

Pond Energy Paths

Trace energy through food chains and predict population changes.

3.12.B "identify and describe the flow of energy in a food chain and predict how changes in a food chain such as removal of frogs from a pond or bees from a field affect the ecosystem;"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the living things in each food chain, then write 1, 2, 3, and so on above them to show the order energy moves.

Energy at Willow Pond

- ① At Willow Pond, green algae use energy from sunlight to grow. Tiny water insects eat the algae. Frogs eat many of the insects, and herons may eat frogs. This food chain shows energy moving from the Sun to algae, then to insects, frogs, and herons. Each animal gets energy by eating the living thing before it.
- ② If frogs were removed from Willow Pond, fewer animals would eat the water insects. The insect population could grow because more insects survive. With more insects eating algae, the algae population could shrink. Herons would lose frogs as a food source, so they might have less energy and may need to find other prey. One change can affect several populations.
- ③ In a nearby field, wildflowers use sunlight to make food. Bees drink nectar and collect pollen from the flowers. Spiders can catch bees, and small birds can eat spiders. If bees disappeared, fewer flowers would be pollinated. Over time, fewer new wildflowers and seeds might grow. Spiders would have fewer bees to eat, and birds could have less food too.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Write the Willow Pond food chain in order, starting with the Sun.

2 Name two pond populations that could change if frogs were removed. Tell how each could change.

3 Why might fewer new wildflowers and seeds grow if bees disappeared?

4 How could bees disappearing affect spiders and small birds?

3 YOUR TURN _____ Your own words

Write your own four-step food chain with the Sun and three living things. Then write two sentences that predict what could happen if the middle animal were removed.

PART 1 • READ AND MARK

Underline the living things in each food chain, then write 1, 2, 3, and so on above them to show the order energy moves. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Write the Willow Pond food chain in order, starting with the Sun.	Sun → algae → water insects → frogs → herons
2	Name two pond populations that could change if frogs were removed. Tell how each could change.	Water insects could increase, and algae could decrease.
3	Why might fewer new wildflowers and seeds grow if bees disappeared?	Fewer flowers would be pollinated by bees.
4	How could bees disappearing affect spiders and small birds?	Spiders would have fewer bees to eat, and small birds could have less food.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Sun → grass → rabbit → fox If rabbits were removed, foxes would have less food and might decrease. More grass could grow because fewer rabbits would eat it.

Accept scientifically reasonable food chains that show energy moving from the Sun to a plant and then to animals. For the prediction, accept connected changes in the removed animal's food source, predators, or both.