

RESOURCE LIBRARY  
ACTIVITY : 50 MINS

## Alternative Locations for the Dam

Students select an alternative location for the Gabčíkovo-Nagymaros Dam that causes less conflict in terms of environmental concerns, shifting borders, and trade.

### GRADES

6 - 8

### SUBJECTS

*Geography, Human Geography, Physical Geography*

### CONTENTS

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## OVERVIEW

Students select an alternative location for the Gabčíkovo-Nagymaros Dam that causes less conflict in terms of environmental concerns, shifting borders, and trade.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/alternative-locations-for-the-dam/>

## DIRECTIONS

### 1. Have small groups discuss alternative locations for the Gabčíkovo dam.

Divide students into small groups. Distribute copies of the map The Danube River Including the Gabčíkovo Dam to each small group. Ask groups to look at the map and the location of the disputed dams. Write the following question on the board for groups to discuss and write notes on: *Where might a dam be placed that would cause less conflict between countries?* Encourage students to address the following issues in their discussion, noting why their location would cause less conflict in terms of each:

- environmental concerns, including flooding
- shifting borders due to shifting the course of the river
- trade and financial concerns about who can collect money from use of the river

If students have difficulty selecting their own locations, you can suggest the project could be moved south of Budapest, in the center of Hungary. This would place the project in one country only. Ask: *Would that solve the issues that people have with the dam? Would it solve the issues that other countries have with the dam? Explain.*

## 2. Have groups present their new locations to the class.

Project the same map on the board where the whole class can see it. Ask each group to come up to the board, identify their proposed location, and explain why they chose it. After each group presents, encourage students to ask the presenting group questions about problems with or advantages of their dam locations in terms of the environment, borders, finances, or other impacts. Include in the discussion impacts on stakeholders, such as people who live upstream, farmers who rely on the water for irrigating their crops, and people who make a living fishing.

# Informal Assessment

Assess students either on their site selection and reasoning, or on the questions that they ask of their classmates.

# Extending the Learning

Have students research the use of rivers in their own region or state. Or, give students national or international examples to research, such as the Hoover Dam bordering Arizona and Nevada, dams on the Columbia River in Washington state, the Three Gorges Dam in the People's Republic of China, or the Aswan Dam in Egypt. Ask students to find the answers to these questions:

- What dams or other modifications have been built on the local rivers?
- What impacts did this have on the river? On the community?
- Was the action controversial? Why or why not?

# OBJECTIVES

# Subjects & Disciplines

## Geography

- Human Geography
- Physical Geography

# Learning Objectives

Students will:

- explore how country borders can add complexity to decisions surrounding dams and other uses of natural resources

# Teaching Approach

- Learning-for-use

# Teaching Methods

- Cooperative learning
- Discussions
- Hands-on learning

# Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
  - Learning and Innovation Skills
    - Communication and Collaboration
    - Critical Thinking and Problem Solving
- Critical Thinking Skills
  - Analyzing
  - Applying
  - Remembering

- Understanding
- Geographic Skills
  - Analyzing Geographic Information
  - Answering Geographic Questions
  - Asking Geographic Questions

# National Standards, Principles, and Practices

## NATIONAL COUNCIL FOR SOCIAL STUDIES CURRICULUM STANDARDS

- Theme 2:

Time, Continuity, and Change

- Theme 3:

People, Places, and Environments

- Theme 8:

Science, Technology, and Society

## NATIONAL GEOGRAPHY STANDARDS

- Standard 1:

How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

- Standard 13:

How the forces of cooperation and conflict among people influence the division and control of Earth's surface

- Standard 14:

How human actions modify the physical environment

- Standard 16:

The changes that occur in the meaning, use, distribution, and importance of resources

## ISTE STANDARDS FOR STUDENTS (ISTE STANDARDS\*S)

- Standard 2:

Communication and Collaboration

- Standard 4:

