Unit 1 Overview
What do the diverse organisms living on Earth have in common with one another? How did this vast diversity and this similarity come to be? What does it mean to be human, and how did humans come to be? Students will begin unit 1, *Evolution: Change in Living Systems*, by considering the ways in which humans are similar to and different from other living organisms. They will examine a collection of characteristics that, taken together, make humans distinctive. As they reflect on the question of whether we are all that different from other animals, the concept of evolution will begin to surface. Students will then explore natural selection as a mechanism for evolution. This exploration will lead students to reflect again on the products of evolution—species and their adaptations—and how the relationships among species illustrate the unity and diversity of life.

As the students investigate these biological concepts, we introduce them to related curriculum subthemes that make biology meaningful. These subthemes are Science as Inquiry and Science and Humanity, which includes culture, ethics, history, and technology as a way of adapting. By weaving these subthemes throughout the program, we hope to provide the students with a relevant context within which to explore biology.

You have an opportunity to establish a community of learners in your classroom by enlisting students in cooperative learning. Ask them to work together using roles to achieve common goals, to practice using working-relationship skills, and to evaluate their teamwork. Encourage students to take responsibility for their own learning.

In this first unit, the students will begin developing their critical-thinking skills, and they will begin using these skills as they make observations, consider the characteristics of testable questions, carry out experiments, and record and analyze data. Students also will begin thinking more broadly about the nature of science as they consider the differences between evidence and inference and as they look at the relationship between new evidence and the accumulated body of scientific knowledge.

**Advance Preparation for the Unit**

There are several video activities in this unit. To ensure that these activities go smoothly, reserve the equipment well ahead of time. Familiarize yourself with the online resource arrangement you will be using before you begin this unit. You also should preview each video activity before using it in class so that you are familiar with the images and segments for that activity.

Several activities in each chapter will require that you prepare in advance. Review the *Advance Preparation* section of each chapter and the *Preparations* section of each activity before you begin the unit so that you are aware of the necessary preparations well in advance of the activity.

It is important that you plan ahead for unit 2, *Homeostasis: Maintaining Dynamic Equilibrium in Living Systems*, as well. Several activities in chapter 5, *Maintaining Balance in Organisms*, require that the students know how to use your probe ware system, if you will be using probes to make
Unit 1
Evolution: Change in Living Systems

In unit 1, you will explore change in living systems from a scientific viewpoint. The following goals will help you learn the big ideas in this unit. By the end of unit 1, you should be able to

✔ explain how humans are both similar to and distinct from other organisms,
✔ demonstrate your understanding of how evolution explains the unity and diversity of life, and
✔ use evidence to develop explanations about the living world.

UNIT CONTENTS
1 The Human Animal
2 Evolution: Change Across Time
3 Products of Evolution: Unity and Diversity

UNIT GOALS

By the end of unit 1, students should be able to

• understand that humans are both similar to and distinct from other organisms,
• understand that evolution explains the unity and diversity of life, and
• understand that in biology, evidence is used to develop explanations about the natural world.

measurements. Probe ware systems are the basis for the computer-based labs in this program. Those labs may be conducted with or without probes, but we recommend using probe ware if it is available to you. Depending on your schedule and students’ prior experience with your probe ware, you may wish to plan for some training and practice time for students before unit 2.

In estimating the time it takes to teach the activities in this program, we have assumed that students can read some of the material as homework. You are, of course, the best judge of what is appropriate for your students. Allow additional time to complete activities if you do not assign reading as homework.