

HW 1.1 The Study of Life Reinforcement

KEY CONCEPT Biologists study life in all its forms.

Biology is the scientific study of all forms of life. Living things are found almost everywhere on Earth, from very hot environments to very cold environments and from the dry deserts to the ocean floor. The types of living things found in a particular region depend on which can survive there. Those living things that can survive in an environment can differ greatly in size and shape.

All of the living things on Earth, and all of the places in which they live, make up the **biosphere**. The variety of living things in a certain area, or across the entire biosphere, is called **biodiversity**. Biodiversity can be measured in terms of the number of species in an area or across the biosphere. Although there are several definitions of the term *species*, you can think of a **species** as a certain type of living things that can reproduce by interbreeding.

At least two million species exist on Earth. Each individual living thing, no matter the species, is an **organism**. Every organism, from any species, shares certain characteristics of life.

- All organisms are made of one or more cells. A **cell** is the basic unit of life on Earth.
- All organisms need chemical energy to carry out all of their cell functions. Energy is used for **metabolism**, which is all of the chemical processes that build up or break down materials.
- All organisms respond to physical factors, or stimuli, in their environment.
- Members of a species must be able to reproduce so that the species will survive. When organisms reproduce they pass on their genetic material, which is called **DNA**, to their offspring.

1. Where do all living things on Earth exist?

2. What is one way in which biodiversity can be measured?

3. List the four characteristics of living things.

4. What is metabolism?

Section Quiz 1.1: The Study of Life

Circle the letter of the best answer.

- _____ 1. The term *biosphere* refers to the parts of Earth that contain
- a. freshwater environments.
 - b. living things.
 - c. land masses.
 - d. greater biodiversity.
- _____ 2. Which phrase best describes Earth's biodiversity?
- a. greater in consistently warm areas
 - b. greater toward Earth's poles
 - c. greater according to energy needs
 - d. greater where temperatures are most variable
- _____ 3. An individual living thing is called a(n)
- a. species.
 - b. cell.
 - c. atom.
 - d. organism.
- _____ 4. Which of these characteristics is shared by all living things?
- a. They are made up of one or more cells.
 - b. They make their own chemical energy.
 - c. They have similar responses to light.
 - d. They reproduce when one cell divides into two.
- _____ 5. The basic unit of life is
- a. the cell.
 - b. an atom.
 - c. DNA.
 - d. a species