Kid's Corner

A Pile of Minerals

This image shows some of the most common minerals you'll find in rocks. This pile contains plagioclase feldspar, potassium feldspar, quartz, muscovite mica, biotite mica, amphibole, olivine, and calcite. Can you identify any of them?

Quartz

Quartz is one of the most common minerals in the Earth's crust. It is made up of silicon dioxide (SiO_2), otherwise known as silica. White sand is primarily made from quartz.

Plagioclase feldspar

Plagioclase is a member of the feldspar mineral family. Plagioclase feldspars are yet another silicate that contains considerable sodium or calcium. Feldspar crystals are stubby prisms, generally white to gray and a glassy luster. This variety of plagioclase, called albite, is rich in sodium.

Potassium feldspar

Potassium feldspar is another member of the feldspar mineral family. Like plagioclase feldspar, potassium feldspars are silicate minerals that contain a considerable amount of -you guessed it- potassium. Feldspar crystals are stubby prisms, often pink to white. Some potassium feldspars, such as the one shown to the left have a streaky appearance (see closeup) called perthitic texture.

Mica

Micas are another group of silicate minerals composed of varying amounts of potassium, magnesium, iron as well as aluminum, silicon and water.

Biotite

All micas form flat, book-like crystals that peal apart into individual sheets on cleavage planes. Crystals cleave into smooth flakes. Biotite is dark, black or brown mica; muscovite, shown here, is light-colored or clear mica. Mica is so soft that you can scratch it with a fingernail.

Amphibole

The amphiboles are a family of silicate minerals that form prism or needle-like crystals. Amphibole minerals generally contain iron, magnesium, calcium and aluminum in varying amounts along with silicon, oxygen, and water. Hornblende, shown in this image, is a common dark green to black variety of amphibole; it is a component in many igneous and metamorphic rocks.

Olivine

Olivine is another silicate mineral containing iron and magnesium. It is a green, glassy mineral that forms at high temperature. It is common in basalt and in ultramafic rocks. Gem-quality olivine is called peridote. A rock made up entirely of olivine is called dunite.

Calcite

Calcite is made of calcium carbonate ($CaCO_3$). Generally white to clear, it is easily scratched with knife. Most seashells are made of calcite or related minerals. This is the 'lime' of limestone.

Source: http://geomaps.wr.usgs.gov/parks/rxmin/mineral.html