



# What Water Source is Best?

Age range: 16 to 18 (senior)

Time: 2 to 3 hours

Subjects: Geography, Science

Resources: *Planning the Town of Daxima* handout and *Comparing Water Sources* chart; Internet access.

## Learning Outcomes

Students will compare two or more communities with different water sources, analyzing the advantages and disadvantages of each source. Students will then recommend a water source for a new community, based on their analysis. Examples include:

- London ON: wells and groundwater
- Donnacona QC: Jacques-Cartier River
- Winnipeg MB: aqueduct
- Vancouver BC: aquifer, surface and groundwater

## Hook: Towns and Cities in Your Area



As a class, examine one or more copies of a map of your area. Why are places located where they are...usually because of the water! Discuss other factors affecting where communities are located (e.g., location of other resources). Ask students how many communities on the map get their water from aquifers, from rivers or lakes, from wells?

Point out that regardless of where a community gets its water, it is filtered and purified by Canada's forests and wetlands. Have students hypothesize about what type of water source is the best in terms of inherent water quality, fairly constant water levels? Which is the most secure from natural and terrorist threats?

## Procedure

# 1

**Organize students in groups or pairs.** Distribute the *Planning the Town of Daxima* worksheet (on page 31) and read together.

# 2

**Distribute and review** the *Comparing Water Sources* chart (on page 32). Discuss your specific requirements for the Report of Recommendation that students will write after they finish researching and completing their charts. One set of groups could focus on the topic of aquifers, others on wells and rivers/lakes. Once all research is complete, each group can share what they have learned with the rest of the class.



## Extensions

Have students draw and label diagrams of aquifers, rivers, lakes and wells, adding information they gathered on their chart, including factors affecting water levels and other unique issues.

# Planning the Town of Daxima

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The general area in which to place a brand new Canadian community called Daxima has been chosen, but the town planners are uncertain where exactly in this area it should be located. Their choice must be based on detailed research of the three water sources in the area. They could place the town:

1. on a hillside near an aquifer,
2. near a river/lake or shoreline,
3. away from the river and hills in a location where the aquifer is easily accessed by wells.

Assume that all three water sources can easily meet the town's needs, and that the costs of accessing the sources are similar.

You and your team of engineers have been hired to investigate these three types of water sources, using the Comparing Water Sources chart that the town planners have provided.

After you have finished your investigation, you will use the information from your chart to write a Report of Recommendation for presentation to the town planners regarding the best source of water for Daxima.

## Online Resources

For information on all sources of water, including groundwater wells, groundwater aquifers, lakes and rivers, visit Environment Canada's Freshwater Web site: [www.ec.gc.ca/water](http://www.ec.gc.ca/water) and select The Nature of Water.

For information on aquifers in British Columbia, go to:  
<http://wlapwww.gov.bc.ca/wat/aquifers>.

For information on Vancouver BC, which draws its water from the Seymour Reservoir, go to: <http://www.gvrd.bc.ca/water/sources-and-supply.htm>

For more information visit Groundwater Education of Canada Inc:  
[www.geocities.com/RainForest/Vines/2246](http://www.geocities.com/RainForest/Vines/2246).

For groundwater use in London ON, go to:  
[www.london.ca/Cityhall/EnvServices](http://www.london.ca/Cityhall/EnvServices).




For information on the town of Donnacona QC and its surrounding forest on the Jacques-Cartier River, visit Canadian Heritage Rivers:  
[www.chrs.ca](http://www.chrs.ca).

For information on the Winnipeg MB water source and the pipeline from Shoal Lake, go to: [www.winnipeg.ca/waterandwaste/water/waterfront/todayswater.htm](http://www.winnipeg.ca/waterandwaste/water/waterfront/todayswater.htm).





# Comparing Water Sources

Water Source 1:	Water Source 2:
Type of water source:	Type of water source:
Location of water source:	Location of water source:
Factors that could affect water levels:	Factors that could affect water levels:
	
Possible pollutants and degree of terrorist threat:	Possible pollutants and degree of terrorist threat:
	
Amount of surrounding forest/wetlands:	Amount of surrounding forest/wetlands:
	
Ongoing conservation activities:	Ongoing conservation activities:
Other unique issues:	Other unique issues:

