Name _____ Class _____ Date _____

Reviewing Key Concepts

Short Answer *On the lines provided, answer the following questions.*

1. Where do autotrophs get energy to produce food?

_____

_____

2. How do living things use ATP?

_____

_____

3. How is one molecule of ATP formed from one molecule of ADP?

_____

_____

4. How does a change from ATP to ADP provide an organism with energy?

_____

_____

5. What are two ways in which cells use the energy provided by ATP?

_____

_____

Reviewing Key Skills

6. Comparing and Contrasting What are the similarities between autotrophs and heterotrophs? What are the differences?

_____

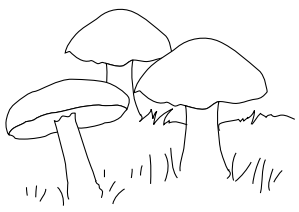
_____

_____

_____

Classifying *On the line beneath each picture, classify the organism as either an* autotroph *or a* heterotroph.

7.

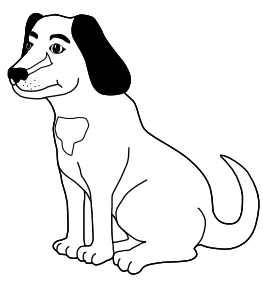


_____

8.

_____

9.



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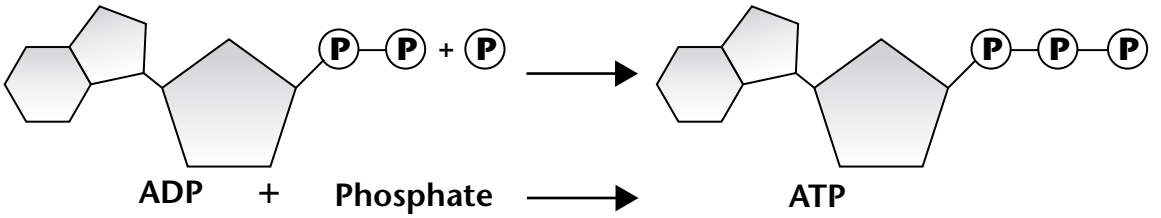
Name_____ Class _____ Date _____

ATP

ATP is the basic energy source of all cells. Energy is stored by cells when ADP is converted into ATP. Energy is released when ATP loses a phosphate and becomes ADP.

Label the energy storing *reaction and the* energy releasing *reaction.*



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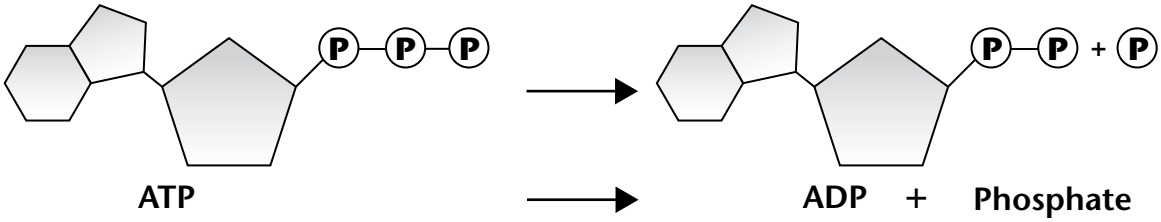


_____

Answer the questions.

