

**Lesson Plan #3 -
The Environmental Impact of Historic Mining**
Downward, Downstream

Lesson Goal:

Show the environmental impact from historic mining.

Concept to be developed:

Overview of Mining

Mining allows access to valuable and necessary resources, however there are often unintended consequences to this acquisition of such resources. Some environmental damage is long-term (in this case over one hundred years), and often not easily remedied.

Skills to be developed:

1. Note taking.
2. Answering questions from a video.
3. Listening skills.

Objectives:

1. Discover the connection between mining and the environmental impact to humans and wildlife from toxic metals.
2. List two diseases that can be caused from over exposure to toxic metals.
3. Explain the reasons for pollution of the watersheds as explained by the video.

Materials: All groups

1. KWA charts - large and small
2. Video - *Downward, Downstream*
3. Video Worksheet - *Downwind, Downstream*
4. Pencils
5. VCR
6. Overhead projector / overheads

Safety Precautions

None

Procedure -

Precious metal mining has played a key role in the development of many southwestern states including Nevada. Mining allows access to valuable and necessary resources, however the methods used to mine 100 years ago destroyed the landscape and caused widespread environmental damage to many watersheds. The impact is still felt 100 years later by diseases to humans and wildlife. This video provides an overview of the mining era and shows the impact today.

Concept Development

1. (Standard Group and Technology Group)
Pass out KWL charts to students. Have them fill in what they know about the term effects of mining practices to the environment, wildlife and humans. Also list the role that mining has played in the Southwestern states.
2. Hand out video study guides to students prior to watching the video. Have groups of students each answer 2 questions to be shared with the class at the end of the video.
3. After completion of video, have students share their answers with the large group as teacher fill in study guide on the overhead. Discuss questions and answers.

Technology Integration Component

Use of VCR video, and overhead projector

Evaluation

Evaluation will be based on completed study guide worksheets and discussion.
A unit test will be given upon completion of the unit.

Attachments

Study Guide, answer key
KWL Chart

Video

Downwind, Downstream by www.Bullfrogfilms.com
ISBN (VHS) 1-56029-009-9

Name _____
Date _____
Period _____

Downwind, Downstream Video Study Guide - Lesson # 3
(Based on Downwind, Downstream video)

- 1. What geological activity caused the formation of the Rocky Mountains?**
- 2. What is the definition of an “aquifer”?**
- 3. What geological actions produced the high country valleys?**
- 4. In what ways do beavers hold an ecosystem?**
- 5. What are two main reasons that early settlers were attracted to the western United States?**
- 6. What is the major cause of pollution in the mountain streams of the Rockies?**
- 7. What are some of the “heavy metals” that cause dangerous effects to humans when they drink this contaminated water?**
- 8. What are some effects of heavy metal on fish?**
- 9. Why was uranium mined? What was it used for?**
- 10. Can “reclamation” stop the heavy metal seepage from high altitude mines?**

Downwind, Downstream - Lesson # 3
(Based on Downwind, Downstream video)

- 1. What geological activity caused the formation of the Rocky Mountains?**
An earthquake, which is a collision of the continental plate.
- 2. What is the definition of an “aquifer”?**
An underground geological formation able to store and yield water.
- 3. What geological actions produced the high country valleys?**
Wind, erosion, and earthquakes helped produce valleys.
- 4. In what ways do beavers hold an ecosystem?**
Beavers make dams to store water. The dams provide water for animals in the ecosystem and slow down the polluted water.
- 5. What are two main reasons that early settlers were attracted to the western United States?**
1) Beaver pelts 2) mining
- 6. What is the major cause of pollution in the mountain streams of the Rockies?**
Mining is the major cause of pollution in the mountain streams of the Rockies.
- 7. What are some of the “heavy metals” that cause dangerous effects to humans when they drink this contaminated water?**
Mercury, cadmium, zinc, lead and copper are some of the heavy metals that cause dangerous effects to humans.
- 8. What are some effects of heavy metal on fish?**
Fish can be deformed, become ill or die from the effects of heavy metal.
- 9. Why was uranium mined? What was it used for?**
Uranium is used to harden steel; it is also used to make bombs.
- 10. Can “reclamation” stop the heavy metal seepage from high altitude mines?**
To some extent reclamation can help but it can't get out all the heavy metals.