

9.1 Cellular Respiration: An Overview

Chemical Energy and Food

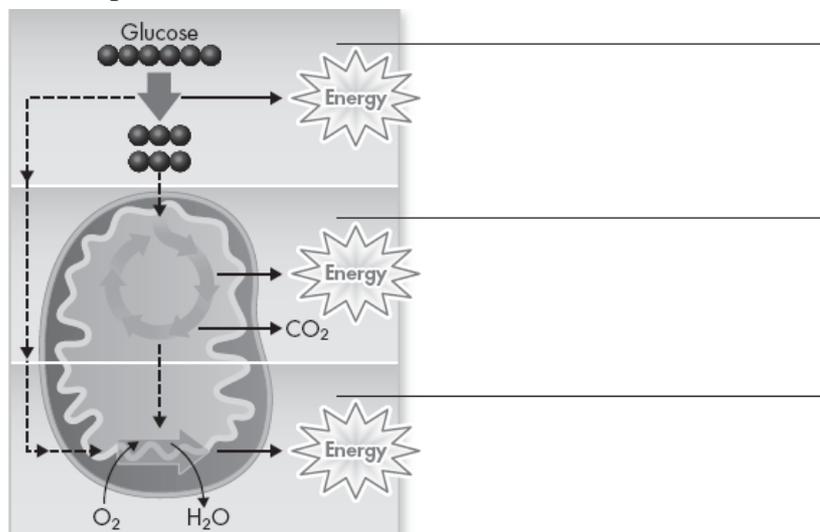
For Questions 1–4, complete each statement by writing the correct word or words.

1. A calorie is a unit of _____.
2. The Calorie used on food labels is equal to _____ calories.
3. A Calorie is also referred to as a _____.
4. Cells use the energy stored in chemical bonds of foods to produce compounds that directly power the cell's activities, such as _____.

Overview of Cellular Respiration

For Questions 5–10, complete each statement by writing the correct word or words.

5. The equation that summarizes cellular respiration, using chemical formulas, is _____.
6. If cellular respiration took place in just one step, most of the _____ would be lost in the form of light and _____.
7. Cellular respiration begins with a pathway called _____, which takes place in the _____ of the cell.
8. At the end of glycolysis, about _____ percent of the chemical energy is locked in the bonds of the _____ molecule.
9. Cellular respiration continues in the _____ of the cell with the _____ and electron transport chain.
10. The pathways of cellular respiration that require oxygen are said to be _____. Pathways that do not require oxygen are said to be _____.
11. **THINK VISUALLY** Complete the illustration by adding labels for the three main stages of cellular respiration.



Comparing Photosynthesis and Cellular Respiration

For Questions 12–15, write *True* if the statement is true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 12. The energy flow in photosynthesis and cellular respiration occurs in the same direction.
- _____ 13. Photosynthesis deposits energy in Earth’s “savings account” for living organisms.
- _____ 14. Cellular respiration removes carbon dioxide from the air.
- _____ 15. Photosynthesis takes place in nearly all life.
16. Complete the table comparing photosynthesis and cellular respiration.

| A Comparison of Photosynthesis and Cellular Respiration | | |
|---|----------------|----------------------|
| Aspect | Photosynthesis | Cellular Respiration |
| Function | energy capture | |
| Location of reactions | chloroplasts | |
| Reactants | | |
| Products | | |

Apply the Big idea

17. How does an understanding of the process of cellular respiration support the theory that the cell is the basic functional unit of life?
