

# Drainage basins and water management in the Northwest Territories

## Learning Objectives:

- Explain the impact of human activity on water distribution and quality.
- Identify and locate sources of water pollution on the map.
- Understand the importance of water protection and management.

## Targeted Levels:

- Grades 4–12

## Materials:

- Coloured chains
- Pylons (or Floe edge community cards from Activity 6)
- Post-it notes
- Canada's five main drainage basins card (1) ([canadiangeographic.com/watersheds/map/?path=english/watersheds-list](http://canadiangeographic.com/watersheds/map/?path=english/watersheds-list))
- Photo cards of flora and fauna in the Northwest Territories (21)
- Maps:
  - N.W.T. communities ([ftp.geogratis.gc.ca/pub/nrcan\\_rncan/raster/atlas\\_6\\_ed/reference/bilingual/nwt.pdf](http://ftp.geogratis.gc.ca/pub/nrcan_rncan/raster/atlas_6_ed/reference/bilingual/nwt.pdf))
  - N.W.T. producing mines, and oil and gas fields ([geoscan.nrcan.gc.ca/starweb/geoscan/servlet.starweb?path=geoscan/download&search1=R=299660](http://geoscan.nrcan.gc.ca/starweb/geoscan/servlet.starweb?path=geoscan/download&search1=R=299660))
  - N.W.T. contaminated sites ([aadnc-aandc.gc.ca/eng/1100100026218/1100100026222](http://aadnc-aandc.gc.ca/eng/1100100026218/1100100026222))

## Introduction

After students have independently explored the Giant Floor Map, have them outline Canada's five main drainage basins with the coloured chains. Which drainage basin covers most of the Northwest Territories? This is the Arctic Ocean drainage basin. What is the main river that drains into this basin? This is the Mackenzie River – have students identify it on the map. Ask students which communities can be found along the Mackenzie River and Great Slave Lake, and mark those communities with pylons or Floe edge community cards. Explain to students that water connects communities in the Northwest Territories and the rest of Canada. Actions taken by humans in one place can affect those who live many kilometres away.

## Preparation for the activity

Ask students how humans might make use of the water that flows through their communities. Some possible answers may include:

- ▷ Fishing
- ▷ Drinking water
- ▷ Washing
- ▷ Boating and ice roads
- ▷ Building traditional shelters such as igloos and quinzees
- ▷ Snowmobiling, dog sledding and skiing
- ▷ Cleaning, cooking and preparing foods
- ▷ Playing traditional and winter sports

Ask students how these activities or other large-scale projects could use or affect water quality. Garbage and pollution from...

- ▷ Roads (including winter ice roads)
- ▷ Hydroelectric dams
- ▷ Mining operations
- ▷ Oil and gas operations
- ▷ Contaminated sites

Using the Giant Floor Map, label and stick post-its to indicate these major sites in the Northwest Territories.

Ask students what else relies on the water that flows into the Arctic Ocean.

- ▷ Plants (name some local plants)
- ▷ Animals (name some local animals, including fish and marine life)

Place flora and fauna photo cards near where they would naturally be found.

Ask students what might delay the water's journey to the ocean.

- ▷ Freezing in a glacier
- ▷ Being underground as groundwater or as permafrost
- ▷ Sitting in a lake, pond or wetland



# Drainage basins and water management in the Northwest Territories

## Main activity – Water’s journey

Students will chart the journey of a water droplet from where it lands to its eventual home in the Arctic Ocean.

To select a starting point: Randomly toss a token or coin somewhere in the drainage basin, choose a site downstream, or choose a site near your home community.

Either as a class or in small groups, chart the journey of your water droplet all the way to the Arctic Ocean. Start from the nearest stream, then move to a lake, and then to the Mackenzie River and down to the ocean, noting all the potential uses and sources of contamination along its journey. Students can either share out loud, or write about the droplet’s journey as a language arts writing prompt (e.g., I am a raindrop. I fell from the sky and landed in...). Using the chains, students can mark their droplet’s journey.

## Conclusion

Ask students the following questions to check for understanding:

- ▷ How might climate change or global warming affect the water’s journey?  
(Possible answers: erosion, melting permafrost)
- ▷ Why is it important for different regions in Canada to work together on water management?
- ▷ Historically, why was water so important to people?  
(Possible answers: food sources, transportation, spirituality)
- ▷ Do you know of any local groups working to protect water? (e.g., Protect the Peel)

- N.W.T. electricity capacity and primary fuel sources ([neb-one.gc.ca/nrg/ntgrtd/mrkt/nrgsstmprfls/mg/fg03ntlg-eng.jpg](http://neb-one.gc.ca/nrg/ntgrtd/mrkt/nrgsstmprfls/mg/fg03ntlg-eng.jpg))

- Coins or tokens (optional)

### Useful pre-lesson activities:

- Activity 2:  
Canada from Space
- Activity 4:  
What Does Pollution Look Like?
- Activity 5:  
Fresh from Canada
- Activity 6:  
Canadian Ice Service

