

**Organize your information.**

Once you begin investigating crystals and rocks, you will probably collect a lot of information. Here are a few ideas to keep you and your information organized:

**Carry a notebook when you're out looking for crystals or rocks.**

It's not enough to just find a crystal or a rock. You also need to be able to record information about your find. This might include:

1. where and when you found it
2. what other crystals or rocks were in the same location
3. a picture of your find and a description, including its colors, shape, size, and any other information you discover by looking at it

**Give each item in your collection a number.**

It is important to keep your information organized. Here's how:

1. Give each crystal and rock a reference number. You will use this number to keep track of all the information about this sample.
2. Dab a small spot of correction fluid or white hobby paint on each crystal or rock. When it dries, write a reference number on the spot.
3. Keep the numbers and data in an easy-to-access place. You can create a chart or database on a computer or you can write an index card for each crystal or rock and file them alphabetically in a recipe file.

**Protect your samples.**

You can buy more trays or even build them yourself out of wood or cardboard. Egg cartons also make great containers for storing small objects. If possible, let each sample sit on a sheet of cotton to protect it.

**Learn more.**

Visit a library or use the Internet to research more about crystals, rocks, and minerals.

**Join a club.**

A great way to discover more is with other rock hounds. You can join or start a local rock club. Sometimes it's easier to find samples if lots of people are looking in the same area at the same time.

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# Natural Crystals Collection

## Before You Begin

Locate the sheet of 6 stickers included in this box. Peel off each sticker and apply it to the smoothest part of the corresponding crystal. The crystals have been packed in the order they appear on the inside box lid: (1) garnet, (2) quartz, (3) apophyllite, (4) danburite, (5) staurolite, and (6) amazonite.

## Crystals: Beautiful and Rocky

Crystals are a beautiful, natural phenomenon formed by most minerals. They can grow on or in rocks. It takes special conditions to form crystals. The recipe for crystal growth involves temperature, chemicals, pressure, space, and more than a dash of time.

Crystals are distinctive because their atoms line up in a geometric, repeating pattern. This pattern, or structure, is consistent among all crystal samples in a given mineral. The general shape of a crystal is called its habit.

Crystals come in many different sizes, shapes, and forms. You can recognize a crystal by its appearance. They all have flat surfaces, or planes, that look polished. Crystals grow in one of six basic shapes: isometric, hexagonal, tetragonal, orthorhombic, monoclinic, or triclinic. Crystals range from opaque to transparent and can be colorless or any color of the rainbow.

Human beings have been fascinated by crystals for years. In ancient times, people thought crystals were ice that was too cold to melt. Today, crystals have many uses. They can be found in pencils (graphite), tools (diamonds), watches (quartz), and computers (silicon). Some crystals are used to make jewelry. Because crystals are so popular, scientists have figured out how to make them synthetically, without relying on nature.

Fun fact: The fancy "crystal" glasses in your dining room aren't really crystal—they're glass. Glass doesn't have the right attributes to make it crystalline.

 **WARNING:**  
CHOKING HAZARD—Small parts.  
Not for children under three (3) years.



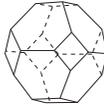
## Let's Look at Your Natural Crystals



### Garnet

A garnet is an example of an *isometric* crystal. Because of their typical small size and uniformity, garnets were once used as bullets. If a garnet is translucent, it can be considered a gem. The one in this kit is opaque.

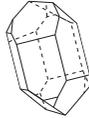
Isometric crystals often form in a cube shape or form like two pyramids attached by their bottoms. They're the most symmetrical of the crystal systems.



### Quartz

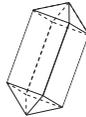
Quartz crystals are *hexagonal* and come in many different colors. The most common are clear, purple, and yellow. Quartz is a major ingredient in sand and dust. It is the easiest crystal to find in nature because there's so much of it around.

Hexagonal crystals often have six faces. It's not always easy to identify one without slicing it open. A honeycomb is an example of hexagonal shape.



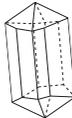
### Apophyllite

Apophyllite crystals form in *tetragonal* shapes. They're mined around the world, from the United States to Scotland to India. Their abundance makes them relatively easy to collect. Most are colorless, but some are found with pink, yellow, or green hues.



### Danburite

A danburite crystal comes in *orthorhombic* patterns. It was first found in Danbury, Connecticut. It's usually colorless, but can contain shades of pink, yellow, or brown.

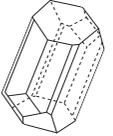


The basic orthorhombic form resembles a box with different measurements for the length, width, and depth. Your bed is one example.

### Staurolite

When crystals are formed in staurolite, they form *monoclinic* designs. Staurolite often forms a cross shape, where one crystal looks like it's growing out of another. It was named after the Greek word for cross, *stauros*.

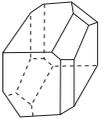
Monoclinic crystals form in a relatively short shape, with slanted planes at both ends. This is the most popular shape among crystals. A typical pink eraser is an example of this shape.



### Amazonite

An amazonite crystal is a *triclinic* crystal. It's named after the Amazon River, but no one has proved any were ever found there. Major deposits can be found in Colorado. Ancient Egyptians used amazonite in jewelry.

The triclinic system is the least symmetrical and the least common of the systems. These crystal shapes are irregular and varied.



Note: The pictures are examples. There are many variations in nature.

## Make Your Own Crystals

In a drinking glass, mix one cup of hot water with two cups of sugar. Dangle a string in the mixture so it is partly submerged. You can secure the string by taping it to the top of the glass. Now, the hard part: Don't move it until the water evaporates, which takes at least a few days. Be patient. When the water is gone, sugar crystals will remain. Mix a drop of food dye with the water if you want colored sugar crystals.

## Tips for Rock Hounds

This kit may be the beginning of a life-long hobby collecting crystals and rocks. Here are some tips that will help.

### Respect the environment.

Many rock hounds today don't collect the actual crystals or rocks they find. Instead, they collect information they gather from the objects.

Why? In many places people have removed so many natural parts of the environment that other parts—living parts—suffer. Taking crystals or rocks from some places may mean destroying a home for plants and animals. If you're not sure it's okay to remove something, snap a photo and take notes.