1. How many phosphate groups are in one molecule of ATP?

_____

2. How many phosphate groups are in one molecule of ADP?

_____

3. What are the three parts of an ATP molecule?

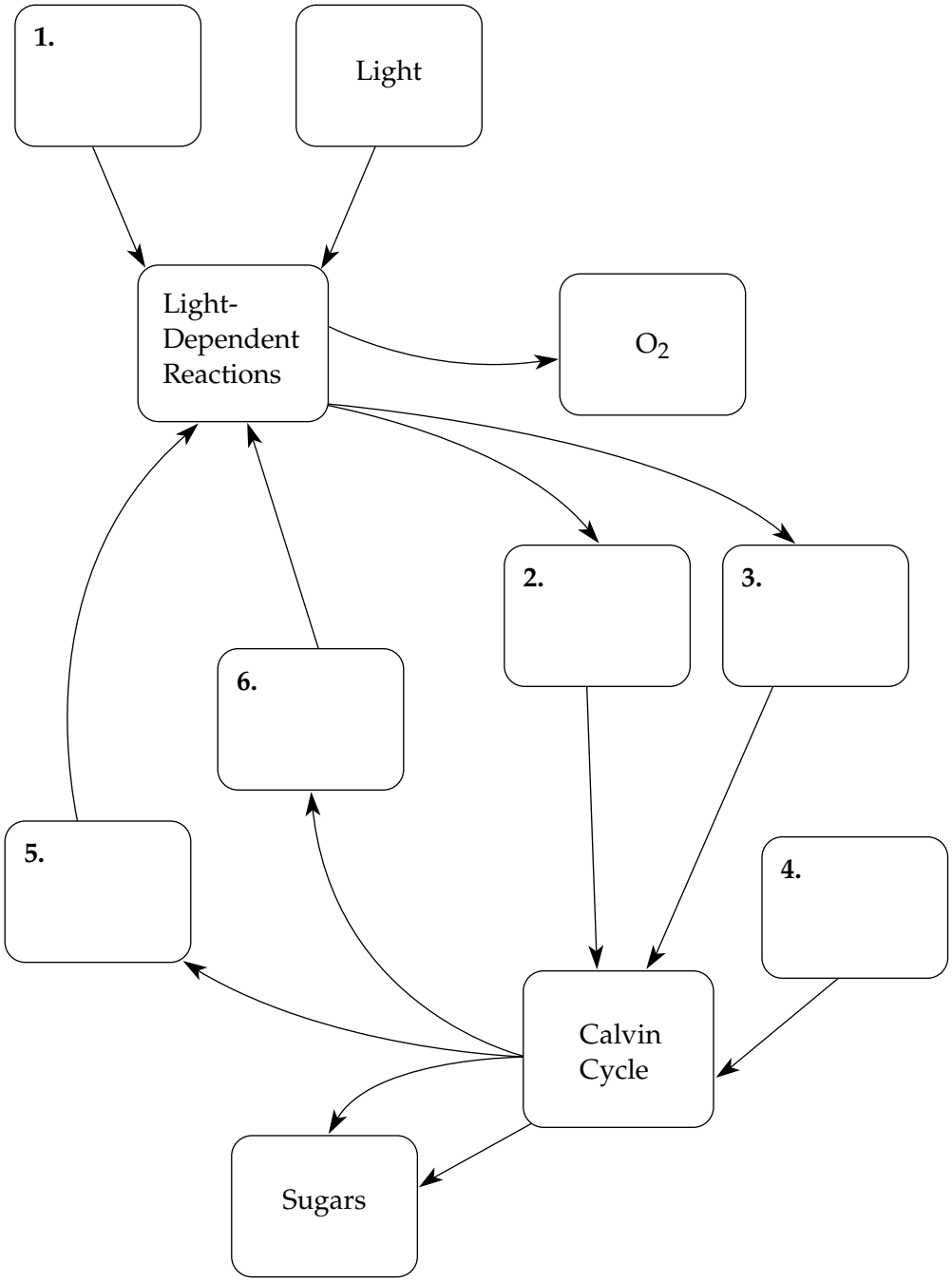
_____

Name _____ Class _____ Date _____

Flowchart

The following flowchart represents the reactions of photosynthesis. Fill in the missing information using the formulas listed below.

$NADP^+$ *ATP* *ADP + P*
H_2O *CO_2* *NADPH*



Name _____ Class _____ Date _____

Matching *Match each term with its description below. Write the letter of the correct term on the line provided.*

a. chlorophyll
b. stroma
c. pigment
d. photosynthesis
e. light-dependent reactions

_____ **11.** molecule that absorbs light

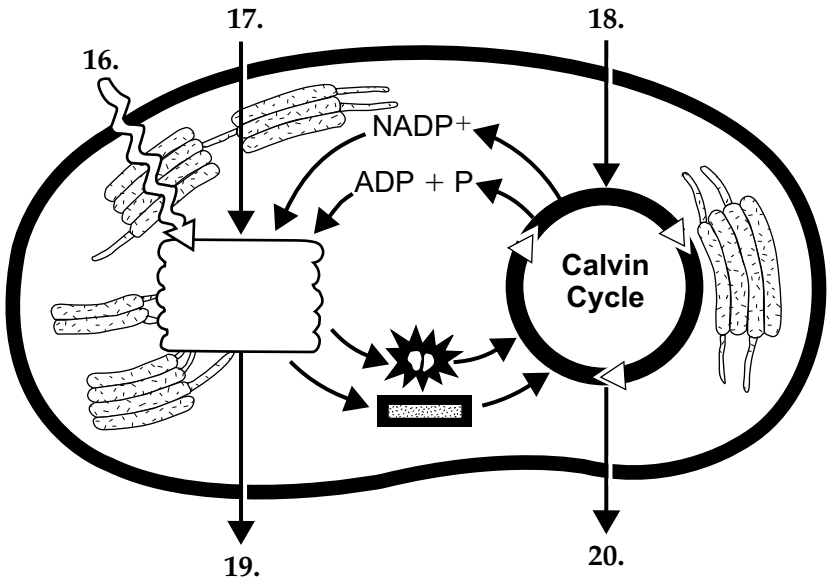
_____ **12.** produce oxygen gas and convert ADP to ATP