Critical Thinking, Problem Solving, and Decision Making

## Preparation

### What You'll Need

#### MATERIALS YOU PROVIDE

- Paper
- Pencils
- Pens

#### REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per classroom, Projector

#### PHYSICAL SPACE

- Classroom

#### GROUPING

- Large-group instruction
- Small-group instruction

## BACKGROUND & VOCABULARY

### Background Information

Rivers have long been sources of transportation, food, and water. Today, the world's rivers contain a vast network of levees, dams, and locks to control water and harness its potential. Students' misconceptions often include thinking that all rivers flow from the north to the south. In fact, river flow is entirely dependent upon the gradient of the riverbed. Thus, rivers move from high (upstream) to low (downstream). Rivers are dynamic, or constantly changing. The flow of a river, and the amount of water in a river, changes. The form or shape of a river also changes. Rivers shift their course naturally, but sometimes people deliberately change the shape or course of a river in order to prevent flooding or harness hydroelectric power, such as on the Danube River. The Danube River is the second longest river in Europe after the Volga River in Russia. Its source lies in the Black Forest mountains of western Germany; it flows for

approximately 2,850 kilometers (1,770 miles) to its mouth at the Black Sea. The Danube has approximately 300 tributaries. The river basin covers about 47,000 square kilometers (18,000 square miles). Most of the major river basins of Europe exist within more than one country. Along its course, the Danube passes through nine countries: Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Bulgaria, Romania, and Ukraine. The Danube River has had a critical role in the history of Europe, as it has been used as a boundary, a trade route, a source of hydroelectric power, a source of residential water, and a major economic influence.

Slovakia, or the Slovak Republic, is a country in central Europe. It is landlocked, or surrounded only by land and bordered by Poland to the north, Ukraine to the east, Hungary to the south, and Austria to the southwest. What is now Slovakia was ruled by the country of Hungary from the 11th century until the end of World War I in 1918. Slovakia drains mainly southward into the Danube River system. Hungary, or the Republic of Hungary, is also a landlocked country in central Europe. Hungary shares a border to the north with Slovakia, to the northeast with Ukraine, to the east with Romania, and to the south with Serbia and Croatia, to the southwest with Slovenia, and to the west with Austria. Hungary lies within the drainage basin of the Danube River, which is the longest river in Hungary. In 1977, the (then) Czechoslovak and Hungarian governments signed an agreement to build a hydroelectric dam on the Danube southeast of Bratislava at Gabčíkovo and Nagymaros. The project called for the diversion of the Danube and the construction of dams to be built by each of the governments. In 1989, Hungary withdrew from the Nagymaros project because of environmental and other concerns. Environmental and human impacts of dams include negative effects on rivers systems, such as: holding back sediments leading to downstream erosion and loss of soil nutrients; hydrological effects such as changes to overall volume and water quality; changes to flooding cycles, which affects plants and animals; and displaced populations. Slovakia completed the project on its own, which led to a dispute between the two countries that persisted into the 21st century.

## Prior Knowledge

["Gabčíkovo-Nagymaros project to dam the Danube River"]

## Recommended Prior Activities

- None

## Vocabulary

<b>Term</b>	<b>Part of Speech</b>	<b>Definition</b>
<b>border</b>	<i>noun</i>	natural or artificial line separating two pieces of land.
<b>conflict</b>	<i>noun</i>	a disagreement or fight, usually over ideas or procedures.
<b>country</b>	<i>noun</i>	geographic territory with a distinct name, flag, population, boundaries, and government.
<b>dam</b>	<i>noun</i>	structure built across a river or other waterway to control the flow of water.
<b>flood</b>	<i>noun</i>	overflow of a body of water onto land.
<b>location</b>	<i>noun</i>	position of a particular point on the surface of the Earth.
<b>river</b>	<i>noun</i>	large stream of flowing fresh water.
<b>trade</b>	<i>noun</i>	buying, selling, or exchanging of goods and services.

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## For Further Exploration

### Articles & Profiles

- [National Geographic Education: Europe—Physical Geography](#)
- [National Geographic Education: Europe—Resources](#)

### Maps

- [NG MapMaker 1-Page Map: Europe](#)
- [National Geographic Education: Europe MapMaker Kit](#)
- [NG MapMaker Interactive: Europe](#)

### Websites

- [National Geographic Education: National Teacher Leadership Academy \(NTLA\)](#)

