

RESOURCE LIBRARY | ACTIVITY : 50 MINS

Presenting a Decision about Building a Road in the Amazon

Students will apply knowledge they constructed from the lesson in a decision statement about the construction of the Pucallpa-Cruzeiro do Sul Highway.

GRADES

9 - 12+

SUBJECTS

Biology, Geography, Human Geography

CONTENTS

2 PDFs

OVERVIEW

Students will apply knowledge they constructed from the lesson in a decision statement about the construction of the Pucallpa-Cruzeiro do Sul Highway.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/presenting-decision-about-building-road-amazon/>

DIRECTIONS

1. Have students discuss what they learned in Activities 1 and 2.

Set the stage by reviewing the sequence of activities within this lesson. Remind students that at the beginning of this lesson, they explored a decision through one stakeholder's viewpoint. They then learned more about the area both geographically and politically, analyzed each stakeholder's influence and connection to the decision, and then identified cultural, economic,

and environmental consequences of the decision to place a road in the Amazon. In this activity, they will pull together what they have learned in the previous activities to complete the analysis of the decision about the Pucallpa-Cruzeiro do Sul road in the Amazon. Place students in groups of three, and assist them through the following process as a group. Each group of three will hand in a decision statement at the end of this lesson. Ask students to pull out their Stakeholder Table and Consequences Webs they developed in Activities 1 and 2. They can use their individual documents as evidence to support the group-level conversations.

2. Have students revisit the information gathered on the influence of stakeholders.

Ask students to have available their Stakeholder Table from Activity 1. Distribute one copy of the Decision Statement worksheet to each group and have students complete Part 1: Stakeholders. Using the information they gathered in Activities 1 and 2, ask students to rate each of the stakeholders' level of influence within the decision. Remind them that not every stakeholder has a voice or equal influence in the decision. Ask students to reflect on the role these particular stakeholders have played in the decision-making process of building the Pucallpa-Cruzeiro do Sul road.

3. Have students revisit the information gathered from the identification of consequences.

Remind students that all decisions and actions have consequences. Ask students to refer to their Consequences Web from Activity 2. Have them complete Part 2: Consequences in the Decision Statement worksheet by identifying the impact of the consequences upon each of the known stakeholders considering environmental, cultural, and economic factors.

4. Have students create a decision statement.

Explain to students that the product of the decision-making process is a decision statement. A decision statement has three parts: (1) a statement of the decision; (2) evidence that supports the decision; and (3) a statement of who will positively and negatively benefit from the decision considering economic, cultural, and environmental factors. Ask students to complete Part 3: Decision Statement. Remind students in Activity 1, they made a decision from one stakeholder's perspective. This time, they need to consider all stakeholders' perspectives. Collect completed Decision Statement worksheets as a formal evaluation of the lesson.

5. Have students reflect upon the decision-making process.

Ask students to refer to the decision statement they created in Activity 1. Ask them to reflect upon everything they have learned in the lesson. Have them compare what they wrote in Activity 1 with their final decision statement in Activity 3. Ask: *Did your decision statement stay the same or change? If it changed, what influenced your decision? What additional information affected your thinking? If it did not change, are you surprised? Why or why not?*

Modification

For struggling readers, have them annotate the reading by circling new vocabulary and underlining important phrases or sentences. They can also be paired with more confident readers to help process the text.

Modification

This activity works best in small groups. Cooperative learning benefits advanced learners and struggling readers. Assign groups so that advanced students are grouped with struggling readers.

Alternative Assessment

In this activity, students will complete the final Decision Statement in small groups based on all the information they collected from the previous two activities about the influence of different stakeholders and the consequences of building a road on each of the stakeholders. Final Decision Statements will be collected and assessed using a rubric.

Extending the Learning

- Have students write a persuasive paper to argue for or against building the road from the point of view of one stakeholder.
- Have students conduct further research on local building practices and create an informative campaign (brochure, multimedia presentation, etc.) for or against a local building project.
- Have students use MapMaker Interactive to explore the geography of the Amazon rain forest.

