



Dams that Tamed Arizona's Rivers

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Grade Level 3
Duration 2-3 class periods

National Standards

GEOGRAPHY

The World in Spatial Terms

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

Element 2: Places and Regions

4. The physical and human characteristics of places

Element 5: Environment and Society

14. How human actions modify the physical environment

Element 6: The Uses of Geography

17. How to apply geography to interpret the past

18. How to apply geography to interpret the present and plan for the future

AZ Standards

ELA

Reading

Key Ideas and Details

3.RI.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. Integration of Knowledge and Ideas

3.RI.7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

Arizona Social Science Standards

The use of geographic representations and tools helps individuals understand their world.

3.G1.1 Use and construct maps and graphs to represent changes in Arizona over time.

Human-environment interactions are essential aspects of human life in all societies.

3.G2.1 Explain how people modify and adapt to the Arizona environment.

Global interconnections and spatial patterns are a necessary part of geographical reasoning.

3.G4.1 Describe how Arizona has changed over time.

HISTORY

The development of civilizations, societies, cultures, and innovations have influenced history and continue to impact the modern world.

3.H1.1 Utilize a variety of sources to construct a historical narrative exploring Arizona's cultures, civilizations, and innovations.

Overview

Although Arizona is composed of three distinct geographical regions: plateau, mountain, and desert; most of its current population is located in the desert region. How did that happen? How did people transform the arid desert into a place where farming, ranching, and mining were not only possible but profitable? Through the course of this lesson, students will be able to understand and explain the contribution of dam construction to the enrichment of Arizona, whose state motto is "Ditat Deus" (God Enriches).

Purpose

In this lesson students will use a variety of maps to learn about Arizona's landscape and how humans have modified it with dams. They will also learn that population settlement is usually determined by the availability of water.

Materials

- Bell quiz
- Landform Regions of Arizona (labeled) <https://geoalliance.asu.edu/sites/default/files/maps/AZLNDFRM.pdf>
- Landform Regions of Arizona (unlabeled) https://geoalliance.asu.edu/sites/default/files/maps/AZLNDFRM_blank.pdf
- Colored pencils

- Arizona's Topography and Rivers
<https://geoalliance.asu.edu/sites/default/files/LessonFiles/GeoHistory/TennysonDams/AZTOPO.pdf>
- Important Dams in Arizona
<https://geoalliance.asu.edu/sites/default/files/LessonFiles/GeoHistory/TennysonDams/AZ-DAMS.pdf>
- Important Dams Worksheet and Answer Key
- Dams Information Sheet by Barbara Post
- Arizona Population Estimate by County
<https://www.mapsofworld.com/answers/united-states/what-is-the-population-of-arizona/attachment/arizona-map-population-by-county/>
- Arizona and Its Neighbors map
https://geoalliance.asu.edu/sites/default/files/maps/az_state.pdf

Objectives

The student will be able to:

1. Locate and label Arizona's major cities, rivers, and dams.
2. Explain the importance of dams in Arizona.

Procedures

Prerequisite Skills: Students should be able to describe the characteristics of a desert region and know the elements of a map. To teach the elements of a map see: *DOGSTAILS: An Introduction to Map Reading* <https://geoalliance.asu.edu/dogstails>

SESSION ONE

1. Begin the lesson by projecting the Bell Quiz.
2. Ask students to share their answers and record them. (This is a good chance to clarify that all deserts are not hot. Desert refers to rainfall not temperature.)
3. To understand where the deserts, mountains, and plateau areas are in Arizona, project the labeled version of Landform Regions of Arizona.
<https://geoalliance.asu.edu/sites/default/files/maps/AZLNDFRM.pdf>
4. Distribute colored pencils and the unlabeled version of the Landforms of Arizona map
https://geoalliance.asu.edu/sites/default/files/maps/AZLNDFRM_blank.pdf. Instruct students to label and color the map and provide a legend for the three different regions.
5. Ask students, "Where do you think most of the Arizona pioneers settled in the late 1800's-early 1900's? Why?" Discuss their predictions.
6. Distribute Arizona's Topography and Rivers map.
<https://geoalliance.asu.edu/sites/default/files/LessonFiles/GeoHistory/TennysonDams/AZTOPO.pdf>

[onFiles/GeoHistory/TennysonDams/AZTOPO.pdf](https://geoalliance.asu.edu/sites/default/files/LessonFiles/GeoHistory/TennysonDams/AZTOPO.pdf)

Have the students color the rivers blue so they are highlighted.

SESSION TWO and THREE

1. Begin this session by discussing the terms flood (too much water for the earth to absorb) and drought (not enough rainfall). Discuss why these are problems.
2. Have the students look at their Arizona's Topography and Rivers map. Have them pair-think-share about which rivers of Arizona might flood.
3. Distribute or project the Dams Information Sheet and read as a whole class.
4. Project and distribute the Important Dams in Arizona map.
<https://geoalliance.asu.edu/sites/default/files/LessonFiles/GeoHistory/TennysonDams/AZ-DAMS.pdf>
5. Distribute the Important Dams Worksheet. Allow students to partner and complete the Important Dams worksheet.
6. Project the Arizona Population Estimate by County map.
<https://www.mapsofworld.com/answers/united-states/what-is-the-population-of-arizona/attachment/arizona-map-population-by-county/>
7. Conclude class by having the students look at their maps of where the rivers are located and compare this to where the most people live. Is there a pattern? YES
 - reservoirs allow AZ to have a large population
 - farmers live near the rivers or use water from the canals which are fed by the rivers
 - ranchers live near the rivers or canals
 - rivers and canals provide water for industry and mining
 - dams prevent flooding on the Colorado, Little Colorado, Gila, Salt, Verde and other AZ rivers
 - without reservoirs—so many people could not live in AZ during drought times, industries, miners, ranchers, and farmers could not operate during drought times

Assessment

ELA and Geography

Important Dams worksheet can be graded for accuracy. A score of 80% or higher would be considered mastery.

Geography

Map work could be graded for completeness and accuracy. A score of 90% or higher would be considered mastery.

Extensions

Students may research and write reports about dam construction.

Sources

Other lessons on dams and water in Arizona can be found at <https://geoalliance.asu.edu/>