Name _____ Class _____ Date _____

Skills Worksheet

Test Prep Pretest

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ **1.** Photosynthetic organisms get energy from
- **a.** inorganic substances.
- **b.** light.
- **c.** autotrophs.
- **d.** heterotrophs.

_____ **2.** Which of the following correctly sequences the flow of energy?
- **a.** bacteria, fungus, rabbit
- **b.** bacteria, sun, flower, deer
- **c.** sun, grass, rabbit, fox
- **d.** sun, hawk, mouse

_____ **3.** ATP molecules
- **a.** produce NADPH.
- **b.** contain five phosphate groups.
- **c.** can both store energy and provide it for metabolic reactions.
- **d.** help a plant produce carbon dioxide.

_____ **4.** In glycolysis,
- **a.** aerobic processes occur.
- **b.** four ATP molecules are produced.
- **c.** four ADP molecules are produced.
- **d.** glucose is produced.

_____ **5.** Which of the following environmental factors does NOT directly influence the rate of photosynthesis?
- **a.** light intensity
- **b.** oxygen concentration
- **c.** carbon dioxide concentration
- **d.** temperature

_____ **6.** Carbon dioxide fixation in the Calvin cycle requires
- **a.** ATP and NADPH.
- **b.** ATP and $NADP^+$.
- **c.** ADP and NADPH.
- **d.** ATP and oxygen.

_____ **7.** When this gas is available, aerobic respiration follows glycolysis.
- **a.** carbon dioxide
- **b.** oxygen
- **c.** hydrogen
- **d.** water vapor

Question 8 refers to the chemical equation below.

$$3CO_2 + 3H_2O \xrightarrow{\text{light}} C_3H_6O_3 + 3O_2$$

_____ **8.** This equation summarizes the overall process of
- **a.** cellular respiration.
- **b.** photosynthesis.
- **c.** the Calvin cycle.
- **d.** the Krebs cycle.

_____ **9.** Which of the following is NOT part of cellular respiration?

a. electron transport chain **c.** Krebs cycle
b. glycolysis **d.** Calvin cycle

_____**10.** Electrons in pigment molecules become excited

a. when light strikes a thylakoid.
b. when water molecules are broken down.
c. during light-independent reactions.
d. during the Calvin cycle.

Complete each statement by writing the correct term or phrase in the space provided.

11. The carrier protein that transports hydrogen ions across thylakoid membranes and produce ATP acts as both a(n) _____ _____ and a(n) _____ .

12. The _____ _____ is the most common method of carbon dioxide fixation.

13. Aerobic respiration occurs in the _____ of eukaryotic cells.

14. Plants use sugars produced during _____ to make organic compounds.

15. During photosynthesis, light energy is converted to _____ energy.

16. During anaerobic processes, NADH transfers electrons to the pyruvate produced during _____ .

17. Glycolysis is a biochemical pathway that breaks down a six-carbon glucose molecule to two three-carbon _____ .

18. During aerobic respiration, pyruvate is first converted to acetyl-CoA, which enters the _____ _____ .

19. During cellular respiration, a cell produces most of its energy through _____ respiration.

20. Light-absorbing _____ are located in the membranes of _____ .

Read each question, and write your answer in the space provided.

21. Explain how the metabolism of heterotrophs differs from that of autotrophs.

22. Explain how ATP provides energy for cells.

23. Briefly explain how ATP is produced by electron transport chains during photosynthesis.

24. Describe how environmental factors affect the rate of photosynthesis.

25. Explain the benefits and uses of lactic acid fermentation and alcoholic fermentation.

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Skills Worksheet

Concept Mapping

Using the terms and phrases provided below, complete the concept map showing the characteristics of cellular respiration.

anaerobic process	glucose	NAD^+
electron transport chain	glycolysis	pyruvate
fermentation	Krebs cycle