Chapter 2 Answers

2.1 Section Review

1. (1)Living things respond to their environment; (2) Living things use energy; (3) Living things are able to reproduce; (4) Living things grow and develop; (5) Living things are made of cells.
2. A cloud may qualify as a living thing because it moves as a response from the winds and it grows as moisture collects within the cloud. Ways clouds are not like living things include not being made of cells, not reproducing themselves, and not requiring energy to survive.
3. A. Nonliving; B. Living; C. Living; D. Nonliving
4. Chemical energy (food) → mechanical energy (movement) → potential energy (stored as she climbs the hill) → kinetic energy (as she goes down the hill) → heat (from brakes and friction of tires on the road).

2.2 Section Review

1. A living thing is a system because it contains many levels of organization and it has groups or factors that are related, such as parts of the body that support it to survive. Several parts have to work together for it to live. The more complex the organism, the more work that has to be done and divided up among all of the body parts.
2. Three variables that affect a living system are temperature, food the organism eats, and changes in the environment.
3. A cell is the basic unit of structure and function of a living thing.
4. A multicellular organism is made of more than one cell. Animals, plants, and fungi are examples.
5. A. Tissue - muscle is a tissue made of muscle cells; B. Organ - the heart is an organ made of several types of tissues; C. Cell - has a nucleus. D. Molecule - made of atoms.
6. Answer are:
   a. Homeostasis - increased blood flow to get more oxygen to the body cells and sweat to cool the body. Variable - running; Response - Increased blood flow and breathing.
   b. Homeostasis - Stomach signals to let you know you need food. Variable - food; Response - stomach growling.
   c. Homeostasis - Dogs need to maintain a constant body temperature. Variable - outside temperature; Response - because they have no sweat glands, dogs pant to stay cool.

2.3 Section Review

1. It is important to classify living things based on certain characteristics for identification purposes. There are millions of species, many of which are yet to be discovered and named. Having a classification system allows scientists to organize living things based on their similar characteristics and show relationships among different species.
2. Answers are:

Kingdom	Prokaryotic or eukaryotic cells?	Single-celled or multicellular?	Producers or consumers?
Eubacteria	Prokaryote	Single-celled	Both
Protista	Eukaryote	Single-celled	Both
Fungi	Eukaryote	Multicellular	Consumers
Plantae	Eukaryote	Multicellular	Producers
Animalia	Eukaryotes	Multicellular	Consumers

3. A. Animalia - it is multicellular and a consumer; B. Eubacteria or Archaebacteria - it is single-celled and does not have a nucleus; C. Protista - it is single-celled and has an organized cell structures; D. Plantae - grasses are multicellular and produce their own food.
4. Dogs and humans are in the class mammalia and then are separated into different orders (carnivora and primates). Frogs and brine shrimp are both in the Kingdom Animalia but belong to different phylums.

Connection

1. The chances that life exists in other parts of the universe are very good. There are billions of galaxies. Since the universe is so enormous, it seems logical that life exists beyond the Earth.
2. Viking sent back images that showed landforms that suggested liquid water might have existed on Mars long ago.
3. A meteorite was found in Antarctica and determined to have been Martian. It contained deposits of carbon and iron compounds similar to those associated

with bacteria on Earth. Under an electron microscope, the meteorite appeared to show fossils of ancient bacteria.

Activity

Answers will vary for this activity depending on the materials you choose. The possibilities for materials for this activity are practically endless, but here are some easy suggestions:

- paper clips: large, small, colored
- binder clips: large, small, colored
- pencils: regular full size with eraser, mechanical, golf pencil
- pens: with cap, retractable, black, blue, red ink

The number of items given to each group can vary depending on the skill level of the group and the amount of time available.

For question b, answers may vary. One scenario:

1. Does the object have three sides?
   a. Yes. This is a triangle. What kind? Go to question 2.
   b. No. Go to question 3.
2. Are all three angles of the triangle equal?
   a. Yes. This is an equilateral triangle.
   b. No. One angle looks like an L. This is a right triangle.
3. Are all four sides equal and all angles equal?
   a. Yes. This is a square.
   b. No. All the angles are equal, but two sides are longer. This is a rectangle.

