

Lakes Under Threat

Trace how air and water pollution affect Canada's Great Lakes.

SS6G6.a "Explain the causes and effects of pollution and acid rain in Canada to include the Great Lakes."

NAME _____

DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle each source or cause of pollution, then underline each effect it causes so you can trace cause-and-effect chains.

Pollution Reaches the Lakes

- ① Canada's Great Lakes hold about one fifth of the world's surface fresh water. Factories, vehicles, and power plants can release sulfur dioxide and nitrogen oxides into the air. These gases may travel far across borders on the wind. In clouds, they mix with water and oxygen and form acids. Rain or snow then carries the acids to land and water. This is called acid rain. It can fall in Canada even when the pollution source is in another place, including the United States.
- ② When acid rain enters a lake, it can lower the water's pH, making the water more acidic. Acidic water can harm fish eggs, insects, and other small organisms that fish eat. It can also wash aluminum from soil into streams, which can damage fish gills. Pollution reaches the Great Lakes in other ways too. Runoff from farms can carry extra fertilizers into water. Sewage, litter, and industrial chemicals can also enter nearby lakes and rivers.
- ③ Extra fertilizer can feed fast-growing algae. When large amounts of algae die, decomposers use oxygen as they break them down. Low oxygen makes it hard for fish and other animals to survive, creating a dead zone. People can reduce pollution by using cleaner energy, controlling factory emissions, treating sewage, and using fertilizers carefully. Governments in Canada and the United States work together because the Great Lakes cross their shared border. Protecting the lakes helps wildlife and people who use the water.

2 ANSWER WITH EVIDENCE Use the passage

1 How do gases released into the air become acid rain?

2 What are two ways acidic water can harm living things in or near a lake?

3 Explain how fertilizer runoff can lead to a dead zone.

4 Why do Canada and the United States need to work together to protect the Great Lakes?

3 YOUR TURN Your own words

A community near a Great Lake finds that rainwater is unusually acidic after nearby power plants burn fuel. Write exactly three sentences. Explain how the emissions lead to acidic rain, name one effect on a lake organism, and propose one action that could reduce the problem.

PART 1 • READ AND MARK

Circle each source or cause of pollution, then underline each effect it causes so you can trace cause-and-effect chains. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How do gases released into the air become acid rain?	Sulfur dioxide and nitrogen oxides travel in the air, mix with water and oxygen in clouds, form acids, and fall in rain or snow.
2	What are two ways acidic water can harm living things in or near a lake?	It can harm fish eggs, insects, and other small organisms. It can also wash aluminum into streams, damaging fish gills.
3	Explain how fertilizer runoff can lead to a dead zone.	Extra fertilizer feeds algae. When the algae die, decomposers use oxygen while breaking them down. Low oxygen makes it difficult for fish and other animals to survive.
4	Why do Canada and the United States need to work together to protect the Great Lakes?	The Great Lakes cross their shared border, and pollution can travel across borders.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Nearby power plants release sulfur dioxide and nitrogen oxides, which can mix with water and oxygen in clouds to form acids. Acid rain can make lake water more acidic and harm fish eggs. The power plants can use cleaner energy or controls that lower their emissions.

Accept equivalent cause-and-effect chains that correctly connect emissions to acid rain or fertilizer runoff to low oxygen. For the open response, accept a realistic pollution-reduction action and an accurate effect on lake life.