

Kingdom Connections

Trace how kingdom traits support an ecosystem.

7.14.B “describe the characteristics of the recognized kingdoms and their importance in ecosystems such as bacteria aiding digestion or fungi decomposing organic matter.”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline one characteristic for each kingdom, and circle each phrase that tells how a kingdom helps an ecosystem. Use your marks to connect traits with ecosystem roles.

Life Along a Streambank

- ① Scientists often group living things into six kingdoms. Archaea are single-celled organisms whose cell walls lack peptidoglycan. Many live in ordinary places, although some tolerate very salty, hot, or oxygen-free conditions. Eubacteria are also single-celled and have cell walls containing peptidoglycan. Both groups include organisms that can break down materials or use chemicals for energy. In a streambank ecosystem, bacteria recycle nutrients, and some bacteria in animal intestines help digest food for their hosts each day.
- ② Plants are multicellular organisms that usually make their own food by photosynthesis. Their cell walls contain cellulose, and they provide food and oxygen for many other organisms. Animals are multicellular consumers that eat other organisms. Animal cells do not have cell walls, and most animals can move at some point in life. Protists are a diverse kingdom. Some, such as algae, make food and form the base of pond food chains, while others eat organisms or absorb nutrients.
- ③ Fungi, including mushrooms and molds, are usually multicellular, but yeast is single-celled. Fungi do not make food by photosynthesis. They absorb nutrients after releasing enzymes onto dead leaves, fallen logs, and other organic matter. As decomposers, fungi return nutrients to soil and water, where plants and other organisms can use them. No kingdom works alone. Producers supply energy-rich food, consumers transfer energy, and decomposers recycle matter, helping an ecosystem continue to function well over time.

2 ANSWER WITH EVIDENCE Use the passage

1 What cell-wall feature distinguishes archaea from eubacteria?

2 State two characteristics of plants and one way plants help other organisms in an ecosystem.

3 How can different protists play different roles in a pond food chain?

4 Explain how fungi change dead organic matter into something plants can use.

3 YOUR TURN Your own words

Invent a small ecosystem, such as a garden, pond, or forest floor. Write exactly three sentences that name organisms from three kingdoms, give one characteristic and one ecosystem role for each organism, and explain one connection among them.

PART 1 • READ AND MARK

Underline one characteristic for each kingdom, and circle each phrase that tells how a kingdom helps an ecosystem. Use your marks to connect traits with ecosystem roles. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What cell-wall feature distinguishes archaea from eubacteria?	Archaea have cell walls that lack peptidoglycan. Eubacteria have cell walls containing peptidoglycan.
2	State two characteristics of plants and one way plants help other organisms in an ecosystem.	Plants are multicellular, usually make food by photosynthesis, and have cell walls containing cellulose. They provide food and oxygen for other organisms.
3	How can different protists play different roles in a pond food chain?	Algae make food and form the base of pond food chains. Other protists eat organisms or absorb nutrients.
4	Explain how fungi change dead organic matter into something plants can use.	Fungi release enzymes onto dead organic matter and then absorb nutrients. As decomposers, they return nutrients to soil and water, where plants can use them.

PART 3 • YOUR TURN (SAMPLE ANSWER)

In a garden, a tomato plant is a multicellular plant with cellulose cell walls, and it makes food by photosynthesis. An earthworm is a multicellular animal without cell walls, and it eats organic material. A mushroom is a fungus that absorbs nutrients from dead material, returning nutrients to the soil that help the tomato plant grow.

Accept equivalent accurate kingdom characteristics and ecosystem roles. For Part 3, verify that the response includes three kingdoms, a correct characteristic and role for each, and a clear ecosystem connection.