



## Learn About Rocks and Minerals



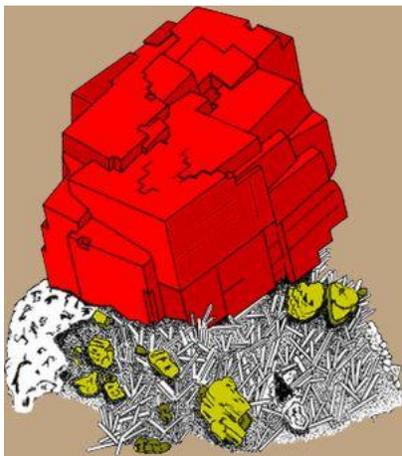
### Geology

Geology is the study of the Earth. It includes both the history of the earth as well as the science relating to how the earth was formed and how it is constantly changing. An individual who studies the Earth is called a Geologist.

### Petrology

Petrology is a branch of geology that focuses on the study of rocks and how they are formed.

In Petrology, rocks are identified by how they are formed. The three types of rocks are igneous, metamorphic and sedimentary.

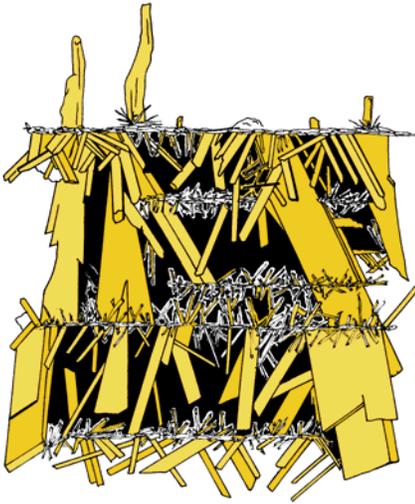


### Mineralogy

Mineralogy is another branch of geology. Mineralogy is the study of the properties, occurrences, associations and uses of minerals. It is a very important topic to study because most of the items around you come from minerals.

It has been said, "If it is not grown, it is mined." The items in your life that did not come from a plant or animal came from minerals in the ground.

# MAKING YOUR OWN CRYSTALS



With careful work, you can create your own crystals at home. This recipe is for alum crystals. You can use salt instead of alum. If you use alum, you will be able to make clear, octahedral crystals. You can buy alum at a drugstore.

**Step 1:** Make a *saturated solution* of alum. A saturated solution is a mixture of water and alum (or salt) that has so much alum in it that no more will dissolve. You can make a saturated solution by boiling a cup of water in a sauce pan. When the

water is boiling, turn off the stove. Dissolve alum in the water by spooning in a tablespoon of alum at a time and stirring it into the water until it completely dissolves. Repeat this until the alum won't dissolve in the water anymore.

**Step 2:** Place the alum mixture aside and let it cool to room temperature.

**Step 3:** When the alum mixture is cooled, you will see alum on the bottom of the saucepan. Very carefully pour the water into a glass jar. *Be sure it is cool. If it is still hot, the glass jar might break.* Do not pour the undissolved alum into the glass jar.

**Step 4:** Put the jar in a warm place for two days. As the water evaporates, crystals will start to grow on the side and bottom of the jar. When you see a nicely shaped crystal (it will be diamond-shaped), carefully remove it from the jar with tweezers and dry it off with a soft cloth. This is called a *seed crystal*.

**Step 5:** Tie a very thin thread around your seed crystal. Tie the other end of the thread around the middle of a pencil.

**Step 6:** Prepare another jar of saturated alum solution.

**Step 7:** After the saturated solution has cooled to room temperature, lower the seed crystal into the new saturated solution. As the water evaporates, the alum molecules will attach to the seed crystal and it will grow larger and larger. (Be careful at this step: if you have not made a saturated solution or if the solution is still too hot, the seed crystal will dissolve in the water and you will have to start all over again!)

*For more recipes, find a copy of the book "Crystals and Crystal Growing," by Alan Holden and Phylis Morrison published by MIT Press, 1982. You can easily find copies of this edition and earlier editions through bookstores and internet book sources. This is a really great book if you are interested in making all sorts of high-quality crystals on your own!*