Lesson Outline for Teaching

Lesson 2: Classifying Organisms

- **A.** Classifying Living Things
 - **1.** There have been many different ideas about how to <u>classify</u> living things.
 - 2. Aristotle placed all organisms into two large groups—plants and <u>animals</u>.
- **B.** Determining Kingdoms
 - 1. Carolus Linnaeus grouped all organisms into two main kingdoms.
 - **2.** In 1969 an American biologist proposed a five-kingdom system for classifying organisms that included kingdoms Monera, Protista, <u>Plantae</u>, Fungi, and Animalia.
- **C.** Determining Domains
 - **1.** The current system used for classifying <u>organisms</u> is called systematics. Systematics uses all the <u>information</u> that is known about organisms to classify them.
 - **2.** Organisms are classified into one of three <u>domains</u>—Bacteria, Archaea, and Eukarya—and then into one of six <u>kingdoms</u>.
- **D.** Scientific Names
 - 1. When Linnaeus grouped organisms into kingdoms, he also developed a system for naming organisms. His system of <u>binomial nomenclature</u> gives each organism a two-word scientific name, such as *Ursus arctos* for a brown bear.
 - **2.** A(n) <u>species</u> is a group of organisms that have similar traits and are able to produce fertile offspring.
 - **3.** In a scientific name, the first word is the organism's <u>genus</u>, such as *Ursus*.
 - 4. The second word in a scientific name identifies the species.
 - **5.** Similar species are grouped into one <u>genus</u>. Similar genera are grouped into <u>families</u> and then into orders, classes, phyla, kingdoms, and domains.
 - 6. Each species has its own <u>scientific name</u>, which is the same all over the world.
- E. Classification Tools
 - **1.** A(n) <u>dichotomous key</u> is a series of descriptions arranged in pairs that can be used to identify an unknown organism. The chosen description leads to another pair of descriptions or to the identification of the <u>organism</u>.
 - **2.** A(n) <u>cladogram</u> is a branched diagram that shows the relationships among organisms. New characteristics appear before each <u>branch</u>.

Discussion Question

What are some different ways organisms can be classified?

Organisms can be classified according to size, structures, cell type, habitat, the way an organism obtains food and energy, structure and function of its features, common ancestry, or some combination of these factors.