Chapter 2 Assessment

Vocabulary

Section 2.1

1. organism
2. stimuli
3. response
4. cells
5. energy

Section 2.2

6. Tissues
7. Organs
8. organ systems
9. Homeostasis

Section 2.3

10. taxonomy
11. species

Concepts

Section 2.1

1. Examine if it responds to stimulus in its environment. Search out others of its kind for evidence of reproducing. Determine if it uses energy and perfoms respiration, and conduct further tests to see if it is made of cells.
2. b. growth and development
3. A person increasing their heart rate from biking is a response to a stimulus. The stimulus is the energy exerted from pedaling the bicycle and the response is increased heart rate and breathing.
4. Because zeedonks cannot reproduce more of their own kind, they would eventually die off if their population was isolated on an island. Reproduction is an important characteristic of life because it keeps a species alive.
5. a. is an example of chemical energy.

Section 2.2

6. Humans are made of cells. Different types of cells form tissues. Different tissues form organs. The heart, lungs, and brain are examples of important organs. An organ system is formed when a group of organs work together. The circulatory system relies on the heart, blood vessels, and blood to transport gases and nutrients around the body to different tissues and cells. Each organ system has a set of functions. Organs within each system have their own function. Together, all organs and organ systems work together to keep the organism alive.
7. c. an organ
8. a. the organism maintaining homeostasis.

Section 2.3

9. c. algae
10. d. class
11. Plants are multicellular while most protists are single-celled. All plants are producers. Some protists are producers while others are consumers or even both, depending on their environment.
12. c.

Math and Writing Skills

Section 2.1

1. Student responses about a pet will vary but should include the following characteristics: how the pet responds to its environment, how it grows and develops, reproduces, and how it uses and acquires energy.

Section 2.2

2. As students write a story about homeostasis, they should emphasize the ability to maintain stability or equilibrium in the system. It might be helpful to have students list activities they do during a typical day prior to the assignment. They can use their list to determine activities they do that influence homeostasis. Even as they sleep, their body systems perform functions that encourage internal balance such as maintaining constant body temperature.

Section 2.3

3. For this question, students will pretend that they are scientists who found the creature shown. They should analyze characteristics of the creature to determine what kingdom it would fit into. As students observe characteristics of the creature, they need to determine a scientific name and write about how the creature lives. They should include specific facts about the organism such as its food, habitat, and other organisms with which it interacts. Students should be creative and apply their knowledge of the characteristics of living things to their story.

Chapter Project

Products will vary. Students should find pictures or photos from the Internet. Classification should be correct from kingdom to species, including common name. The classification of the animals listed in the text is as follows:

Common name	Class	Order	Family	Genus	Species
Great Horned Owl	Aves	Strigiformes	Strigidae	Bubo	virginianus
Vampire Bat	Mammalia	Chiroptera	Desmondontidae	Desmodus	rotundus
Crocodile Newt	Amphibia	Caudata	Salamandridae	Echinotriton	andersoni
Nurse Shark	Pisces	Orectolobiformes	Ginglymostomatidae	Ginglymostoma	cirratum
Boelen's Python	Reptilia	Serpentes	Pythonidae	Marelia	boeleni
Orangutan	Mammalia	Primates	Hominidae	Pongo	pygmaeus
Raccoon	Mammalia	Carnivora	Procyonidae	Procyon	lotor
Redbelly Piranha	Pisces	Characiformes	Characidae	Pygocentrus	natterei
King Vulture	Aves	Falconiformes	Cathartidae	Sarcoramphus	papa
Snow Leopard	Mammalia	Carnivora	Felidae	Uncia	uncia
Komodo Dragon	Reptilia	Squamata	Varanidae	Varanus	komodoensis
California Sea Lion	Mammalia	Pinnipedia	Otariidae	Zalophus	californianus