other assistance to guide students' learning efforts. The teacher varies the amount of support given on the basis of the student's understanding. If the student understands little, the teacher gives more support. On the other hand, the teacher gives progressively less support as the student's understanding becomes more evident. Overall, the teacher provides just enough scaffolding to enable the student to "discover" the material on his or her own.

Models Based on Cognitive Processes

Some models of teaching are derived from the mental processes involved in learning—thinking, remembering, problem solving, and creativity. Information processing, for example, is a branch of cognitive science concerned with how people use their long- and short-term memory to access information and solve problems. The computer is often used as an analogy for information-processing views of learning:

> Like the computer, the human mind takes in information, performs operations on it to change its form and content, stores the information, retrieves it when needed, and generates responses to it. Thus, processing involves gathering information and organizing it in relation to what you already know, or *encoding*; holding information, or *storage*; and getting at the information when needed, or *retrieval*. The whole system is guided by *control processes* that determine how and when information will flow through the system. (Woolfolk, 2007, p. 250)

Although several systematic approaches to instruction are based on information processing—teaching students how to memorize, think inductively or deductively, acquire concepts, or use the scientific method, for example—they all focus on how people acquire and use information. Inquiry learning (often called *discovery learning*) is one example of a widely used model of teaching that develops students' abilities to acquire and use information. Students are given opportunities to inquire into subjects so that they "discover" knowledge for themselves. In "Structures in Learning" in this chapter, Jerome Bruner points out that discovery learning also enables students to see that knowledge has a structure, an internal connectedness and meaningfulness.

When teachers ask students to go beyond information in a text to make inferences, draw conclusions, or form generalizations, and when teachers do not answer students' questions, preferring instead to have students develop their own answers, they are using methods based on inquiry and discovery learning. These methods are best suited for teaching concepts, relationships, and theoretical abstractions, and for having students formulate and test hypotheses.

Inquiry learning and discovery learning approaches frequently use a *research-share-perform* cycle. During the *research* phase, students generate their own questions and hypotheses about a topic. They reflect on their prior experiences and knowledge and formulate a main question for inquiry. Research is carried out in small groups that focus on specific parts of the larger research question. During the *share* phase, knowledge is developed during a dialogue between students and teacher and among students themselves. The usefulness of the knowledge is evaluated by the group, which, ideally, functions as a *learning community*. During the *perform* phase, students integrate and synthesize their shared knowledge by making presentations to the public.