

CHANGE IN MINING TOOLS AND TECHNOLOGY

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OVERVIEW

The overall purpose of this lesson is to show students that the tools and technologies used in gold mining and mine work changed or evolved over time. The tools and methods of gold mining changed from simple and over time they became more and more complex and costly.

STANDARDS

- History Standard 2.2: Students know how to interpret and evaluate primary and secondary sources of information.
- History Standard 2.3: Students apply knowledge of the past to analyze present-day issues and events from multiple, historically objective perspectives.

OBJECTIVES

By the end of this activity, students will be able to:

- “Read” photographs and other primary sources relating to mining tools and technology.
- Identify and place in proper chronological order mining tools and technologies related to three major periods of mining in Colorado.
- Create a poster, using symbols, pictures, photos and other representations, demonstrating the three main phases of mining technology in Colorado.

INQUIRY QUESTIONS

- What kinds of tools were used in placer mining? Were most people working for themselves?
- What kinds of tools were used in the next stage of gold mining? How was work organized? Were most people working for themselves?
- What kinds of tools and technologies were used in the industrial stage of gold mining? How was work organized? Were most people working for themselves?

- What work did men, women, and children do in gold mining? Are these types of work different from coal mining?
- How ethnically diverse are the people you see in the photographs of mining?
- Does mining take place in your region today? If so, how does it differ from early gold mining and coal mining?

PROCEDURE

1. Provide each group of students with a packet of photographs. (These materials are available in the Appendix below. If you can print these photos with a laser printer, your students should find them quite “readable.”) We suggest you use the following photographs and short text sources for this activity:

MINING WORK AND TOOLS THEME:

Placer Mining Sequence:

- Photo 1: A Placer Miner
- Photo 2: Placer Miners at Work
- Photo 3: Drawing of Gregory’s Diggings
- In Their Own Words 3: “Placer Mining”
- Photo 4: Placer Mining in Russell Gulch
- Photo 5: Placer Mining with a Sluice

Quartz Mining Sequence:

- Photo 1: Pete Pourtalis at Poverty Bar
- In Their Own Words 1: “Gregory’s Diggings”
- Photo 2: Using Horse Power
- Photo 3: Mine Timbering
- Photo 5: Miners at the Saratoga Mine

Smelting Sequence:

- Photo 1: The Grant Smelter in Leadville
- In Their Own Words 1: “A Pueblo Smelter”
- Photo 2: A Smelter in Western Colorado
- Photo 4: The American Smelter
- In Their Own Words 4: “The Argo Smelter”

2. Looking at tools and technologies, sort the photographs of work by time, from earliest to latest. What clues did you look for to tell you which came first, next, and so forth? Share you findings (and reasons) with your classmates.

3. After they compare their findings (orderings), tell the students what the chronological order of the photographs actually was. Ask students to point out what kinds of clues they think worked best in sorting the photos; post these traits.
4. Have students (or pairs/groups) create a three panel sheet of paper for use as a poster (use 12' x 18' sheet of construction paper; have student fold the sheet of paper in thirds width-wise). In the panels from left to right, have students draw (or include a photocopy) mining tools (or make symbols) that represent each of the three stages of gold mining in Colorado (individual placer, lode, industrial mining). Place student work on the walls of your room and have students compare the similarities and differences of their posters.

EXTENSION ACTIVITY ONE

Extension Activity One. Have your students go on the [Virtual Field Trip of the Lebanon Mine and Mill](http://Hewit.unco.edu/dohist/vftrips/mining/lebmine/tourmenu.htm), between Georgetown and Silver Plume Colorado. The URL for this “field trip” is <http://Hewit.unco.edu/dohist/vftrips/mining/lebmine/tourmenu.htm>.

EXTENSION (PRESERVATION) ACTIVITY TWO

Mining (contemporary) and/or Boulder County history (as a test case, which might be impossible to do in any number of counties or places). Thus the questions might be what can you find out about mining in your community (in your region or county). Or, find out what mining is currently taking place in your community or region. What kinds of mining are taking place and what is its purpose; where are they taking place?

One of the things you may want your students to think about is that modern miners usually do a better job of reclaiming the land after they have mined the materials they were after. One way to demonstrate this difference is to have students analyze several of the historical photographs that show damage to the environment caused by mining in the 19th century. Have them compare these photos with those (they might take themselves) of close-by mines (e.g., gravel pits) that have been reclaimed with lakes and parks.

EXTENSION PRESERVATION ACTIVITY THREE

You may consider have your students conduct oral history interviews with older folks in the community who may have been miners or involved in mining (either coal, precious metals, hard rock, or others). You should help students preservation the transcripts and tapes of the oral history interviews they conduct. You may consider working with your local historical society to preserve these interviews there. At a minimum, you should make certain these transcripts and interviews are preserved and made available in your school's library/media center.