

# Finding and Mining Ores

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**• Question:**  
Why is the football team in San Francisco named the 49ers?



**• Answer:**  
Reference to the California Gold Rush, when immigrants from around the United States came to California to mine placer deposits in 1839.



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# Ore Deposits

- **Ores** are rocks that contain valuable minerals with useful elements.
- **Placers** are minerals found in stream deposits.
- It's expensive and damaging to the environment to extract and refine minerals. Therefore, we need to use minerals wisely.



Aluminum in bauxite ore

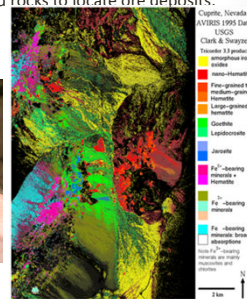


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<https://www.youtube.com/watch?v=D6Mxak7sq0>

# Finding and Mining Minerals

- An **ore deposit** is a concentrated area of ores, and one that is profitable to mine.
- Geologists test properties of soil and rocks to locate ore deposits.



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# Recycling Aluminum



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<https://www.youtube.com/watch?v=AOpGhAqQFEY>

# Surface Mining

- In **surface mining**, the earth is blasted open, and rocks are taken to a refinery. This method includes open-pit mining, mountaintop removal, strip mining, placer mining, and dredging.

Picture shows mountain top removal



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## Underground Mining

- In **underground mining**, miners dig tunnels deep into the earth to get to the rocks. This method is more expensive and dangerous.
- Remember our movie last quarter, October Sky?
- Accidents still occur today with underground mines



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## Ore Extraction

- After being sent to a refinery, rocks are crushed, so minerals can be separated out of the ore. Some methods include:
  - Heap leaching: the addition of chemicals, such as cyanide or acid, to remove ore.
  - Flotation: the addition of a compound that attaches to the valuable mineral and floats.
  - Smelting: roasting rock, causing it to segregate into layers so the mineral can be extracted.



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## Environmental Impacts

- Read the article "Effects of Mining on the Environment"
- Answer the questions at the end of the article in your notebook as part of your notes for today.

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Helpful Textbook Pages: 716 – 723; Glossary

### Today's Main Idea

- Mining provides people with many resources they need, but mining can be hazardous to people and the environment.

### Explore Question

2. Explore today's main idea with this question:  
What are some of the ways in which mining activities affect the land surface?

### Vocabulary

- Igneous Rocks
- Sediments
- Lava

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