Mining: Discovering a Stamp Mill Lesson Plan
45 minutes

Essential Question: What impact did mining have in Death Valley?

Standard(s):
California History Social Science Content Standards:
3.3.3 Trace why their community was established, how individuals and families contributed to its founding and development, and how the community has changed over time, drawing on maps, photographs, oral histories, letters, newspapers, and other primary sources.

3.5.1 Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and the present.

Nevada History Social Science Content Standards:
SS.3.22. Explain how human settlements and movements relate to a location's physical geography and natural resources.

Common Core English Language Arts Standards: Reading: Informational:
RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

Common Core English Language Arts Standards: Writing:
W3.1B Provide reasons that support the opinion.
W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

Common Core English Language Arts Standards: Speaking & Listening:
SL.3.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.

Objectives:
Students will be able to:
- Express the meaning of discovery in their own words
- Explore tools used in early mining within Death Valley

Overview:
This lesson is part of a cross-curricular mining unit focused on the impacts of miners on the Death Valley community and environment. This is the introductory lesson which provides students journal writing opportunities to explore their meaning of discovery. Students will watch a short online video on mining in Death Valley and actively sequence the steps of a typical stamp mill.

Teacher Background Information:

Since the 1848 discovery of gold in California, Death Valley experienced over 140 years of boom and bust mining. From the 1880s to the early 1900s, mining was limited and sporadic in the Death Valley region. In the mid-1900s, open pit and strip mines became popular. Legislation and Death Valley's changing status to a national monument and then a national park put an end to most mining activity. Billie Mine was the last active mine which closed its doors in 2005.

Towns popped up and disappeared just as quickly around Death Valley based on where mining claims were somewhat successful. Populations in these towns ranged from 400 to 10,000 people. Some were simple tent camps while others had infrastructure and accommodations like saloons and hotels. Rhyolite, Skidoo, Greenwater, Harrisburg, and Chloride City were examples of these bustling temporary towns that are now infamous ghost town sites.

Many of these ghost town sites have remnants of the stamp mill nearby. This was a definitive sign of a mine operation. It was a very large and extremely noisy machine that crushed an ore to begin the extracting process.

Materials:
- Internet connectivity to watch the video
- Mechanism to display the video to the class
- Student journals
- Stamp Mill Mining Process document
- Scissors

Lesson Hook:

Ask students to take out their writing journals. Tell a scenario about friends out on an adventure who find this rusty old can with holes in it. An example scenario is below. Display the picture of the can. Students write a short paragraph about what the friends do with this can. When students are done, ask volunteers to share their paragraphs. Ask students to explain why they did their chosen activity with the can.

It is a beautiful sunny day. Your best friend's big sister offers to take you and your best friend to the hills. This will be a great adventure! The three of you hike on a well-worn trail. Your best friend notices a lizard and motions everyone to follow it. After a few minutes, the lizard stops and looks up at you. You stare back and notice it is standing on a narrow, hidden trail. "Yippee! We've gotta try this trail!" you say. The trail winds around several small hills and lots of fun boulders to climb. Then, your best friend sees this rusty, old can. (display picture of the can) "Oh man, check this out!"

Procedure:

1. After the lesson hook, tell the students you will watch a short video about a ranger who discovered rusty, old cans and other historical debris at an old mining site in Death Valley National Park.

2. Watch the National Park Site video about [Skidoo](). (9:06 min)

3. Discuss the new vocabulary from the video. See the vocabulary section.

4. Divide the class into equal groups. Pass out the Stamp Mill Mining Process document.

5. Groups cut out each strip, discuss the stamp mill process, and put the strips in chronological order based on the video they just saw.

6. When the class is done, replay the part of the video describing the stamp mill process. Stop as the ranger describes each step. The students should check their work and fix if necessary.

7. Explain to the class that they will be learning about mining towns in Death Valley. Now they know the stamp mill is a big piece of mining history that is often left behind at mining sites. What else will they discover throughout this mining town unit?

8. Replay the remainder of the video with the ranger discussing what she does when she discovers old objects at mining sites.

9. Display the rusty, old can again. Give the students an opportunity to write another paragraph in their student journals that gives another perspective about the old, rusty can with holes.

Extension Questions or Activity:
- Start small group discussions about careers with an abandoned mine program. Is this the same as a historian? How is this different than a park ranger career? Does the National Park Service employ both?
- Compare and contrast the stamp mill at Skidoo with the stamp mill at [Keane Wonder Mine](#) in Death Valley National Park.
- Explore the multiple meanings of each of the words in the vocabulary section.

Support for Struggling Learners:
- Teacher passes out a bag of pre-cut strips from the Stamp Mill Mining Process document.
- Provide a bag of pre-cut strips to each member of the class. Students work together with the teacher as a whole-class activity. Students glue the strips in chronological order on another paper.

Vocabulary:
- Discovery – the act of finding something unexpectingly or in the course of a search
- Mining – the process or industry of obtaining coal or other minerals from a mine
- Excavate – to make a hole or channel by digging
- Ore – a natural solid material from which a mineral can be removed
- Mineral – a substance formed naturally by geologic processes in the Earth such as gold, silver, or quartz

Assessment:
This introductory lesson involves an informal assessment of the students' group work and cooperation. A teacher should look for creativity in a student's journal entry, attention during the video, participation during the group work, and positive indications of the students checking their group work during the second showing of the video.

References:
[Skidoo – Death Valley Explorer Episode 4](https://www.youtube.com/watch?v=fDWSRPjdxuU) - <https://www.youtube.com/watch?v=fDWSRPjdxuU>
[Keane Wonder Mine – Death Valley National Park](https://www.nps.gov/deva/learn/historyculture/keane-wonder-mine.htm) - <https://www.nps.gov/deva/learn/historyculture/keane-wonder-mine.htm>
[Mining in Death Valley – Death Valley National Park](https://www.nps.gov/deva/learn/nature/mining-in-death-valley.htm) - <https://www.nps.gov/deva/learn/nature/mining-in-death-valley.htm>

This lesson plan was developed through the Teacher-Ranger-Teacher program. Please provide us with feedback on this lesson plan using the contact link below. Thank you!