



New Mexico and the World

Curriculum Resources for New Mexico Teachers



All that Glitters in not Gold

Students will investigate the process of recovering and mining gold.

Due to the heavy metals used in recovery of gold, the true price of gold must also factor in the suffering of the workers, and the damage inflicted on the environment.

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Grade Level: 5-8

Area: Language Arts; Science

Strand(s):

NM Benchmark(s): LANGUAGE ARTS:

Strand: Reading and Listening for Comprehension

Content Standard I: Students will apply strategies and skills to comprehend information that is read, heard, and viewed.

Strand: Writing and Speaking for Expression

Content Standard II: Students will communicate effectively through speaking and writing.

SCIENCE:

Strand III: Science and Society

Standard I: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.

Length:

of Students:

Learning Objectives: Learn of the historical value of gold
Examine health, environmental, and social costs of gold mining
Understand the full impact of gold extraction industry

Introduction: Gold mining is not a sustainable activity, in that the amount of land destroyed in order to produce a pure form of gold is 725 million tons of waste to yield only 2,402 tons of gold. The Third World Traveler

(www.thirdworldtraveler.com/Transnational-corps/Fools-gold) speaks of this industry, addressing the problems in mining of gold:

1. Genocide- Historically, every gold rush has resulted in the destruction of the Native People. In Brasil, the Yanonani have been decimated by the invasion of the garimpeiros in the '70s and '80s.

Davi Kopenana Yanomami, a representative of the tribe writes, "What we do not want are the mining companies, which destroy the forest, and the garimpeiros, who bring so many diseases. These whites must respect our Yanomami land. The garimpeiros bring guns, alcohol, prostitution, and destroy nature wherever they go. The machines spill oil into the rivers and kill the life existing in them and the people and animals that depend on them. For us, this is not progress."

2. The greatest damage is to the water resources of the areas being mined. Not only is mercury deposited into the watersheds, but also contamination by cyanide and other chemicals destroys the plant and fish life. This article states, "Of 500,000 gold miners tested in Brazil, more than 30% of them showed mercury levels above the World Health Organization's tolerable limits."

3. As mentioned above, the amount of waste is highly disproportionate to the product. "To make a simple gold wedding band, at least 2.8 tons of earth is excavated." (Fools Gold, 2)

4. Governments subsidize gold mining, resulting in a corporate welfare system. In Brasil, the main problem is the ownership of the mining concerns by multinationals, not by Brasil. Yet, the consequences of the mining have to be borne by the Brazilian people.

5. Since 1994, governments have attempted to attract foreign investment to mine gold. The majoring of mineral extraction comes from native lands, trampling the rights of the indigenous people.

6. India's dowry system creates a huge demand for gold consumption. "In 1998, the country's gold consumption added up to 815 metric tons, nearly twice that of the United States. This is not, however a simple tale of vanity or excessive consumption. It is part of the dowry women pay for a man's hand in marriage." (FG, 3)

7. Merrill Lynch declares that gold is essentially a "dud investment." The supplies that exist today would be sufficient to supply the world with gold for jewelry and industrial demands, without continuing the devastation of mining new gold.

8. The impact of mining on the ecosystem results in the destruction of habitat and bio-diversity. The main destroyer of wilderness is the road building to

access the minerals. (paraphrased)

Materials:

Procedures:

Students will want to consult the original of this information using the web address above. Project Underground is based in Berkeley, and also can provide information of the true environmental costs of not just mining, but of drilling for oil. In spite of the low ore content in the mines located in the Pantanal, the exploitation continues. From the point of view of the mining companies, "Brazil's gold potential has not been fully realized (sic, British English), as the country remains relatively unexplored." The article speaks directly of the Pantanal, Irish company Minmet Pic have (sic, British English) made a decision to develop high grade gold deposits in the Cuiaba Basin located in Matto Grosso without the assistance of any joint partners. Minmet are confident that gold production costs are Cuiaba are low enough not to warrant additional equity sharing in the project. Minmet are currently carrying out bulk sampling and trial mining activities at its Poconé Open Pit at Cuiaba.

According to another source, the mine of which they are speaking does not contain high-grade ore, and the low production costs are only possible because of the blatant lack of concern for the environment.

When students view images of open pit mines with they should ask, "What is the TRUE price of gold?"

Background Info:

These lessons contain (thanks to Jane Goodall's program, Roots and Shoots) three main aspects:

- Care and concern for people
- Care and concern for animals
- Care and concern for the environment

Additionally, the lesson includes research of the global issue or subject, application at the local level, and an element of community service. Each lesson plan provides a menu of possible areas of interest for the students to investigate. Likewise, the suggestions for activities should allow choice to the learners. Documentation of the student's research could be in the form of a drawing, a report, a debate, or a three-dimensional diorama. Implicit in the design of my lessons is the need for each student to do their own research, and present their learning to the class.

**References-
Resources:**

Student Activities:

1. Create jewelry with beads, found objects or other nature supplies that would serve as substitutes for metal based jewelry.
2. Investigate areas close to your home state or country that are polluted. Discover the source and investigate the solutions that are being considered.

Write a letter in support of cleaning up the area.

You may live in areas in which Super Fund sites are found, or where future sources of pollutants are being considered; write a position paper on these sites.

3. Interview people about the importance (emotional and economic)of gold to them. Study the fluctuations of the gold market, and consider the value of gold as an investment.

4. Research the historical value of gold, and its ties with matrimonial traditions. You may want to consider the role of gold in dowry marriages and dowry murders.

5. Write about your life from the point of view of a gold miner.

6. Volunteer to help with a community cleanup project, removing trash in a public space with parental or teacher supervision help to provide services, such as painting or yard cleanup to an elderly person, or a person living on a limited income. You may want to seek opportunities to work with Habitat for Humanity, if there is one in your area.

Assessment:

**Technology
Integration:**

Accommodations:

Review Questions:

Related Careers:

Career Education:

Hints and Tips:

Lesson Evaluation: