

"Cells" Unit Review Answer Key

1. **False** This statement is false because the food that is made during photosynthesis is broken down during cellular respiration. (Lesson 6)
2. **True** This statement is true because atoms join together with chemical bonds to form molecules. (Lesson 2)
3. **False** This statement is false because eukaryotic cells contain a nucleus and prokaryotic cells do not. (Lesson 1)
4. **True** This statement is true because only animal cells have lysosomes. (Lesson 3)
5. **True** This statement is true because each tissue contains similar cells that perform a common function. (Lesson 4)
6. **Answer B is correct** because only living things are made up of one or more cells. (Lesson 1)
7. **Answer B is correct** because animal cells need a constant supply of oxygen to convert food into energy. (Lesson 5)
8. **Answer B is correct** because protein synthesis, not DNA synthesis, takes place in the ribosomes. (Lesson 5)
9. **Answer D is correct** because many carbohydrates, such as sugars, are soluble in water and are the cells' main energy source. (Lesson 2)
10. **Answer C is correct** because energy is required to move materials against a concentration gradient. (Lesson 5)
11. **Answer C is correct** because the organelle shown is a mitochondrion, the site of cellular respiration. (Lesson 3)

12. Answer D is correct because the circulatory system transports nutrients to cells and removes wastes. This function is similar to that performed by the vascular tissue of plants. Xylem and phloem transport water and nutrients throughout a plant. (Lesson 4)
13. Answer A is correct because unicellular organisms have only one cell, so cell division is reproduction. Multicellular organisms grow larger by making more cells. (Lesson 1)
14. Answer C is correct because both prokaryotic and eukaryotic cells have ribosomes and cell membranes. (Lesson 1)
15. Answer C is correct because an organ is a collection of different tissues that each carry out a specialized function. (Lesson 4)
16. Answer A is correct because cell model A has the most cell membrane compared to its volume. Therefore it has the largest surface-area-to-volume ratio, allowing nutrients and water to be efficiently transported into the cell. (Lesson 5)
17. Answer A is correct because each type of cell in a multicellular organism performs a specialized function but cannot perform all functions. (Lesson 4)
18. Key Elements:
- *Dimitri likely identified the cell based on his observation of a cell wall, a central vacuole, and the presence of chloroplasts.*
 - *Dimitri is correct because none of these organelles are found in animal cells.*
 - *This cell contains chloroplasts, so can carry out photosynthesis. Animal cells cannot photosynthesize. (Lesson 3)*
19. Key Elements:
- *Water is vital for life because most of the substances important to life are dissolved in water within cells and in the body, making them easier to transport across cell membranes. As a result, many life processes require water. Without water, life's processes will stop.*

- *Extra energy from food can be stored in the body in the form of carbohydrates and fat, so an animal could continue to function for a while without taking food in. However animals cannot make water, and they cannot store it the way they can store food energy. They must take in water from an external source.* (Lesson 5)

20. Key Elements:

- *Organisms must respond to environmental changes in order to maintain a stable internal environment. This process is called homeostasis.*
- *A drop in environmental temperature is a change in the environment that an animal would have to respond to in order to maintain normal body temperature. An animal could move to a warmer spot, or a person could put on more clothes.*
- *The animal may get sick because its body is no longer able to maintain homeostasis. If there is a large change in the external environment that the organism cannot adapt to, it may die.* (Lesson 5)

21. Key Elements:

- *Photosynthesis takes place in leaves and within the chloroplasts of the leaf cells.*
- *The missing product in the photosynthesis diagram is glucose.*
- *Glucose is broken down during cellular respiration. The energy in the chemical bonds of glucose is transferred to ATP, which the cell uses to fuel its life functions.*
- *Animals cannot make their own food, so they must take it into their bodies. Non-photosynthesizing organisms do this by eating plants. Energy from plant food in the form of carbohydrates fuels life processes in animals.* (Lesson 6)