinking? Why is it important to use a variety of questioning strategies with English learners? Use one of the taxonomies (Bloom's or Anderson & Krathwohl's) to guide you.
4. Using the SIOP® lesson you have been developing, add meaningful activities that develop learning strategies. Determine how to scaffold ELs' access to your objectives. Write several higher order thinking questions/tasks.