Ask the Right Questions

- Ask questions that demonstrate your ability to think critically and creatively on six different levels.

It is in our nature as human beings to ask questions because this is one of the primary ways we learn. One of the first questions a young child asks is "Why?" Yet so many college students seem to have lost their curiosity. Why do college students seem afraid to ask questions? Perhaps they think their questions are insignificant or they fear being ridiculed by their peers. Whatever the reason, when instructors ask, "Do you have any questions?" they are often met with silence. Questions open discussions. Questions clarify misunderstandings, promote self-discovery, and initiate the process of knowledge acquisition. Questions start you off on a journey that could lead you to some interesting places. Don't be afraid to ask questions. If you need a model for asking good questions that get to the heart of issues and help you explore ideas critically and creatively, Bloom's Taxonomy is your guide.

Bloom's Taxonomy is a classification of six levels of thinking and learning, as explained in *Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain*, published in 1959 by the David McKay Company. Benjamin S. Bloom was an US educational psychologist and professor at the University of Chicago. Bloom died in 1999, and his legacy, the *Taxonomy*, continues to influence educators today.
Bloom identified six levels of learning, each more demanding than the previous one. He believed that you must master each level before proceeding to the next. Many instructors develop test questions based on Bloom's levels. In a history course, for example, you will be expected to do more than memorize names of key people and dates of important events. You will need to understand how those people influenced the thinking of future generations and how those events changed the course of history. In Bloom's terms, if you recall the name "Charles Darwin" and you associate him with the theory of evolution, then you are thinking at the knowledge level. If you are able to explain in your own words the broad principles of the theory of evolution, then you are thinking at the comprehension level. To apply the idea of evolution to your own life, you might think about the way your taste in music has evolved from liking one kind of music to appreciating music in all its forms. Then what are some other theories about the origin of humans and other living things? How do these theories compare to Darwin's theory? What are the strengths and weaknesses of the theories? These questions are at the level of analysis. Can you see that with each level of thinking or questioning you begin to explore a topic in greater depth? Therefore, it is to your advantage to know more about Bloom's Taxonomy because it will help you think more critically to analyze information and what it means, instead of relying on memorization as your primary learning strategy. Here are some of the things an understanding of Bloom's levels will help you do:

- Ask more meaningful questions in class that demonstrate your ability to think deeply about a topic.
- Anticipate what kinds of questions an instructor might ask on a test and their level of difficulty.
- Analyze your mistakes so that you know what level of thinking was required and are able to determine why you missed a question.
- Monitor your own thinking so that you know which level you are operating at and can try to move to the next level.

So what are Bloom's levels of thinking? First, look at Figure 3.6, which lists the levels on a staircase, ranking them from lowest to highest. Starting from the bottom of the staircase, the first three levels comprise the lower-order thinking skills, which are the foundation of learning. As you move up the staircase, the next three levels are the higher-order thinking skills that require more in-depth thinking. With this visual image of Bloom's levels in mind, now read the explanation of each one.

1. Knowledge is the most basic level of thinking and learning. At this level, you are able to remember information without necessarily understanding it. This is the level at which you memorized the alphabet, the multiplication tables, and the US capital cities when you were young. Test questions at the knowledge level might ask you to define a term, list items, or recall names, dates, or places. Can you see why you might miss a question that asks you to do more with the information than these simple tasks? If you simply memorize a list of items, you will not be prepared for a test question that asks you to explain what the items mean or apply them to another context. Similarly, when you ask for simple information in class—such as a date when an event occurred or the name of an author—you are questioning at the knowledge level.
2. **Comprehension** requires that you both remember and **understand** the information. To check how well you understand some information you have been studying, try to put it in your own words as if you were explaining it to a friend. You cannot explain what you do not understand. Test questions at the comprehension level might contain the direction words *describe, discuss, interpret,* or *summarize.* Suppose you are learning about prime numbers in your algebra class. You recall the term *prime number,* but you are not sure that you understand what it means. A comprehension question you might ask the instructor is “Can you give an example of a prime number?” or “What are the properties of a prime number?”