OBJECTIVES

Subjects & Disciplines

Biology

Geography

- Human Geography

Teaching Approach

- Learning-for-use

Teaching Methods

- Cooperative learning
- Discussions
- Reading
- Role playing
- Writing

Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
 - Information, Media, and Technology Skills
 - Information Literacy
 - Media Literacy
 - Learning and Innovation Skills
 - Communication and Collaboration
 - Critical Thinking and Problem Solving
- 21st Century Themes
 - Environmental Literacy
- Critical Thinking Skills
 - Analyzing
 - Understanding
- Geographic Skills

- Acquiring Geographic Information
- Analyzing Geographic Information
- Science and Engineering Practices
 - Analyzing and interpreting data
 - Asking questions (for science) and defining problems (for engineering)
 - Constructing explanations (for science) and designing solutions (for engineering)
 - Engaging in argument from evidence
 - Obtaining, evaluating, and communicating information

National Standards, Principles, and Practices

NATIONAL COUNCIL FOR SOCIAL STUDIES CURRICULUM STANDARDS

- Theme 11: The Patterns and Networks of Economic Interdependence on Earth's Surface:
- Theme 14: How human actions modify the physical environment:
- Theme 16: The changes that occur in the meaning, use, distribution, and importance of resources:

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY

- Reading Standards for Informational Text 6-12:

Key Ideas and Details, RI.9-10.1

- Reading Standards for Informational Text 6-12:

Key Ideas and Details, RI.9-10.2

- Reading Standards for Informational Text 6-12:

Key Ideas and Details, RI.9-10.3

- Reading Standards for Informational Text 6-12:

Key Ideas and Details, RI.11-12.1

- Reading Standards for Informational Text 6-12:

Key Ideas and Details, RI.11-12.2

- Reading Standards for Informational Text 6-12:

Key Ideas and Details, RI.11-12.3

- Speaking and Listening Standards 6-12:

Comprehension and Collaboration, SL.11-12.1

- Speaking and Listening Standards 6-12:

Comprehension and Collaboration, SL.11-12.2

- **Writing Standards 6-12:**

Text Types and Purposes, W.9-10.2

- **Writing Standards 6-12:**

Text Types and Purposes, W.11-12.2

NEXT GENERATION SCIENCE STANDARDS

- **HS. Earth's Systems:**

HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

- **HS. Ecosystems: Interactions, Energy, and Dynamics:**

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Copies of Decision Rubric
- Copies of Decision Statement worksheet
- Copies of Handout - The Amazonian Road Decision
- Copies of student worksheet (created by students in previous activity) - Consequences Webs
- Copies of student worksheet (one per group of students) - Stakeholders Table
- Pencils (1 per student)

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per small group, Interactive whiteboard, Presentation software

PHYSICAL SPACE

- Classroom
- Computer lab
- Media Center/Library

SETUP

In Activity 3, students will need to be in participant structures that allow for whole class discussion as well as small group work. A space that allows students to move freely between these structures is needed. Students may need to access computers while they are constructing their decision statements with their small groups.

GROUPING

- Heterogeneous grouping

RESOURCES PROVIDED: HANDOUTS & WORKSHEETS

- [Decision Rubric](#)
- [Decision Statement](#)

BACKGROUND & VOCABULARY

Background Information

- The Amazon rain forest is a carbon sink. The Amazon rain forest plays a crucial role in keeping carbon out of our atmosphere, as it naturally sequesters about 20% of the atmospheric carbon emitted by the burning of fossil fuels elsewhere. But, it can only remain a carbon sink as long as it absorbs more carbon dioxide than it releases. The diminishing rain forest would greatly affect global warming.
- The Amazon is one of the most biodiverse ecosystems in the world. Yet, there are species that live there that are endangered or threatened, including primates such as the spider monkey and red howler monkey. When large trees, like mahogany, are removed, the large canopy that provided shelter, food, or nesting for some of these species disappears, resulting in relocation and possible fragmentation of some populations. Changes made to the ecosystem affect all life that lives there, but for the endangered or threatened populations, these changes could challenge their survival.
- Indigenous communities are scattered throughout the Amazon rain forest. The Ashéninka are one indigenous group whose territory lies at the Peru-Brazil border. They are the second largest indigenous group in the Amazon rain forest (behind the Quechua). Most of the Ashéninka population lives on the Peruvian side of the border, where they hunt, fish, and

grow crops for sustenance. Ashéninka territories have been diminishing as loggers, drug traffickers, oil companies, and miners have encroached on their land. As a result, they have retreated deeper into the jungle, where they choose to live in isolation to preserve their cultural traditions and spiritual connections to the rain forest.

