

# Mining for Natural Resources

by Vince Obremski

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## Introduction:

Mining of nonrenewable natural resources has a dramatic effect on our environment. This lab is designed to give students a better understanding of the processes involved in harvesting a natural resource and the impact it has on their environment and community.

## Objectives:

1. To introduce the concept of mining nonrenewable resources.
2. To discover what an ore is.
3. To calculate % composition (as in % copper in an ore).
4. To understand the concept of waste produced during ore extraction (waste to get at the ore, waste from the ore).
5. To understand the environmental impact of mining.

## Materials:

1. Triple beam balance.
2. Calculator.
3. Napkins.
4. Chocolate chip cookie (one for each student).
5. Data table.

## Procedures:

1. Weigh the cookie on the triple beam balance and enter the cookie mass in the data table.
2. On a napkin, separate the chips (ore) from the cookie (waste rock).
3. Weigh the total amount of chips (ore) and record mass of the chips in the data table.
4. Calculate % of chips (ore) in the cookie mine using the formula:

$$\% \text{ ore} = 100 \times (\text{mass of ore}) / (\text{mass of cookie})$$

## Analysis and conclusions:

1. The cookie represents an undisturbed area in your community. A mining company wants to harvest the valuable ore found here.
2. In a city or town, if valuable ore were discovered, should a mining company be allowed to harvest the ore? What effect will this have on the community? How would the mining company restore the land back to its original state?
3. Based upon your calculations, can the landscape be restored to its original contours (land shape and elevation)? Explain why this is or is not possible.
4. To what uses can the land be put after mining is finished? Does the answer depend on what was

mined? How? Can you find any examples?

5. How can a mine benefit a town or community? How can a mine hurt a town or community
  6. Would it be better to mine in a wilderness area (forest, mountains, rivers)? State the pros and cons for mining in this area, in your own words.
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### Web links:

- [Up to the minute news on mining, mining companies, mineral exploration](#)
  - [U.S. Geological Survey minerals and mining information, contacts, and more links](#)
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[Science labs web page](#)

[Pedagogy web page](#)

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