

Human-Environment Interaction: An Introductory Lesson

OVERVIEW & OBJECTIVES	GRADES
<p>This lesson reviews Human-Environment Interaction as one of the Five Themes of Geography. Students will examine a map and an article about the Lake Winnipeg-Red River Watershed that will illustrate human-environment interaction as well as region.</p> <p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> Define, describe and apply the concept of human-environment interaction 	8 th
	TIME
	1 classes
	REQUIRED MATERIALS
	<ul style="list-style-type: none"> ✓ ✓ Article: "The Red River: A Tainted River's Reach" ✓ Handout: "The Red River: A Tainted River's Reach" ✓ Lake Winnipeg Watershed Map (optional)
MINNESOTA SOCIAL STUDIES STANDARDS & BENCHMARKS	
<p>Standard 1. People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.</p> <p>8.3.1.1.1 Obtain and analyze geographic information from a variety of print and electronic sources to investigate places or answer specific geographic questions; provide rationale for its use.</p>	

SUGGESTED PROCEDURE

Teachers Note: The Red River Watershed is often studied separately although it is part of the larger Lake Winnipeg Watershed. In this lesson, it is important to investigate the Lake Winnipeg Watershed to understand human-environment interaction and the larger region that is found in two countries.

Discuss with the class the question of whether or not regions can cross borders. Show examples of watersheds as regions and point out that the Missouri and Ohio watersheds are part of the larger Mississippi watershed. The teacher should hand out copies of the Lake Winnipeg Watershed Map to pairs of students. (The teacher may use another Lake Winnipeg Watershed map from the Additional Website Resources.) Students work with partners to study the map and determine characteristics of this region. Review the characteristics of regions: regions may overlap, regions may have defined borders, regions may change, regions may be contiguous, regions may have

more than one defining characteristic, regions may be large or small, and regions can cross boundaries.

Share additional information with students including:

- Lake Winnipeg is known as the 6th of the Great Lakes
- It is the last remains of glacial Lake Agassiz
- Only the Nelson River flows out of Lake Winnipeg
- It is the 3rd largest hydroelectric reservoir in the world
- It is one of the world's most endangered lakes because of agricultural runoff largely from the Red River
- The Lake Winnipeg watershed includes parts of 4 provinces and 4 states
- Most of the walleye in stores and restaurants comes from here because walleye cannot be commercially fished in Minnesota
- The Red River often floods because it runs north and, in the spring, the northern part of the river is still frozen when the southern part of the river is thawing
- Red River flooding increases the amount of nitrogen and potassium that reaches Lake Winnipeg
- The watershed illustrates interconnections between people and the environment

Explain that geographers use regions as a unit of study to examine patterns and relationships in order to understand the present and predict the future. Explain to students that they will examine the Red River in more detail by reading an article. Give students the article and handout, "The Red River: A Tainted River's Reach", and let them work with a partner using the cause and effect literacy strategy. (Another article may be used including those listed under Additional Website Resources.)

Review the responses and discuss the impact people have on the Lake Winnipeg-Red River watershed. Explain that responsibility for a region located in two political entities becomes the responsibility of both. Also, discuss why the environment is important to people in this example. Ask students questions including: What benefits are gained from our environment? How do people alter the environment to meet their needs?

Assessment

"The Red River: A Tainted River's Reach" handout
Class discussion

Website Resources

"Locate Your Watershed" at "Science in Your Backyard" at USGS
https://water.usgs.gov/wsc/map_index.html

"Mississippi River Commission" at U.S. Army Corps of Engineers
<http://www.mvd.usace.army.mil/About/Mississippi-River-Commission-MRC/>

"The Red River: A Tainted River's Reach" at "Danger Downstream", Star Tribune; October 2, 2016
<http://www.startribune.com/mighty-mississippi-river-faces-mounting-environmental-threats/393294611/>

Additional Website Resources

“Lake Winnipeg Watershed Tiled Map” at Canadian Geographic

http://www.canadiangeographic.com/educational_products/tiled_map_lake_winnipeg_watershed.asp

“State of Lake Winnipeg: 1999 to 2007—Highlights” at Environment Canada

http://www.ec.gc.ca/doc/publications/eau-water/COM1167/intro_e.htm

“Lake Winnipeg Watershed: Then and Now” at Canadian Geographic

<https://www.canadiangeographic.ca/article/lake-winnipeg-watershed-then-and-now>

“Red River Pollution Threatening Lake Winnipeg” at MPR News; June 17, 2010

<https://www.mprnews.org/story/2010/06/17/lake-winnipeg>

“Recommended Reading: Danger Downstream” at Friends of the Mississippi River

<http://fmr.org/news/2016/12/01/recommended-reading-danger-downstream>

“The Red River: A Tainted River’s Reach”

<http://www.startribune.com/mighty-mississippi-river-faces-mounting-environmental-threats/393294611/>

As you read the article, determine the cause and effect relationships to complete the chart below.

Cause	Effect
Polluted run-off from farms and cities	
Algae Blooms	
10,000 years ago, a glacier receded	
	Average flow of water in the Red River has increased 50-60%
Seasonal Flooding	

Cause	Effect
	Nutrients provided for life up and down the food chain
Phosphorus levels continue to rise	
The North Ottawa Impoundment, an artificial wetland, was built	
Harvesting cattails	Desired effect: Actual effect:

After reading the article, list 3 human-environment interactions you learned.

- 1.
- 2.
- 3.