Pond Life Detectives

Compare how three protists move and get energy.

L.6.4.4 "Conduct investigations using a microscope or multimedia source to compare the characteristics of protists (euglena, paramecium, amoeba) and the methods they use to obtain energy and move through their environment (e.g., pond water)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline how each protist moves, circle clues about how it gets energy, and number the protists in the order they appear so you can compare them.

Three Lives in a Drop

1. A drop of pond water can hold three very different protists. To investigate them, place a drop on a slide and watch it through a microscope, or pause a close-up video of pond life. First look for a green, spindle-shaped euglena. A long, whip-like flagellum pulls it through water. Green structures called chloroplasts capture light for photosynthesis, which makes sugars the cell can use for energy. Some euglena can also absorb dissolved nutrients when light is limited. Green color is a clue, not proof that photosynthesis is happening right now.

2. Next, look for a paramecium, which has a more steady, slipper-like shape. Many short hairs called cilia beat in waves, pushing it forward and helping sweep food into an opening called an oral groove. The paramecium eats tiny organisms, such as bacteria, instead of making sugars from sunlight. In a video, you may see it turn quickly when it meets an obstacle. Compare its many beating cilia with euglena's single long flagellum. Both swim, but the moving parts and ways they obtain energy differ.

3. An amoeba looks like a changing blob rather than a fixed slipper or spindle. It extends part of its cell into a temporary arm called a pseudopod, then flows into that arm to move. Pseudopods can also wrap around a smaller organism and bring it inside as food. To compare all three fairly, watch each for the same amount of time. Record the body shape, the moving part, and any signs of feeding or green chloroplasts. A movement you see is an observation; a claim about energy based on it is an inference.

2 ANSWER WITH EVIDENCE

Use the passage

1. How do an amoeba and a paramecium differ in shape and movement?

2. How do a euglena and a paramecium differ in how they obtain energy? Include one clue you could look for in each.

3. A protist wraps part of its body around a smaller organism. Which of the three is it most likely to be? How does that same body part help it move?

4. Why does seeing a green euglena in dim light not prove it is making sugar at that moment? How else might it obtain nutrients?

3 YOUR TURN

Your own words

Design a four-sentence investigation using a microscope or pond-water video. Explain how you would observe all three protists fairly, what you would record about their movement and possible energy sources, and how you would tell an observation from an inference.

ANSWER KEY

Pond Life Detectives

GRADE 6 · L.6.4.4

PART 1 · READ AND MARK

Underline how each protist moves, circle clues about how it gets energy, and number the protists in the order they appear so you can compare them. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How do an amoeba and a paramecium differ in shape and movement?	**An amoeba changes shape and moves by extending pseudopods. A paramecium keeps a steadier, slipper-like shape and swims using beating cilia.**
2	How do a euglena and a paramecium differ in how they obtain energy? Include one clue you could look for in each.	**A euglena can make sugars using light; green chloroplasts are a clue. A paramecium eats tiny organisms; food being swept into its oral groove is a clue.**
3	A protist wraps part of its body around a smaller organism. Which of the three is it most likely to be? How does that same body part help it move?	**It is most likely an amoeba. Its pseudopods wrap around food and also extend so the cell can flow into them.**
4	Why does seeing a green euglena in dim light not prove it is making sugar at that moment? How else might it obtain nutrients?	**Its green chloroplasts show that it can use light, not that photosynthesis is happening at that moment. It may absorb dissolved nutrients.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would watch each protist for the same two minutes in a pond-water video. I would record its shape, moving parts, green structures, and any feeding I could see. I would compare euglena's flagellum, paramecium's cilia, and amoeba's pseudopods, then use the other clues to suggest how each gets energy. I would label photosynthesis as an inference because seeing chloroplasts does not show sugar being made.

Accept equivalent descriptions of movement and energy sources. In the investigation plan, look for a fair viewing method, observations for all three protists, and a clear distinction between a visible clue and an inference about energy.