

# Habitats: Can We Keep the Lake Clean?

( [http://www.ccge.org/resources/learning\\_centre/classroom\\_activities/habitat\\_lake.asp](http://www.ccge.org/resources/learning_centre/classroom_activities/habitat_lake.asp) )

## Connections to the curriculum:

Geography, earth science, environmental studies

## Connections to the Canadian National Standards for Geography:

Environment and Society

## Time:

One to two hours

## Materials:

- Blackboard or whiteboard
- Colored chalk (or erasable markers if you are using a whiteboard)
- Blank white paper
- Drawing materials
- Rulers (optional)

## Suggested Grade Level: K - 3

## Overview

This lesson introduces students to the water cycle by having them help draw a picture of a lake ecosystem, adding human impacts that affect water quality. Students will help fill in the components of a drawing of a water system. They will conclude by creating their own illustrations of human-induced changes to the freshwater habitat of a lake ecosystem.

## Objectives

Students will:

- help draw a picture of a lake ecosystem;
- discuss the water cycle and the reasons why lakes are important;
- describe how humans can impact the water cycle; and
- draw pictures illustrating a scenario involving human-induced changes to a lake ecosystem.

## Geographic Skills

- Acquiring Geographic Information
- Organizing Geographic Information
- Analyzing Geographic Information

## Suggested Procedure

### *Opening:*

On the board, draw a picture of a lake with a river flowing into it. Draw some mountains in the distance where the river originates. Have students take turns adding the following features to the drawing: trees, fish, animals, houses, farms, and people doing activities related to the things they have drawn (e.g., fishing or farming).

### *Development:*

Ask students to look at the picture and think about why the river and lake water is important

to everything else pictured. What do the plants, animals, and people in the picture use the water for? Why is it important that this water be kept clean and plentiful?

Tell students that the water in the river and lake initially comes from the sky in the form of rain or snow. When it rains in the mountains or anywhere upstream, the water flows downhill through the river channel and eventually into the lake. Similarly, when snow melts in the mountains, it turns liquid and flows down the river into the lake. Have they ever seen evidence of these phenomena in their own region?

Introduce students to the process of evaporation by explaining that, as water travels down the river and into the lake, it slowly evaporates and returns to the air. The river and lake will not become empty, however, because rainwater and snowmelt will replenish them.

*Helpful Sites:*

[Canadian Geographic For Kids—CG Kids!](#)

[National Geographic: Geography Action—Habitats](#)

[National Geographic: Geography Action—Rivers 2001](#)

[Enchanted Learning: The Water Cycle](#)

[U.S. Environmental Protection Agency: The Water Cycle at Work](#)

Ask students to imagine that some of the people in the drawing have decided to increase their farmland and build new houses and other buildings. Add these changes to the illustration on the board. Ask students to describe the reasons why these activities will require additional water, and ask them to explain where the water will originate from (rain or snowmelt). How will the people get the extra water for their farms or houses?

Draw an irrigation channel with water pipes that extend to the farms and homes. Ask students to explain what might happen to the river and the lake if these irrigation channels are built. They should state that, eventually, the water levels will decrease as more water goes to the farms and homes.

Add to the illustration some runoff from the farm and homes. Will this water be clean? Explain to students that this water is likely to contain such substances as soap, farm fertilizing chemicals, and even car oil or gasoline. These chemicals are not healthy for the fish and plants that live in the water. You or your students can draw this water as brown or gray to depict water that is not clean.

*Closing:*

Ask students to look at the illustration and think about what they have seen. Discuss the changes that have been made to the drawing.

### **Suggested Student Assessment**

Give each student a large piece of white construction paper and help them divide the page into six equal sections using a pencil and ruler. Or, give students two pieces of white letter-size paper and help them make a six-page booklet.

As you read each of the following scenarios, have students draw pictures illustrating what you have stated in each of the six sections of their paper or booklets. As they draw successive pictures, they should modify the size and appearance of the water and the number of fish in the lake to reflect the changes that are occurring.

Seven fish swim happily in a clean lake.

A person decides to clear land and develop a farm near the lake.

A person decides to build a house by the lake.

Three more people decide to build houses by the lake.

**Extending the Lesson**

Have students plan and perform short skits depicting the water cycle. They can take on the roles of raindrops, clouds, the sun, soil, and other physical features involved in the water cycle.