

# Biological Energy Unit Practice Test

## I can identify the reactants and products for cellular respiration and photosynthesis.

1. Plants use a chemical reaction to create sugar in the presence of sunlight. What are two reactants of this equation?

- A. Water and carbon dioxide
- B. Water and oxygen
- C. Carbon dioxide and nitrogen
- D. Carbon dioxide and oxygen

2. What is the purpose of cellular respiration?

- A. To make food for your cells.
- B. To convert food into energy.
- C. To convert energy into food.
- D. To help you breathe.

3. Photosynthesis helps plants convert energy from which form to which?

- A. Heat to mechanical
- B. Electromagnetic (radiant) to mechanical
- C. Heat to chemical
- D. Electromagnetic (radiant) to chemical

4. Chlorophyll is an important chemical. Which of the following is NOT true about chlorophyll?

- a. It helps to make plants green
- b. It changes sunlight into sugar
- c. It helps perform photosynthesis
- d. It is used by animals.

5. Where does photosynthesis take place in cells?

- a. chloroplasts
- b. mitochondria
- c. a and b
- d. none of the above


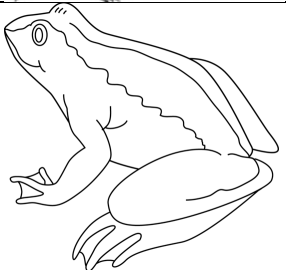
6. Which of the following is the correct version of the cellular respiration equation? Hint: Remember what respiration produces and what it uses.

- a.  $C_6H_{12}O_6 \rightarrow ATP + 6O_2 + 6CO_2 + 6H_2O$
- b.  $C_6H_{12}O_6 + 6O_2 \rightarrow ATP + 6CO_2 + 6H_2O$
- c.  $C_6H_{12}O_6 + 6CO_2 \rightarrow ATP + 6H_2O + 6O_2$
- d.  $C_6H_{12}O_6 + 6O_2 + 6CO_2 \rightarrow ATP + 6H_2O$

7. Below is a chemical equation you should be familiar with from class. Which chemical belongs in the empty space?



- a. sugar
- b. oxygen
- c. carbon dioxide
- d. energy

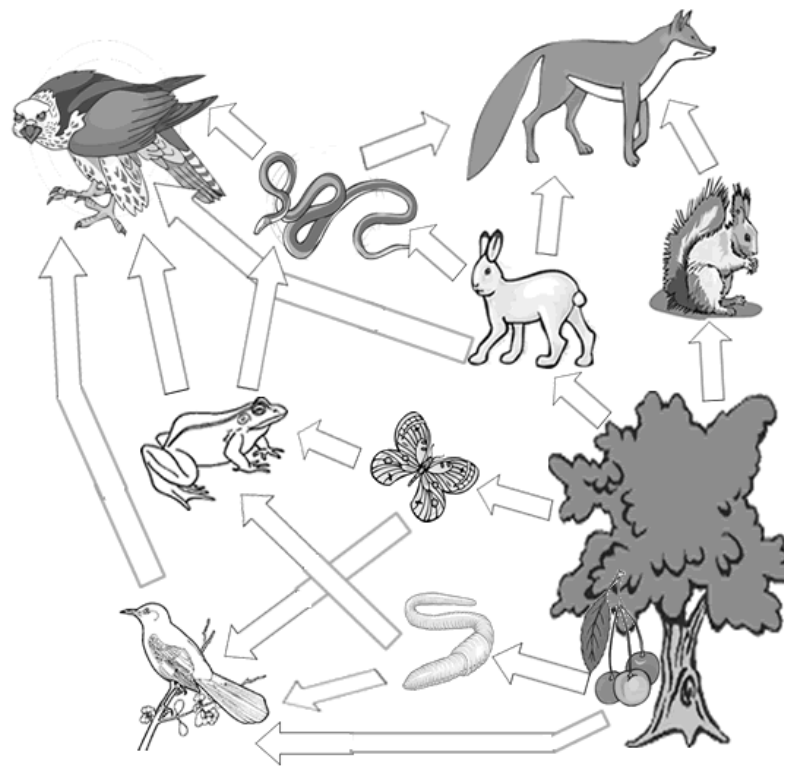
Organism	Producer or consumer?	Chemical reaction(s) that take place in its cells	Things this organism's cells need/use	Things this organism's cells produce/release
	8.	9. cellular respiration photosynthesis both	10.	11.
	12.	13. cellular respiration photosynthesis both	14.	15.

16. Name the producer(s) in the food web to the right.

17. Which type of consumer would the frog be?

18. Which type of consumer would the small bird be?

19. List one food chain from this food web (don't forget to use arrows).



20. The sun shines 400 units of energy down on a plant. The plant uses some of this energy and is eaten by a mouse. A snake then eats the mouse.. How many units of energy does the snake get?

21. Which of the following is NOT a result of wolves being reintroduced to Yellowstone National Park?

- a. There are more elk
- b. Trout once again live in the rivers
- c. Beavers and otters have returned
- d. Bears and eagles have more food

22. True / False      Natural extinction and human caused extinction have the same effects on an ecosystem.

23. Which of the following is not true about acid rain?
- a. It can be caused by pollution put out by cars and factories
  - b. It damages the soil by adding chemicals to it
  - c. It only affects animal species that live in the water
  - d. It damages trees and reduces plant growth

**Identify the following as mutualism (M), commensalism (C), or parasitism (P) (1/2 point each)**

24. \_\_\_\_\_      Sometimes a crocodile opens its mouth and lets a bird jump in. The bird eats the food between the crocodile's teeth. The crocodile's teeth are much cleaner after this.
25. \_\_\_\_\_      Small fish called a remoras attach themselves to sharks and eat the scraps that are left over when the shark eats.
26. \_\_\_\_\_      Some birds lay their eggs in the nest of another bird. The other bird must raise the chicks that hatch. Sometimes these chicks push the bird's eggs out of the nest and kill them.
27. \_\_\_\_\_      Ticks live on animals. They suck their blood and sometimes carry diseases that make the animals sick.
28. \_\_\_\_\_      Birds love to eat strawberries. When the seeds of the strawberry pass through the digestive track of the bird, the seeds grow really well.
29. \_\_\_\_\_      Dung beetles live around cattle. When the cattle leave droppings, the dung beetle rolls it up and takes it home to use as food.

30. Which of the following is NOT true about energy pyramids?
- A. The amount of energy decreases as you move up.
  - B. Producers are always on the bottom.
  - C. The number of organisms decreases as you move up.
  - D. Animals always get bigger as you go up.

31. True / False      Carrying capacity is the number of organisms that can fit in an environment.

32. Which of the following **best** describes the difference between predators and parasites?
- a. Predators always kill their victims, parasites never do.
  - b. Predators get food from their victims, parasites do not.
  - c. Parasites typically don't kill the other organism unless they don't need it anymore.
  - d. Parasites and predators always get food from their victims, just in different ways.