- Mahogany, a strong, reddish-brown wood, is found throughout the tropical Amazon rain forest, with dense populations near the Peru-Brazil border. It is valued for its color (hence the nickname, “red gold”) and durability and often used in paneling, furniture-making, and for musical instruments. The United States and Britain are the two largest importers of mahogany. In 2001, Brazil put a moratorium on mahogany exports making Peru the leading exporter. A 2012 World Bank report estimated that 80% of Peruvian timber export stemmed from illegal logging. A conservative estimate in 2000 stated nearly 57,000 mahogany trees were provided to the United States alone.
- Tensions are high between environmental activists who want to protect the rain forest and illegal loggers, miners, and other developers who want to make money to provide a better standard of living for their families and communities. In the past 10 years, over 900 environmental activists have been killed around the world. Peru has had around 60 deaths since 2002, making it one of the top five most dangerous places in the world for people who defend the environment. (Brazil alone has accounted for nearly 450 deaths in this same timespan).
- South America includes thousands of rural communities. Due to poor infrastructure throughout many South American countries, these communities remain weakly connected, if connected at all, to the larger global economy. As a result, these countries have fallen behind other countries that have made decisions to invest in upgrading their highway infrastructure in the global trade market. More roads, or other means of connecting these communities, are needed throughout the continent.

Prior Knowledge

["Knowledge of the conflict around the decision to build a road in the Amazon rain forest","Identification of stakeholders that could be influenced by the decision to build a road in the Amazon rain forest","Identification of potential cultural, environmental, and economic consequences of this decision"]

Recommended Prior Activities

- [A Proposal to Build a Road in the Amazon](#)

- [Considering the Influences of Building a Road in the Amazon Rain Forest](#)

Vocabulary

Term	Part of Speech	Definition
biodiversity	<i>noun</i>	all the different kinds of living organisms within a given area.
carbon sink	<i>noun</i>	area or ecosystem that absorbs more carbon dioxide than it releases.
climate	<i>noun</i>	all weather conditions for a given location over a period of time.
consequence	<i>noun</i>	result or outcome of an action or situation.
decision	<i>noun</i>	judgment, conclusion, or finding.
deforestation	<i>noun</i>	destruction or removal of forests and their undergrowth.
economy	<i>noun</i>	system of production, distribution, and consumption of goods and services.
ecosystem	<i>noun</i>	community and interactions of living and nonliving things in an area.
greenhouse gas	<i>noun</i>	gas in the atmosphere, such as carbon dioxide, methane, water vapor, and ozone, that absorbs solar heat reflected by the surface of the Earth, warming the atmosphere.
indigenous	<i>adjective</i>	characteristic to or of a specific place.
infrastructure	<i>noun</i>	structures and facilities necessary for the functioning of a society, such as roads.
logging	<i>noun</i>	industry engaged in cutting down trees and moving the wood to sawmills.
rainforest	<i>noun</i>	area of tall, mostly evergreen trees and a high amount of rainfall.
rural	<i>adjective</i>	having to do with country life, or areas with few residents.
stakeholder	<i>noun</i>	person or organization that has an interest or investment in a place, situation or company.
watershed	<i>noun</i>	entire river system or an area drained by a river and its tributaries.

For Further Exploration

Websites

- [National Geographic Magazine: Red Gold Rush](#)

- [National Geographic Magazine: Mahogany's Last Stand Photo Gallery](#)
- [National Geographic Magazine: The Last of the Amazon](#)
- [National Geographic: Deforestation](#)
- [ICAA - The Initiative for the Conservation of the Andean Amazon and the World Wildlife Foundation: Purus-Manu Conservation Corridor](#)

FUNDER



project funded by the Gordon and Betty Moore Foundation and the BIO Program at the Inter-American Development Bank.



© 1996-2019 National Geographic Society. All rights reserved.