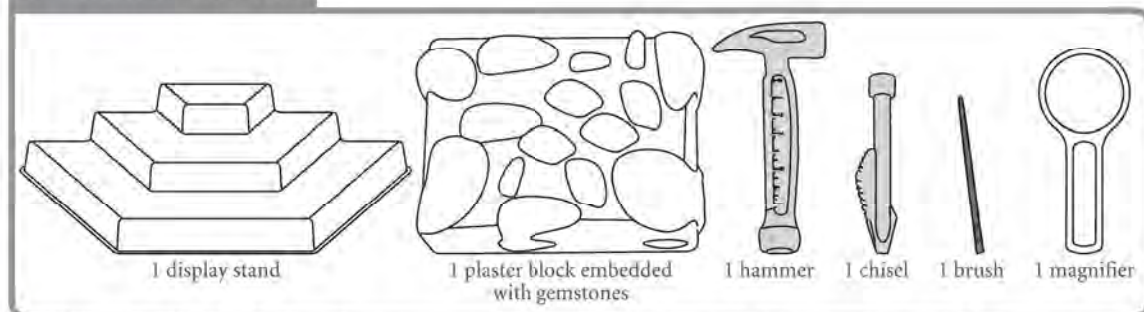


# DIG YOUR OWN GEMSTONE MINE

**WARNING!** Not suitable for children under 36 months due to small parts. Choking hazard. Use with care and only under adult supervision.

**IMPORTANT:** Do not place any of the materials in your mouth. Ask an adult for help with this project. Always work on a solid, level surface and try to keep the area clean and tidy.

## PACKAGE CONTENTS



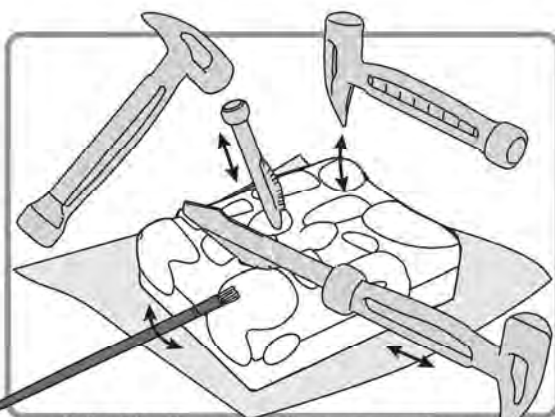
**YOU MAY ALSO NEED** ▶ A facemask to prevent you breathing in plaster dust (available at chemist stores) ▶ Some newspaper or butchers' paper or sheeting to protect your work surface.

## LET'S START DIGGING!

### PREPARATION

Choose an area where it is easy to clean up the dust and plaster bits afterwards. Work on a level table top protected with several layers of old newspaper.

Always avoid breathing in the plaster dust. The plaster may also soil your clothes so it is best to wear old clothes.

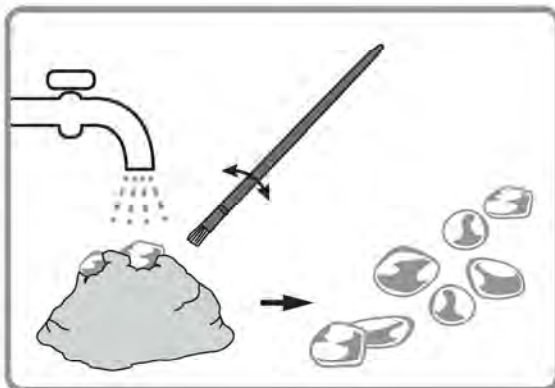


### DIGGING

Put the plaster block and the tools on the table. Start digging from the top layer carefully at the center of the block and work your way towards the edge in each direction. Use the pointed end of the hammer to remove larger blocks of plaster first. When you found a piece of gem, use the flat side of the hammer to hit the chisel held on the other hand to remove the chunks of plaster around the gem. Work carefully from all sides until the piece is easily separated from the plaster. Do not pull the gem out by force when it is still attached to the plaster. The hammer can be used as a handle by attaching it to the chisel/saw component. It helps to clear the small plaster bits stuck on the gems. Brush away the plaster bits with the paintbrush so that you can see clearly while digging.

### CLEANING

Dig through the whole block to find all pieces. Wash and clean the pieces with water and paintbrush. Dry the pieces with paper towel (not included) or let them air dried on a piece of newspaper. Clean up the work area when finished.



## MINERALS AND GEMS

### ROCKS AND GEOLOGY

Rocks are everywhere, you can easily find rocks inside your house, in the park, on the street or in the countryside. When you pick up a rock and study carefully, you will notice there are many small grains of different color, like black, white or brown. Rocks in different places may not look the same because their composition may be different. The size of their grains will also be different, it depends on many factors like the temperature and pressure when they are formed. Did you know that people who study rocks are called geologists? Geology is the study of nonliving things that the earth is made of. Their work is to understand the history of our planet. The more we know about the earth's history, the more we can predict how events and processes in the past might influence the future.

### UNDERSTANDING MINERALS

Rocks and minerals are different. Minerals are made of elements. Rocks are made of minerals. They are related but they have different characteristics. For example, minerals are pure (the same all the way through) while rocks are usually made of more than one mineral. Minerals are made from 92 elements that join together in many different ways. Some minerals are made of only one element, such as gold. Most are a combination of two or more elements. For example, granite is made of quartz, feldspar and biotite. When the mineral particles are arranged in a repeating pattern, they are called a crystal.

Did you know that there are more than 3000 different minerals! We use minerals every day. Rock salt is made from the mineral halite and antacid tablets are made from the mineral calcite. We use their physical characteristics like hardness, color, density, and solubility to identify different minerals. The construction industry uses the largest amount of minerals. Concrete, cement, bricks and steels are all made of minerals.

### COOL ROCK FACTS

- If a lightning strikes a beach, the heat can melt the sand to form a glassy rock called fulgurite.
- The mineral salt was highly valued in ancient times. Arab merchants traded salt for precious goods like silk, jewel and spices.
- Every day about 50 tonnes of rocky material from space lands on the Earth's surface. These rocks are called meteorites. Scientists have learned a lot about the age and birth of the Solar System from studying these rocks.
- Diamond is the hardest mineral.
- Melted rock inside the earth is called magma, but we called it lava when it flows out of a volcano.

### SOME COMMON GEMSTONES

Ruby/Sapphire	The mineral corundum is clear and colorless. When it is colored red or deep pink from chemical impurities, it is called Ruby. When it is of other color, it is called Sapphire.
Amethyst	Amethyst is the purple form of quartz. The purple color is caused by traces of manganese while the depth of color is due to traces of iron.
Rock crystal/ Clear quartz	Rock crystal is the colorless form of quartz
Dumortierite quartz	One of the rarer and more unusual blue varieties of quartz gemstones. Traces of dumortierite are responsible for the blue color.
Tiger's eye	A quartz gemstone that is usually a metamorphic rock with a golden to red-brown color and a silky lustre.
Rose quartz	A type of quartz which exhibits a pale pink to rose red hue. The color is usually considered as due to trace amounts of titanium, iron, or manganese
Fluorite	Fluorite (also called fluorspar) is the mineral form of calcium fluoride. It comes in a wide range of colors and has consequently been dubbed "the most colorful mineral in the world".
Chrysoprase	A gemstone variety of chalcedony (a cryptocrystalline form of silica) that contains small quantities of nickel. Its color is normally apple-green, but varies to deep green.