



A Bridge over Devil's Canyon

Students learn about the need for a bridge and make proposals for how the bridge should be created.

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Grade Level	4-8
Duration	3-4 class periods

National and Arizona Geography Standards

National Geography Standards

Element Five

Environment and Society

STANDARD 14

How human actions modify the physical environment.

Element Six

The Uses of Geography:

STANDARD 17: How to apply geography to interpret the past.

Arizona Geography Standards

Strand 4 Geography

Grade 4

Concept 1: The World in Spatial Terms

PO3. Construct maps using symbols to represent human and physical features.

PO4. Construct charts and graphs to display geographic information.

PO5. Describe characteristics of human and physical features

Concept 4: Human Systems

PO3. Describe how the building of transportation routes (e.g., trails, stage routes and railroad) resulted in human settlement and economic development in Arizona.

Concept 5: Environment and Society

PO3. Describe the impact of human modifications (e.g., dams, mining, air conditioning, irrigation, agricultural) on the physical environment and ecosystems.

Concept 6: Geographic Applications

PO3. Use geography concepts and skills (e.g., recognizing patterns, mapping and graphing) to find solutions for local, state or national problems (e.g., shortage or abundance of natural resources).

GRADE 5

Concept 1: The World in Spatial Terms

PO6. Construct maps, charts, and graphs to display geographic information.

Concept 4: Human Systems

PO2. Explain the effects (e.g., economic, cultural, environmental, political) of human migration on places.

Concept 6: Geographic Applications

PO3. Use geography concepts and skills (e.g., recognizing patterns, mapping, graphing) to find solutions for local, state or national problems (e.g., shortage or abundance of natural resources).

GRADE 6

Concept 1: The World in Spatial Terms

PO1. Construct maps, charts, and graphs to display geographic information.

Concept 4: Human Systems

PO2. Describe the environmental, economic, cultural, and political effects of human migrations and cultural diffusion on places and regions.

PO3. Analyze the causes and effects of settlement patterns.

GRADE 7

Concept 1: The World in Spatial Terms

PO1. Construct maps, charts, and graphs to display geographic information.

Concept 5: Environment and Society

PO3. Describe how humans modify environments (e.g., conservation, deforestation, dams) and adapt to the environment.

Concept 6: Geographic Applications

PO1. Describe ways geographic features and conditions influence history.

GRADE 8

Concept 1: The World in Spatial Terms

PO1. Construct maps, charts, and graphs to display geographic information.

Concept 4: Human Systems

PO7. Describe how changes in technology, transportation, communication, and resources affect economic development.

Concept 5: Environment and Society

PO2. Describe why (e.g., resources, economic livelihood) humans modify ecosystems.

Concept 6: Geographic Applications

PO5. Interpret thematic maps, graphs, charts, and databases depicting various aspects of the United States and world regions. (Apply to regions studied.)

Overview

The town of Canyon Diablo developed when the railroad ran into financial difficulties and temporarily stopped construction - stranding many railroad workers in the area. Students will write proposals for how to create the bridge to continue the railroad through Canyon Diablo and will draw a scale model of the bridge.

Purpose

Students will use reading, writing, geography skills, and imagination to create a proposal for a bridge construction through Canyon Diablo. Students will create a scale drawing, demonstrating understanding of the concept of scale.

Materials

- Rulers
- Paper, markers, colored pencils
- “Why We Need a Bridge” proposal sheet
- Encyclopedia or websites regarding bridge construction

Objectives

The student will be able to:

- Research the construction materials used for bridges
- Create a scale model of their bridge, identifying the materials used
- Accurately interpret and use scale

Procedures

1. Discuss with students bridges and brainstorm the materials that might be used to create bridges.
2. Brainstorm with students why Canyon Diablo needs to have the bridge proposed and constructed to continue the railroad.

3. Distribute the “Why We Need a Bridge” proposal sheet. Have students complete this brainstorming sheet.
4. Have students research the materials used to create bridges and the different types of bridges used for railroads, using either encyclopedias or the internet.
5. Discuss with students the concept of scale and how to choose a scale for their drawings.
6. Identify the width of the canyon from the article in *The Outlaws of Canyon Diablo*.
7. Have students decide on a scale for their map of the bridge.
8. Students draw a map of Canyon Diablo, to scale, including the proposed bridge.

Assessment

Students will be assessed for research based on their completion of the map, which will use the research to propose a bridge type for Canyon Diablo. Students’ drawing will be graded on accuracy of use of scale and use of research in creation of their bridge proposal.

“Why We Need a Bridge Proposal Sheet”

Name:

Please describe, in 3 sentences or more, why the bridge over Canyon Diablo needs to be completed.