

The Power of Water

Unit Overview



DRIVING QUESTIONS:

Why is there a dam in Glen Canyon? Why do some people want to remove the dam?

Why is the Glen Canyon Dam controversial?

ANCHORING PHENOMENON:

The Glen Canyon Dam on the Colorado River is controversial because it impacts people, animals, and the environment in positive and negative ways.

- *Students view a slide deck of photos and listen to a podcast to make observations and ask questions about the Glen Canyon Dam. Throughout the unit, students will collect evidence about why the Glen Canyon Dam is controversial and how it impacts people, animals, and the environment. They will use this evidence to produce a public service announcement (video, slides, poster, or other form of media) to inform their peers/families about the different sides of the controversy.*

STORYLINE

Section 1: Why is there a dam in Glen Canyon?

Students will obtain and combine information on dams to determine how they use the natural resource of water. Then they will learn how dams work through the transfer of energy, and learn about renewable and non-renewable resources. Students will connect their learning to the controversy and explain the reasons people want the dam in Glen Canyon.

- DCI: Natural Resources, Definitions of Energy, Conservation of Energy and Energy Transfer
- SEP: Obtaining, Evaluating, and Communicating Information, Planning and Carrying out Investigations
- CCC: Cause and Effect, Patterns, Connections to Engineering, Technology and Applications of Science

Section 2: Why do some people want to remove the dam?

Next, students will explore the process that formed Glen Canyon, and investigate how the dam causes changes to the river area and the habitats of plants and animals. They will also consider how people used the area before the construction of the dam. Students will connect their learning to the controversy and explain the reasons people want to remove the dam.

- DCI: Earth's Materials and Systems, Natural Resources, The History of Planet Earth
- SEP: Planning and Carrying out Investigations, Obtaining, Evaluating, and Communicating Information, Constructing Explanations and Designing Solutions
- CCC: Cause and Effect, Influence of Engineering, Technology, and Science on Society and the Natural World, Patterns, Scientific Knowledge Assumes an Order and Consistency in Natural Systems

Section 3: Why is the Glen Canyon Dam controversial?

Finally, they will design devices to learn if electricity can be produced without a dam. They will combine information about the dam controversy and create a public service announcement on the Glen Canyon Dam controversy.

- DCI: Energy in Chemical Processes and Everyday Life, Defining Engineering Problems
- SEP: Constructing Explanations and Designing Solutions
- CCC: Energy and Matter, Interdependence of Science, Engineering, and Technology, Influence of Engineering, Technology, and Science on Society and the Natural World, Science is a Human Endeavor

OVERVIEW

Introducing the ANCHORING PROBLEM and DRIVING QUESTIONS

(1 day ≈45 instructional minutes)

ANCHORING PROBLEM

The Glen Canyon Dam on the Colorado River is controversial because it impacts people, animals, and the environment in positive and negative ways.

(1 day)

Section 1 <i>Why is there a dam in Glen Canyon?</i>	Section 2 <i>Why do some people want to remove the dam?</i>	Section 3 <i>Why is the Glen Canyon Dam controversial?</i>
<p><i>Total Time: ≈13 days</i></p> <p>LESSON 1 Why do people build dams on rivers? (≈3 days)</p> <p>LESSON 2 How do we make electricity using dams? (≈5 days)</p> <p>LESSON 3 Which other natural resources do we use for energy? (≈5 days)</p>	<p><i>Total Time: ≈13 days</i></p> <p>LESSON 4 How did the canyon form?(≈6 days)</p> <p>LESSON 5 How does the Glen Canyon dam impact the environment? (≈3 days)</p> <p>LESSON 6 What can we learn about Glen Canyon’s past? (≈4 days)</p>	<p><i>Total Time: ≈9 days</i></p> <p>LESSON 7 How can electricity be produced in a river without a dam? (≈4 days)</p> <p>LESSON 8 How can we use science to explain the Glen Canyon Dam controversy to others? (≈5 days)</p>

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