

## **Industrialization and Hydropower: Water in 1800s Lowell and the West Today**

Lisa Moot and Pam Middlemas, Grand Junction, CO

National Endowment for the Humanities Landmarks of American History and Culture Workshop  
- Social Movements and Reform in Industrializing America, 2021

**Enduring Understanding:** Students will be able to explain the importance of water power to industrialization in the early textile mills from the 1820s-60s and connect it with the impact of hydropower today in the arid West.

### **Essential Questions:**

- What sparked the “market revolution?”
- What were the main elements of the “market revolution?”
- How was water employed in the Lowell mills?
- What hydro technologies do we depend on in our lives in Grand Junction, Co?
- How are the Lowell technologies and modern hydropower technology similar?

### **Content Objectives/Outcomes**

Students will be able to describe how the Lowell mills illustrate larger transformations in transportation and industrialization in the U.S in the early to mid 1800s through primary and secondary sources.

### **Language Objectives/Outcomes**

Students will be able to describe context and point of view in visual primary sources and present these for an image to the class.

**Number of Days: 4**

### **Resources/ Materials:**

- Tsongas Industrial History Center Virtual Field Trip - Water Power: Powering a Revolution
- In person field trip: Orchard Mesa Hydroelectric Plant
- Printed and online copies of images from Pat Malone’s slides
- Source analysis chart

### **Teaching / Learning Sequence**

#### **Introduction/ Launch:**

Mon: Background information from *Give Me Liberty!: An American History*, by Eric Foner, Ch. 9 “The Market Revolution” review reading guide/lecture.

#### **Exploration:**

Tues: Students will describe and analyze images (primary and secondary) that show views of change brought by industrialism in Lowell, use of water power technology, geography of Lowell. They’ll choose 3 of 6 of each image set to write about.

1. maps
2. views of Lowell/surroundings
3. water management
4. mill technology

Wed 10/20: Waterpower field trip-- Students will complete attached graphic organizer.

Fri: Whole group wrap up: Present an image and Jamboard on one thing you learned this week and prepare for Monday's field trip to Orchard Mesa Hydroelectric Plant.

**Summary:** This unit is the first week of a 4-week unit using Lowell to illustrate technological, social and economic issues and changes in the US in the early to mid-1800s. Here, we introduced students to technological and social change brought by industrialization, provided them with greater insight into the technological operations of the mills and practiced analyzing visual images (primary and secondary).

**Assessment (daily):**

Reading guide check (Ch. 9 Foner) (10 pts)

Field trip reflections (2) (10 pts each)

Image analysis-- source chart (10 pts)

**Assessment (culminating performance task):**

At the end of our Lowell Exploration, students will develop an argument on one of the four themes from our Lowell exploration: Industrialization and Hydropower, Mill Girls and Their Work, Cotton to Cloth (Slavery) and Transcendentalism. They will explain key events and issues related to the theme and use at least six primary sources that we used in our exploration in their argument. They will include a correct MLA citation page at the end.

Students will also create a "hands on" project representing one of the four themes, which we will feature in an exhibit in our school library.

**Frameworks:**

Colorado Social Studies Standards, High School, Standard 1:

1. Prepared Graduates: Understand the nature of historical knowledge as a process of inquiry that examines and analyzes how history is viewed, constructed, and interpreted.  
Grade Level Expectation: Use the historical method of inquiry to formulate compelling questions, evaluate primary and secondary sources, analyze and interpret data, and argue for an interpretation defended by textual evidence.
2. Prepared Graduates: Analyze historical time periods and patterns of continuity and change, through multiple perspectives, within and among cultures and societies.  
Grade Level Expectation: Key concepts of continuity and change, cause and effect, complexity, unity and diversity, and significant ideas in the United States.

## Lowell Exploration: Visual Primary Source Analysis

Please complete the chart using the sets of images related to the Lowell Mills.

Category/ source info	What do you see? Record 4 details about the source.	What does it show us about the <b>context and point of view</b> of industrialism or technology in Lowell?
Maps		
Maps		
Maps		
Views of Lowell		
Views of Lowell		
Views of Lowell		
Water Management		

Water Management		
Water Management		
Mill Technology		
Mill Technology		
Mill technology		
Questions/Comments  Maps: Views of Lowell: Water management: Mill technology:		

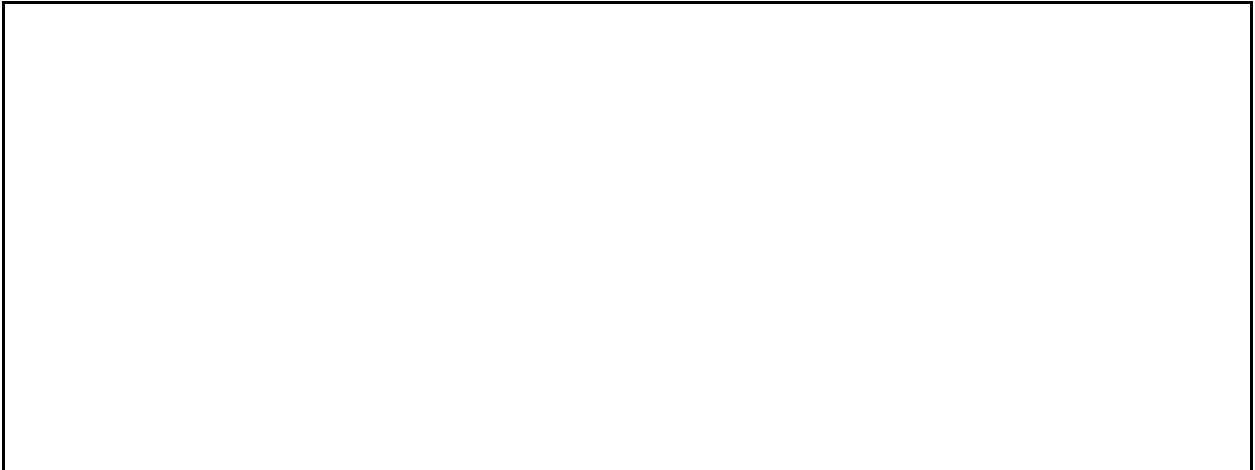
## Lowell Exploration: Water Power: Powering a Revolution

1. Please sketch or describe the water wheel experiment.



2. What were the results and what did the experiment show?

3. Please sketch or describe the canal-building activity.



4. What were the results and what did the experiment show?

5. What did these experiments show about technology and mill operations in Lowell?

