

1. Title / Content Area:	Western Water and Power
2. Historic Site:	Shoshone Hydroelectric Plant
3. Episode:	Western Water and Power
4. Developed by:	Jennifer Congedo, Adams 12 School District Michelle Pearson, Adams 12 School District
5. Grade Level and Standards:	<p>Middle School Science:</p> <p>MS-ESS 3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.</p> <p><i>Grade Level: 3-5</i> <i>Content in this Document Based Question (DBQ) link to Prepared Graduate Competencies in the Colorado Academic Standards</i> <i>Prepared Graduate Competencies: 1, 2, and 4</i> <i>Colorado Standards:</i> <i>3rd: History Standard 1 GLE 2.</i> <i>4th: History Standard 1 GLE 2..</i> <i>5th: Geography Standard 2 GLE 2</i> <i>C3 Standards in Social Studies:</i> <i>D2.Geo.2.3-5.</i> <i>D2.Geo.4.3-5.</i> <i>D2.Geo.5.3-5. D2.His.2.3-5. D2.His.3.3-5.</i></p>
6. Assessment Question:	How do the important historic places such as the Shoshone Hydroelectric Plant and the Grand Valley Project help Coloradoans access the water that they need to farm and live?
7. Contextual Paragraph	Water is a critical need for survival and with the wide variety of landscapes in Colorado in which to live, obtaining water can either be a simple process, or one that takes substantially more effort. Add in factors such as changing rainfall and



snowpack levels across the state, and places once abundant with water now struggle to obtain what they need especially with changes in our climate.

The geographic features of Colorado play a role in where precipitation falls in abundance and where it doesn't. Colorado's climate is governed by five major factors (Latitude, continental position, topography, elevation, and winter storm track position) which affect the precipitation in the state. This causes challenges for some areas of the state with a constant need for more water, and other areas in the state are fine with the precipitation they receive. The Shoshone Hydroelectric Plant holds water rights which predate other rights on the river allowing the water flow east and west to be controlled at the turn of a switch.

Additionally, power has been an essential need for settlers particularly since the Industrial Revolution. The need for power can be particularly critical in remote locations and may be more difficult to procure without innovative ideas and solutions that help people produce it in urban, suburban, and rural areas. The Shoshone Hydroelectric Plant was one such power solution in western Colorado when it was constructed in the early 1900's . The construction of the plant allowed for power to be created and delivered to both the eastern and western slopes of Colorado as early as 1906.

The Grand Valley Project plays a role in water use in Colorado as well. The Grand Valley Project and Grand Valley Diversion Dam play an important role in the history of Colorado water use as well as the development of the Bureau of Reclamation. The ditches and dam provide water for the otherwise dry and desert counties below the dam on the Western Slope.

8. Connection to Historic Preservation

The Shoshone Hydroelectric Complex is significant for being one of the earliest hydroelectric plants on the Colorado River. The complex is one of the largest in the Rocky Mountains which depends on the flow of the river for a source of power rather than water which is stored in a reservoir. It is also significant for the engineering that was needed to construct the plant in the narrow Glenwood Canyon in the early part of the 20th century. It is deemed eligible for the Colorado State Register of Historic Places and the National Register of Historic Places. A HAER (Historic American Engineering Record) documentation of the Shoshone-Denver Transmission Line which is associated with the Shoshone Hydroelectric Plant was

completed in 1983 and updated in 2014 which gives us a photographic record of this important structure and engineering marvel in Colorado.

The Grand Valley Diversion Dam is significant in engineering design because of the German interior dam design using four roller gates to control the flow of water. Additionally it is architecturally significant not only because of the beauty of the setting, but the architecture used in the design which is still notable over 100 years later. Completed in 1916, it was added to the National Register of Historic Places in 1991.

Document Based Question (DBQ)

Document Set

Colorado Encyclopedia



<https://coloradoencyclopedia.org/article/water-colorado>

GUIDING QUESTIONS:

1. How does Colorado's diverse geography affect the amount of precipitation the western slope receives versus the amount of precipitation the eastern slope receives?
2. Describe the discrepancy between water supply and populations of the western and eastern slopes. What does this discrepancy cause?
3. Why does our dependence on snowpack and water become tenuous with climate change?

Colorado Experience: Western Water and Power



<https://www.youtube.com/watch?v=1hIDRtgV62Y>

The Powerhouse: minute 46:06-48:50

Image Credit:

<https://www.loc.gov/resource/hhh.co0088.photos/?sp=4>

GUIDING QUESTIONS:

1. Where is the Shoshone Hydropower Plant located?
2. The Shoshone Hydropower Plant was initially constructed as a run of the river power plant. What does that mean?
3. What is the job of the power plant?
4. The hydroelectric power plant is over 100 years old. Why could this be a problem?

Grand Valley Project



<https://www.usbr.gov/projects/pdf.php?id=122>

GUIDING QUESTIONS:

1. Why was the Grand Valley Project established? Why does it include a dam and ditches?
2. Examine page 3-4 of the Grand Valley document. Create a short timeline showing the following elements:
 - a. Ute prehistoric establishment
 - b. Removal of the Ute tribe
 - c. Settlement
 - d. Removal of settlers
 - e. Construction of irrigation ditches
 - f. Construction of the dam
3. Examine the image. What seems special about the architecture of the dam?
4. What is the job of a dam?
5. What is the job of an irrigation ditch?
6. Why are both of these important to people in Colorado that need water?

John Wesley Powell



[Colorado Experience Episode](#): 7:19 - 9:00

GUIDING QUESTIONS:

1. Who was John Wesley Powell?
2. What is important about the term “acre feet” ?
3. What were Powell’s beliefs about the establishment of the West and the need for water?
4. What did Powell say about the future of the American West and water?

Assessment Question

How do the important historic places such as the Shoshone Hydroelectric Plant and the Grand Valley Project help Coloradoans access the water that they need to farm and live?

Response