Ch.9.Cellular Respiration.Biology.Landis

Who you?_____

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

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

Chemical Energy and Food (page 221)

1. Cellular respiration begins with a pathway called

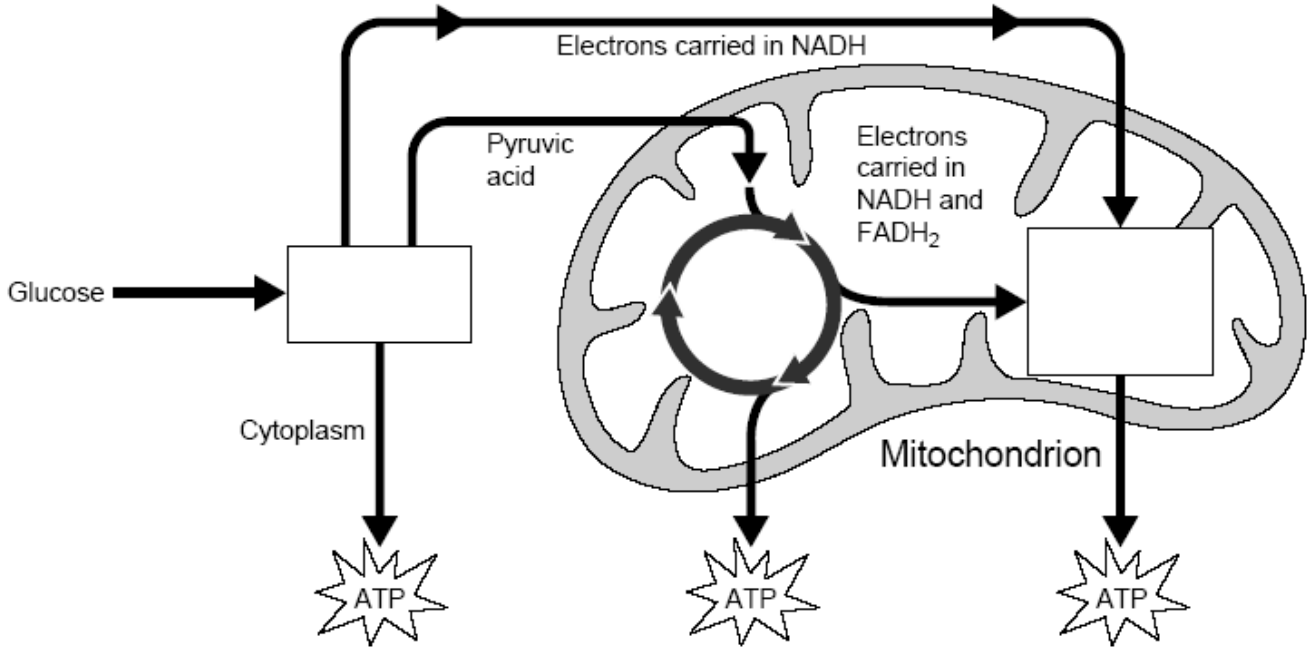
Overview of Cellular Respiration (page 222)

2. What is cellular respiration?

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

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

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



Glycolysis (page 223)

6. What is glycolysis?

7. How does the cell get glycolysis going?

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

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

Fermentation (pages 224–225)

10. What is fermentation?

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

12. What are the two main types of fermentation?

13. What organisms use alcoholic fermentation?

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

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

16. What does lactic acid fermentation convert into lactic acid?

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

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

Section 9–2 The Krebs Cycle and Electron Transport (pages 226–232)

This section describes what happens during the second stage of cellular respiration, called the Krebs cycle. It also explains how high-energy electrons are used during the third stage, called electron transport.

Introduction (page 226)

19. At the end of glycolysis, how much of the chemical energy in glucose is still unused?

20. Because the final stages of cellular respiration require oxygen, they are said to be

The Krebs Cycle (pages 226–227)

21. What happens to pyruvic acid during the Krebs cycle?

22. Where does the Krebs cycle happen?

23. What happens to the carbon dioxide produced in breaking down pyruvic acid?

Electron Transport (pages 228–229)

24. What does the electron transport chain use the high-energy electrons from the Krebs cycle for?

The Totals (page 229)

25. What is the total number of ATP molecules formed during cellular respiration?

26. Why can 18 times as much ATP be generated from glucose in the presence of oxygen than when oxygen is not available?

27. What happens to the 62 percent of the total energy of glucose that is not used to make ATP molecules?

28. What are the final waste products of cellular respiration?

Ch.9.Cellular Respiration.Biology.Landis

Energy and Exercise (pages 230–231)

29. What are the three sources of ATP a human body uses at the beginning of a race?

30. When a runner needs quick energy for a short race, what source can supply enough ATP for about 90 seconds?

31. A runner needs more energy for a longer race. How does the body generate the necessary ATP?

32. Why are aerobic forms of exercise so beneficial for weight control?

Comparing Photosynthesis and Cellular Respiration (page 232)

33. If photosynthesis is the process that "deposits" energy in a savings account," then what is cellular respiration?

34. How are photosynthesis and cellular respiration opposite in terms of carbon dioxide?

35. How are photosynthesis and cellular respiration opposite in terms of oxygen?