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Chapter 9 Cellular Respiration

Section 9–1 Chemical Pathways (pages 221–225)

This section explains what cellular respiration is. It also describes what happens during glycolysis and describes two types of fermentation.

Chemical Energy and Food (page 221)

1. What is a calorie? _____

_____

2. How many calories make up 1 Calorie? _____

3. Cellular respiration begins with a pathway called _____.

4. Is the following sentence true or false? Glycolysis releases a great amount of energy.

_____

Overview of Cellular Respiration (page 222)

5. What is cellular respiration? _____

_____

_____

6. What is the equation for cellular respiration, using chemical formulas?

_____

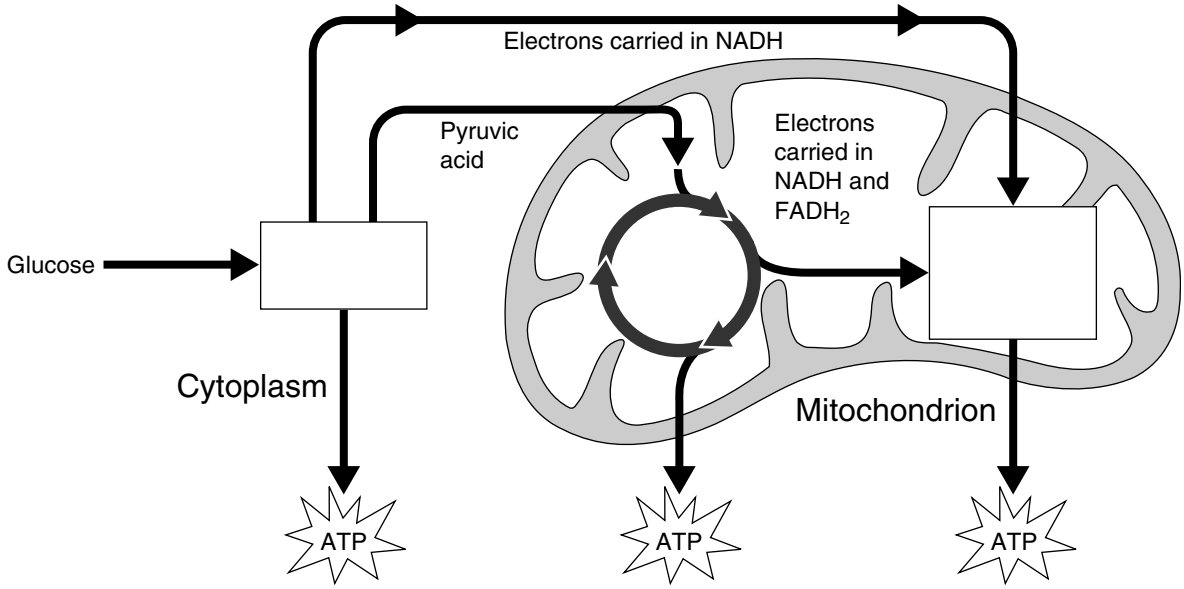
7. What would be the problem if cellular respiration took place in just one step?

_____

_____

_____

8. Label the three main stages of cellular respiration on the illustration of the complete process.



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9. Where does glycolysis take place? _____

_____

_____

10. Where do the Krebs cycle and electron transport take place? _____

_____

Glycolysis (page 223)

11. What is glycolysis? _____

_____

_____

12. How does the cell get glycolysis going? _____

_____

13. If the cell uses 2 ATP molecules at the beginning of glycolysis, how does it end up with a net gain of 2 ATP molecules? _____

_____

_____

14. What is NAD^+? _____

_____

15. What is the function of NAD^+ in glycolysis? _____

_____

_____

_____

_____

16. Why can glycolysis supply energy to cells when oxygen is not available? _____

_____

_____

17. What problem does a cell have when it generates large amounts of ATP from glycolysis? _____

_____

Fermentation (pages 224–225)

18. What is fermentation? _____

_____

_____

19. How does fermentation allow glycolysis to continue? _____

_____

20. Because fermentation does not require oxygen, it is said to be _____.

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21. What are the two main types of fermentation?

a. _____ **b.** _____

22. What organisms use alcoholic fermentation? _____

_____

23. What is the equation for alcoholic fermentation after glycolysis?

_____

24. What happens to the small amount of alcohol produced in alcoholic fermentation during the baking of bread? _____

25. What does lactic acid fermentation convert into lactic acid? _____

26. What is the equation for lactic acid fermentation after glycolysis?

_____

27. During rapid exercise, how do your muscle cells produce ATP? _____

_____

_____

Reading Skill Practice

When you read about complex topics, writing an outline can help you organize and understand the material. Outline Section 9–1 by using the headings and subheadings as topics and subtopics and then writing the most important details under each topic. Do your work on a separate sheet of paper.