

Chapter 1

Chapter 1 Project Worksheet 1 (p. 6)

Students' data tables and graphs will vary somewhat. In general, eggs will increase in size when they soak in vinegar and plain water, and they will decrease in size when they soak in liquids that have a lower concentration of water, such as salt water.

Chapter 1 Project Worksheet 2 (p. 7)

Column 4 in the table should read: 70 percent (liquid A); 92 percent (liquid B); 87 percent (liquid C); 79 percent (liquid D)

1. Liquids A and D would cause the cell to lose water; liquids B and C would cause the cell to take in water.
2. Possible answers might include shampoo, syrup, ketchup, or honey.

Section 1-1 Review and Reinforce (p. 11)

1. Hooke
2. First person to observe bacteria
3. Schleiden
4. Concluded that all animals are made up of cells
5. Virchow
6. Magnification and resolution are both important properties of a microscope. Magnification is the ability to increase how large an object appears, whereas resolution is the ability to bring the details of the object into focus.
7. An electron microscope uses electrons instead of light to magnify an object, and it can view an object with much greater magnification and resolution than a light microscope.
8. Cells are the basic unit of structure and function in living things, and all living things are composed of cells.
9. b
10. e
11. d
12. c
13. a
14. g
15. f

Section 1-1 Enrich (p. 12)

1. Transmission electron microscopes (TEM) and transmission positron microscopes (TPM) both use beams of atomic particles to view specimens. However, the TPM uses beams of positrons, which do not harm living things, whereas the TEM uses beams of electrons, which living things cannot withstand. Therefore, unlike the TEM, the TPM can be used to view living specimens.
2. Acoustic microscopes bounce high-frequency sound waves off an object. The echoes of the sound waves are then translated onto a screen as a microscopic image.
3. Transmission positron microscopes and acoustic microscopes can be used to view cells that are still alive and functioning. Electron microscopes, on the other hand, can be used to view only cells that are no longer alive.

Section 1-2 Review and Reinforce (p. 15)

1. cytoplasm
2. endoplasmic reticulum
3. nucleus
4. mitochondrion
5. cell membrane
6. Organelles
7. cell wall
8. cell membrane
9. nucleus
10. chromatin
11. cytoplasm
12. Mitochondria
13. endoplasmic reticulum
14. Ribosomes
15. Golgi bodies
16. chloroplasts
17. vacuole
18. Lysosomes

Section 1-2 Enrich (p. 16)

1. (1) builds new structures; (2) carries materials from place to place; (3) produces power; (4) produces food; (5) disposes of waste; (6) controls the rest of Cell City; (7) stores foods and water; (8) controls what enters and leaves Cell City

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