

Name _____

Date _____

The Frog That Forgot to Breathe

Read the story carefully. Then answer the questions.

On a chilly April morning, Elliana and Ari joined a nature walk near Browns Lake. Their guide, Ms. Rivera, had posted a sign beside the trail: FIND THE FROG THAT FORGOT TO BREATHE. Ari stared at it. "I forget my water bottle," he said, "but breathing seems harder to forget."

The twins searched beneath ferns, beside logs, and around a shallow woodland pool. Elliana finally spotted a brown frog tucked under damp leaves. It did not move. Ari leaned closer, but Ms. Rivera asked them to watch without touching. "This is a wood frog," she said. "During winter, one like this can look completely lifeless."

Wood frogs do not spend the whole winter swimming under ice. Many shelter close to the ground beneath leaves. When their bodies freeze, they can have no detectable heartbeat, breathing, blood flow, muscle movement, or brain activity. They are not zombies, and they are not truly dead. They are using an amazing survival trick called freeze tolerance.

Ms. Rivera explained that much of the frog's body water can turn to ice, mainly in spaces outside its cells. As freezing begins, the liver quickly releases large amounts of glucose, a kind of sugar. The frog also builds up urea. These substances act as cryoprotectants. They help protect cells from damage and from losing too much water while ice forms around them.

"So the frog fills itself with pancake syrup?" Ari asked. "Not exactly," Ms. Rivera laughed. "It makes its own protective sugar. Please do not pour breakfast on wildlife." Elliana wrote in her notebook that the sugar does not keep the entire frog warm. Instead, it helps the living cells survive the freeze.

When spring warms the ground, a frozen wood frog thaws and its body systems begin working again. It then travels to a temporary spring pool to breed. These pools are useful because many dry later in the year and often have no fish waiting to eat frog eggs. Wood frogs can reach them very early, sometimes while patches of snow remain nearby.

The little frog's front foot twitched. Then it pushed through the leaves and hopped toward the pool. Ari jumped backward and nearly landed in the mud. "It remembered!" he shouted. Elliana corrected him. The frog had never forgotten to breathe. It had safely paused almost everything until the cold was over. The title was a trick, but the science was even stranger than the joke.

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Circle the best answer.

Questions 1-10

1. What is the main idea of the story?

- A. The twins learn how wood frogs survive winter freezing.
- B. The twins teach a frog how to breathe underwater.
- C. Ms. Rivera makes pancakes beside Browns Lake.
- D. Ari searches for a lost water bottle.

6. In the story, "detectable" most nearly means -

- A. able to be noticed or measured.
- B. ready to hop very far.
- C. hidden beneath deep water.
- D. warm enough to melt snow.

2. What happened first?

- A. The frog hopped toward the pool.
- B. Ms. Rivera posted a surprising trail sign.
- C. Elliana wrote about protective sugar.
- D. Ari nearly landed in the mud.

7. Why are temporary spring pools useful for frog eggs?

- A. They often have no fish waiting to eat the eggs.
- B. They are always warmer than every lake.
- C. They are filled with protective sugar.
- D. They never dry later in the year.

3. Where did Elliana find the wood frog?

- A. Under damp leaves
- B. At the bottom of the lake
- C. Inside Ari's water bottle
- D. On top of the trail sign

8. Which word best describes the twins?

- A. Curious
- B. Angry
- C. Dishonest
- D. Careless

4. Which body part releases protective glucose?

- A. The liver
- B. The front foot
- C. The lungs
- D. The skin

9. Which event happened last?

- A. The twins read the trail sign.
- B. Elliana found the frog under leaves.
- C. Ms. Rivera explained cryoprotectants.
- D. The frog hopped toward the pool.

5. How do glucose and urea help the frog?

- A. They protect cells during freezing.
- B. They make the frog breathe underwater.
- C. They turn leaves into food.
- D. They keep the whole pond warm.

10. What is the author's main purpose?

- A. To entertain readers while sharing surprising wood frog facts
- B. To persuade readers to pour syrup on frogs
- C. To explain how to build a woodland pool
- D. To prove that all frogs freeze in winter

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Lesson 10 Answers

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1. A

6. A

2. B

7. A

3. A

8. A

4. A

9. D

5. A

10. A