Finding and Mining Ores

Ore Deposits

- **Ore**s are rocks that contain valuable minerals.
- **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.

Study Tip

The 49**ers** are named after plac**ers**—the name refers to the California Gold Rush in 1849.

An ore containing aluminum

Ore extraction in a steel mill

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.
- 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.
- In underground mining, miners dig tunnels deep into the earth to get to the rocks. This method is more expensive and dangerous.

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.

Concept Check

- What are ores? What are placers?
- What is the difference between surface mining and underground mining?
- What are some ways to extract minerals from ores?