3. **Application** is the practical level of thinking. How can you use the information? How can you apply or relate it to your own life and needs? For example, you learn in a composition class that a paragraph should have a topic sentence. But can you write a topic sentence for a paragraph of your own? Can you find the topic sentence in a paragraph of an article or a textbook chapter? If you can, then you are thinking at the application level. Test questions that ask you to apply your knowledge might contain direction words such as *calculate, demonstrate, illustrate, examine,* or *relate.* To ask an application question in any class, you would ask how a theory or principle you have learned could be applied in daily life.

4. **Analysis** is the process of breaking down a complex idea into its components, or parts, so that they can be more easily understood. For example, when you follow the steps of a procedure to do an experiment in your biology lab, you are using analysis. When you explain to your algebra instructor how you arrived at the solution to an equation, you are thinking at the analysis level. Finding the meaning in a poem calls for analysis. Test questions at the analysis level may contain the direction words *analyze, arrange, classify, explain, compare,* or *differentiate.* When a student in your class states his or her position on an issue and you ask, “Why do you think that way?” or “How do you know?” you are questioning the student at Bloom's fourth level.

5. **Synthesis** is the level of thinking that requires you to make connections, see relationships among ideas, and be creative. Drawing conclusions from stated facts, relating what you have just learned to what you already know, and pulling ideas together from several sources to write a research paper in which you draw an original conclusion are all examples of synthesis. Test questions at the synthesis level might ask you to *combine, design, formulate, plan,* or *compose.* The question “What if ...?” is a synthesis question because it asks you to imagine something other than what is known. For example, in a biology lab, you might be doing an experiment that combines different chemicals in a growth medium for a plant to see what happens. The question you start with might be this: “What if I add this chemical and change the amount of water?”

6. **Evaluation** is an estimation of worth, a judgment call. How are you doing in your courses so far? Are the study strategies you are using working? Are you making progress toward the goals you have set? If not, what can you do to redirect your efforts and get back on track? That is evaluation in a nutshell. Test questions that call for an evaluation might ask you to *assess, measure, rank, judge, evaluate,* or *explain advantages and disadvantages* in order to assess worth. In a psychology class, you might ask this question: “How useful are Freud’s theories in the everyday practice of psychology?” Your question calls for a value judgment.

Bloom’s levels of thinking are simply meant as a guide to show you how to think more critically and creatively. The levels are tools you can use to bring more depth into your studying and to help you ask more useful questions in class discussion.
so that you can get the information you need. As previously mentioned, Bloom’s Taxonomy is widely accepted in the academic world. It has been the subject of many articles and studies. Some have tried to improve it with modifications of their own. However, Bloom’s original categories set the standard. Now look at Figure 3.7, which demonstrates how to ask questions on six levels. The questions are about topic sentences, a subject you will encounter in a writing class. You can also use Bloom’s levels for predicting what kinds of questions might be asked on a test, as you will learn in the next section.

### Asking Questions with Bloom

#### Exercise Overview
The purpose of this exercise is to increase your understanding of Bloom’s levels of thinking and learning and to give you some practice working with the different levels.

#### Exercise Background
Most students study at the knowledge level, memorizing facts without understanding what they mean or why they are important. Yet most instructors ask very few test questions at this basic level. Instead, you are expected to demonstrate that you understand the material and are able to apply what you have learned. Most test questions, and many of your assignments, require you to operate at Bloom’s higher levels of thinking: analysis, synthesis, and evaluation.

Have you ever wondered why an assignment is so difficult? Could it be because the assignment is asking you to do more than recall a simple fact?

#### Exercise Task
Resources for this task include the explanations of Bloom’s levels on pages 62–63 and Figure 3.7. To help you think critically about the material in one of your courses, write six questions on a topic of your choice that you could ask in a class discussion. Write one question for each of Bloom’s levels. As an example, suppose your topic is learning styles from Chapter 2 of this book. A knowledge question might be