



The Molly Brown House Museum

Mining in Colorado

Mining was the most significant industry in the 19th and early 20th centuries in Colorado. In 1858, William Green Russell sparked the Pike's Peak Gold Rush with his discovery of gold by placer mining at the Little Dry Creek (modern Englewood).

Placer mining involves panning for gold in creeks or streams beds that have mineral deposits in them from erosion. When panning, the gold sinks to the bottom of the pan and water carries away the dirt and gravel. Placer mining finds eventually decreased and miners turned to hard rock mining to get to gold and silver ore.



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Hard Rock mining consists of digging tunnels or shafts into the earth to reach buried ore deposits that contain gold, silver, and other minerals. Once the ore is mined, it must be processed in order to extract and prepare the metal or mineral. The ore is crushed and ground and then chemicals or heat is applied to extract or process the metal.



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Mining camps popped up in the Rocky Mountains and along the Front Range. Important mining strikes included silver and gold in Leadville, gold in Cripple Creek and coal in Ludlow. In the 1870's, railroads began to connect the mountain mining towns with Denver and the rest of the country, sparking booms in Denver and Pueblo and bringing new mining towns into being.

J.J. Brown worked as a miner in Leadville. In 1893, in the Little Jonny Mine, he found the largest vein of gold and copper in North America. J.J. was made part owner of the mine and eventually invested in mining operations in Colorado, Arizona, Utah, California and Mexico. His son, Larry, also worked in the mines and attended the Colorado School of Mines.

On average, miners worked 8-10 hour days and were paid \$3 a day. Children as young as 8 years olds also worked in mines. Many miners lived in mining camps known as company towns. The mining company that owned the mines also owned the houses, stores and all other buildings in the mining town. Mining strikes in Colorado asking for better pay, fair living conditions and safer working conditions led to national attention for the rights of miners and laborers.

Mining continues today in Colorado, including mining in the Cripple Creek and Victor Gold mine southwest of Colorado Springs.

Chocolate Chip “Ore” Extraction

At Home Activity

Overview:

Students will learn about mining in Colorado’s history, and participate in a hands on activity that discusses the environmental challenges of extracting minerals from the Earth’s crust. Students participate in a simulation of the mining process using chocolate chip cookies and toothpicks. The simulation helps to illustrate the costs associated with the mining of gold.

Introduction

Lots of different minerals—like gold, coal and copper—are extracted from the Earth’s crust through a process called mining. Once mining engineers have discovered, extracted and prepared the minerals, they can be used to make products and energy. When Molly Brown was living in Colorado silver, gold and coal were some of the mineral being extracted by mining engineers, like her husband J.J. Brown. J.J. worked in a town called Leadville, which was known for its many silver mines. When the demand for silver decreased in 1893 (for more information have your students research at the Sherman Silver Repeal Act of 1893 and explain why the demand for silver decreased) J.J. began to look for gold in Leadville. At the Little Johnny mine in Leadville, J.J. found evidence for gold. By shoring up the walls of the mine J.J. was able to extract gold, earning him a promotion that made the family wealthy.

When J.J. was mining in the 1890s many of the tools were different than they are today. J.J. would have used a pick axe, a drill and blasting caps to create small explosions within the mine. The phrase “fire in the hole” is an old mining phrase warning miners to exit before setting off a controlled explosion.

Test your skills at being a mining engineer. We’ll dig chocolate chip cookies instead of rock!

Materials Needed

- 2 chocolate chip cookies (you’ll need 3 if you’re planning to eat one!)
- Toothpicks

Instructions

1. Take one cookie and pretend it is an environment in which a great source of gold has been located (chocolate chips).
2. Try to predict how many chips you can extract from this environment.
3. Using a toothpick, extract as many chips as possible in 2 minutes and pile them to one side.
4. Count the chips you recovered and compare this with the number of chips you predicted.
5. Now study the impact of your mining on your "cookie" environment. What do you think would happen if this were a real gold mine? What if animals and plants lived above the gold deposits? What might happen to them after the mining has taken place?
6. Now think of ways to mine the second cookie with less damage to the environment.
7. Take the second cookie and mine it using the ideas you came up with to protect the cookie environment. Pile the new chips to one side.
8. Compare the two piles of chips. How did you do the second time?

Chances are, you got less chocolate chips the second time because you tried to do less harm to the environment. Real life mining engineers have to try to get as much from the ground as they can, while at the same time limiting the amount of damage they do to the Earth. You’ve learned that extracting minerals can damage the Earth. It can be very difficult to repair environmental damage caused by mining activities.