_____ **13.** the region outside the thylakoid membranes

_____ **14.** principal pigment found in plants

_____ **15.** process by which autotrophs use sunlight to make high-energy sugars

Labeling Diagrams *On the lines provided, write the names of the reactants and products for photosynthesis that correspond to the numbers in the diagram.*



16. _____

17. _____

18. _____

19. _____

20. _____

Name _____ Class _____ Date _____

Reviewing Key Concepts

Completion *On the lines provided, complete the following sentences.*

1. The light-dependent reactions take place within the _____ membranes.
2. The light-independent reactions are also known as the _____.
3. The energy carriers _____ and _____ are produced during the light-dependent reactions.
4. In the light-dependent reactions, the gas _____ is produced.
5. High-energy sugars are produced during the _____ reactions.
6. The light-independent reactions take place in the _____.

Reviewing Key Skills

7. **Comparing and Contrasting** How are photosystem I and photosystem II similar? How are they different?

8. **Predicting** If there is no light coming into the chloroplasts, how will this affect the Calvin cycle?

9. **Applying Concepts** What effect does weather have on the process of photosynthesis?

10. **Applying Concepts** If you place a plant in a clear, sealed box, how could you use a measurement of the gases in the boxed air to measure the rate of photosynthesis? What gas would you measure?

Name_____ Class_____ Date _____

Chapter 9 Cellular Respiration

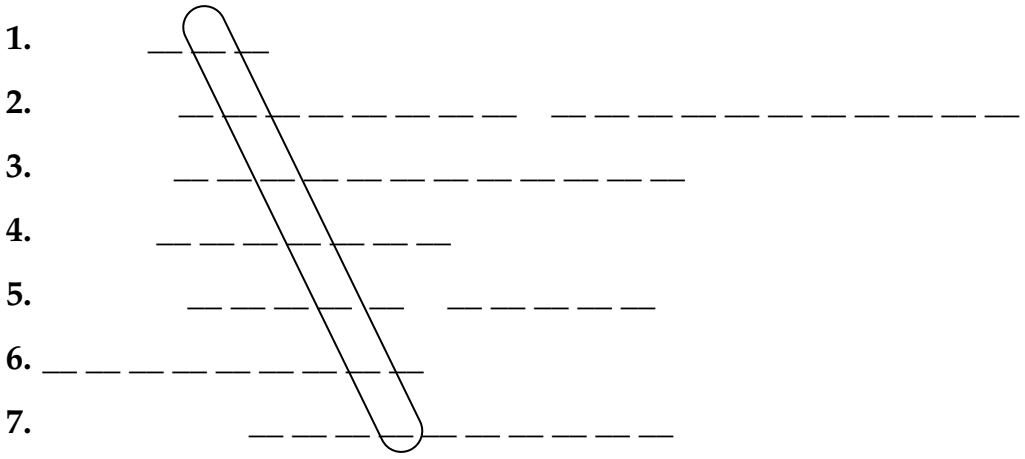
Vocabulary Review

Hidden Word *Use the clues and the words below to identify each term. Write the terms on the lines, putting one letter in each blank. When you finish, the diagonal loop will reveal a hidden word.*

anaerobic	cellular respiration	glycolysis	NAD^+
calorie	fermentation	Krebs cycle	

Clues

1. electron carrier of glycolysis
2. process that releases energy by breaking down food in the presence of oxygen
3. process that releases energy from food molecules when no oxygen is present
4. amount of energy needed to raise the temperature of 1 g of water 1°C
5. stage of cellular respiration in which pyruvic acid is broken down into carbon dioxide in a series of energy-extracting reactions
6. chemical process that does not require oxygen
7. process in which glucose is broken down into two molecules of pyruvic acid



Write the hidden word below.

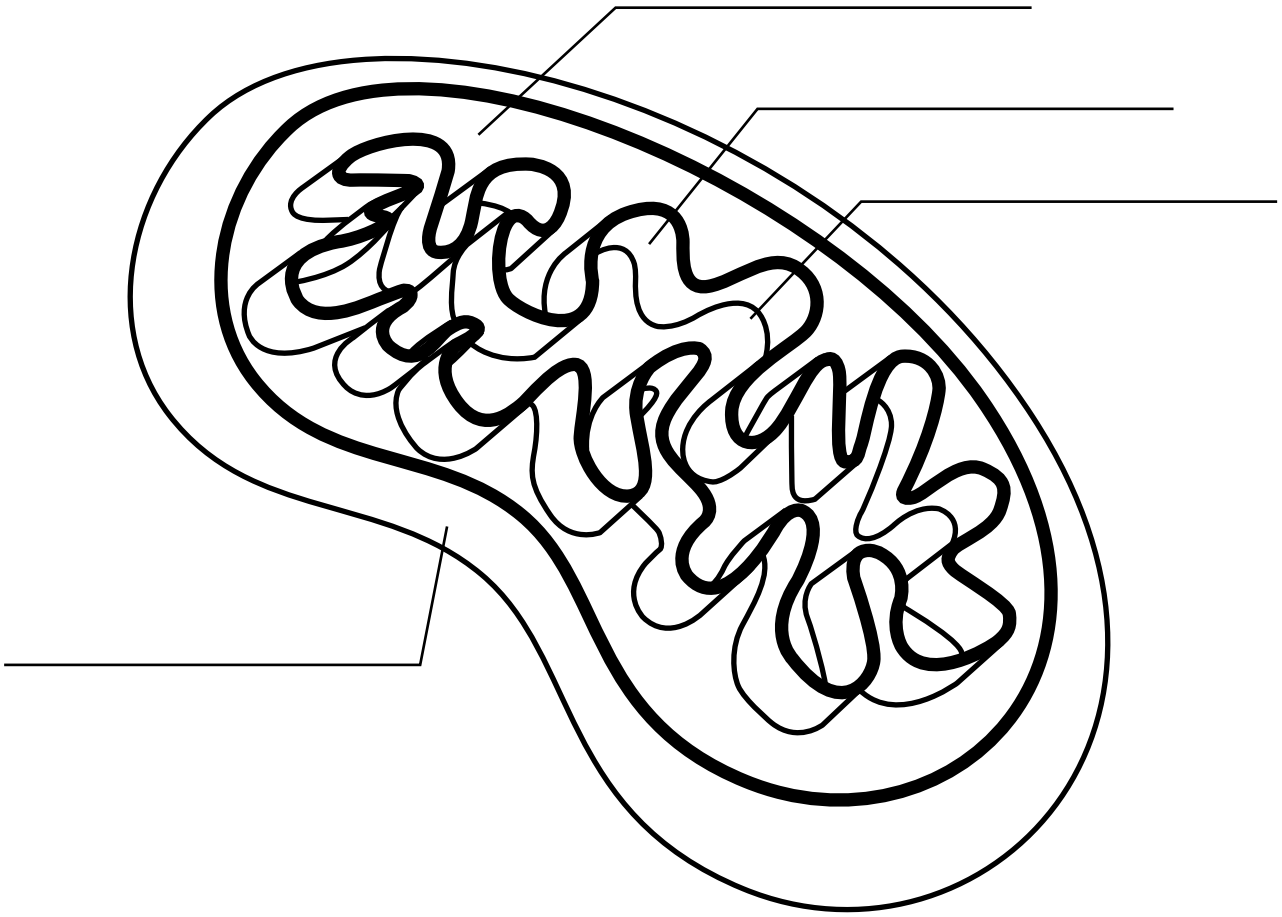
Hidden Word: _____

Name_____ Class_____ Date _____

The Mitochondrion

In plant and animal cells, the final stages of cellular respiration take place in mitochondria. A mitochondrion has two membranes. The inner membrane is folded up inside the outer membrane. The space between the inner and outer membranes is called the intermembrane space. The space inside the inner membrane is called the matrix.

Label the inner membrane, intermembrane space, matrix, *and* outer membrane.



Answer the questions. Circle the correct answer.

1. In which membrane is the electron transport chain located?

outer membrane inner membrane

Name_____ Class_____ Date _____

Cellular Respiration and Photosynthesis

Cellular respiration and photosynthesis can be thought of as opposite processes. Energy flows in opposite directions in the two processes.

Complete the table using the words below. Some cells have been completed for you. Some words may be used more than once.

carbon dioxide	energy release	mitochondria	water

	Photosynthesis	**Cellular Respiration**
Function	energy capture	
Location	chloroplasts	
Reactants		glucose; oxygen
Products	oxygen; glucose	

Use the table to answer the questions.

1. Which process releases energy for the cell? Circle the correct answer.

cellular respiration photosynthesis

2. For which reaction is $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$ the correct equation? Circle the correct answer.

cellular respiration photosynthesis

3. How do the products of photosynthesis compare to the reactants of cellular respiration?

_____