Name _____ Date _____

Producers, Consumers and Decomposers in a Forest

Directions: For the questions about the oak forest and the leaf test, use the passage and the table. Answer the other questions using what you know about producers, consumers and decomposers.

Who Uses the Oak Leaves?

Use the passage and the table to answer these questions.

Every living thing needs food. Food gives it energy and the materials to build its body. Living things get food in different ways.

An oak tree is a producer, a living thing that makes its own food. Its leaves use light energy to turn carbon dioxide and water into sugar. The tree also takes in water from the soil, along with minerals called nutrients that it needs to grow.

A caterpillar that chews oak leaves is a consumer. A consumer cannot make its own food, so it gets energy by eating other living things. This caterpillar eats only plants, which makes it an herbivore. A spider that catches and eats the caterpillar is also a consumer. Because it eats animals, it is a carnivore.

When oak leaves fall, decomposers go to work. Decomposers, such as many fungi and bacteria, break down dead plants, dead animals and wastes. As they do, they release nutrients into the soil, where plant roots can take them up again.

A class tested what decomposers do. They filled 8 tubs with the same forest soil. They heated the soil in 4 of the tubs in an oven to kill the living things in it, then let it cool. On each tub, they set a mesh bag holding 10.0 grams of dry oak leaves. All 8 tubs were kept moist and at room temperature for 8 weeks. Then the class dried the leaves and weighed them again.

Mass of oak leaves left after 8 weeks (each bag started with 10.0 grams)

Tub	Soil	Mass of leaves left (g)
1	Not heated	7.8
2	Not heated	8.2
3	Not heated	7.9
4	Not heated	8.1
5	Heated	9.6
6	Heated	9.7
7	Heated	9.5
8	Heated	9.6

1. Match each term to its meaning.

Write the letter of the matching answer on each line.

1. _____ Producer
2. _____ Consumer
3. _____ Decomposer
4. _____ Herbivore
5. _____ Carnivore

A. A consumer that eats mainly plants
B. A consumer that eats mainly animals
C. A living thing that gets energy by eating other living things
D. A consumer that eats both plants and animals
E. A living thing that breaks down dead matter and wastes
F. A living thing that makes its own food

2. As the passage uses the word, what are nutrients?

A. Dead leaves lying on the forest floor
B. The light energy that leaves capture
C. Sugars that a tree makes in its leaves
D. Minerals from the soil that a plant needs to grow

3. Which statement about the oak tree's food is correct, according to the passage?

A. The oak gets its food by eating the caterpillars on its leaves.
B. The oak takes in its food from the soil through its roots.
C. The oak's food comes from decomposers breaking down its leaves.
D. The oak makes its food, sugar, from carbon dioxide and water using light energy.

4. The spider gets energy by eating the caterpillar. Based on the passage, where did that energy first come from?

A. Sugar that the caterpillar made in its own body
B. Nutrients in the forest soil
C. The decomposers in the soil
D. Light energy that the oak's leaves captured

5. In the leaf test, what did the class change on purpose?

A. The mass of leaves left at the end
B. Whether the soil had been heated to kill its living things
C. How long the bags sat on the soil
D. The mass of leaves in each bag at the start

6. What was the mean mass of oak leaves left in the 4 tubs whose soil was not heated?

_____ g

7. Which claim does the evidence from the leaf test support?

A. In this test, oak leaves lost more mass on unheated soil than on heated soil.

B. In this test, heating the soil added more decomposers to it.

C. All dead leaves everywhere break down completely within 8 weeks.

D. In this test, leaves on heated soil lost no mass at all.

8. Suppose a forest had no decomposers at all. Based on the passage, what would most likely happen over many years?

A. The spiders would start making their own food.

B. Dead leaves would pile up, and the soil would run low on nutrients for plants.

C. Dead leaves would break down just as fast on their own.

D. Plants would grow faster, because no decomposers would use up the nutrients.

9. Green algae floating in a pond use light energy to make sugar. Which role do these algae play in the pond?

A. Decomposer B. Consumer C. Producer D. Carnivore

10. A fungus grows on a fallen, dead log and slowly softens the wood as it feeds on it. Its mushrooms poke up from the bark like small plants. Which role does this fungus play?

A. Producer, because its mushrooms grow up from the log like plants

B. Decomposer, because it feeds on dead wood and breaks it down

C. Herbivore, because it eats wood from a tree

D. Carnivore, because it feeds on another living thing