

# Rocks and Minerals

## Section 2: Mineral Formation & Resources

Minerals are usually formed through **crystallization**, which is the process that occurs when particles dissolved in a liquid solidify in an orderly, repeating pattern and form crystals. Geologists can use the physical and chemical properties of these minerals to determine the type of environment in which they formed. A **geode** is a rounded, hollow rock that is often lined with mineral crystals.

Minerals can form in two different ways. First is the crystallization of magma and lava. This is when minerals that form as hot magma cool inside the crust, or as lava hardens on the surface. When these liquids cool to a solid state, they form crystals. Minerals can also form when the crystallization of materials dissolve in water. When elements and compounds that are dissolved in water leave a **solution** (a mixture in which one substance is dissolved in another), crystallization occurs. Some minerals form when solutions evaporate. Pure metals that crystallize from hot water solutions underground often form veins. **Veins** are narrow channels or slab material that is different from the surrounding rock.

Minerals are the source of gemstones, metals, and a variety of materials used to make many products. **Gemstones** are minerals that occur in nature. They are hard, colorful and have a brilliant or glassy luster. Once a gemstone is cut and polished, it's called a gem. Minerals are the source of some **metals** such as aluminum, iron, copper, or silver. **Ore** is a rock that contains a metal or other useful minerals that can be mined and sold at profit.

To produce metal from a mineral, rocks containing minerals must be located through prospecting. Ore deposits are removed from ground through mining, and rock is then processed by smelting to produce metals.

