Pond Life Detectives

Classify organisms using shared traits

L.6.4.2 "Use classification methods to explore the diversity of organisms in kingdoms (animals, plants, fungi, protists, bacteria). Support claims that organisms have shared structural and behavioral characteristics."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline traits that help group or separate organisms, and circle the kingdom names linked to those traits.

Who Lives at the Pond?

1. At the edge of a pond, a floating duckweed plant and a pond snail may look like neighbors, but scientists sort them into different kingdoms. Both have many cells with nuclei. Duckweed makes its own food using sunlight and floats on the water's surface with tiny roots hanging below. A snail eats other organisms and crawls with a muscular foot. Nearby, a cattail also makes food using sunlight, while a water beetle eats and moves. These shared structures and actions help place duckweed and cattail with plants, and snail and beetle with animals.

2. On a damp log, shelf fungi and fuzzy molds belong to the fungi kingdom. Their cells have nuclei, and both take in nutrients from material around them rather than making food from sunlight. Both release spores. In a drop of pond water, a paramecium is a single-celled protist with a nucleus. It swims using rows of tiny hairlike structures called cilia and takes in food particles. An amoeba is another single-celled protist with a nucleus, but it moves by changing its shape. Protists do not all move the same way.

3. Now look at the slimy coating on a pond rock. Some bacteria there are single cells that lack a nucleus. Certain kinds use sunlight to make food; others take in nutrients from their surroundings. Some swim using a long, whiplike flagellum, while others cannot swim. A paramecium also has one cell, but its nucleus separates it from bacteria. Shelf fungi and some bacteria both absorb nutrients, yet fungal cells have nuclei and bacterial cells do not. To classify an organism, compare several traits, not just one.

2 ANSWER WITH EVIDENCE

Use the passage

1. What shared way of getting food supports grouping duckweed and cattail as plants?

2. How do the snail and water beetle share behaviors that support grouping them as animals instead of plants?

3. Name two shared traits that support grouping shelf fungi and fuzzy molds in the fungi kingdom.

4. A paramecium and a bacterium can each have one cell. What cell structure separates them into different kingdoms?

3 YOUR TURN

Your own words

Invent a pond organism not named in the passage. Describe its cell structure and how it gets food or moves, then choose a kingdom and explain how its traits support your choice.

ANSWER KEY

Pond Life Detectives

GRADE 6 · L.6.4.2

PART 1 · READ AND MARK

Underline traits that help group or separate organisms, and circle the kingdom names linked to those traits. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What shared way of getting food supports grouping duckweed and cattail as plants?	**Both make their own food using sunlight.**
2	How do the snail and water beetle share behaviors that support grouping them as animals instead of plants?	**Both eat other organisms and move. The plants described make food using sunlight.**
3	Name two shared traits that support grouping shelf fungi and fuzzy molds in the fungi kingdom.	**Both take in nutrients from material around them, and both release spores. Both also have cells with nuclei.**
4	A paramecium and a bacterium can each have one cell. What cell structure separates them into different kingdoms?	**A paramecium has a nucleus, but a bacterium does not.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

My invented organism is a six-legged pond hunter with many cells that have nuclei. It swims with its legs and eats tiny prey instead of making food from sunlight. I classify it as an animal because its cell structure and feeding behavior fit the animals described in the passage.

Accept invented organisms with plausible traits that support the chosen kingdom. Students should use more than one trait as evidence.