

Ames Public Library @HOME Activities

Rocks and Minerals

What do the Grand Canyon, fireworks, and you have in common? Did you guess minerals? Yes, you are right! Minerals are found in living and nonliving things. In rocks, crystals, and humans too. But what ARE minerals? Let's find out!

See a related video on the Library's YouTube Channel at <http://bit.ly/APLvideos>.

Books and media:

Title	Author / Performer	Call Number
<i>Geology Lab for Kids: 52 Projects to Explore Rocks, Gems, Geodes, Crystals, Fossils, and Other Wonders of the Earth's Surface</i>	Romaine, Garret	J 550.78 ROM
<i>Rocks and Minerals</i>	Bingham, Caroline	J 552 BIN
<i>Rocks, Minerals & Gems</i>	Callery, Sean	J 552 CAL
<i>My Book of Rocks and Minerals</i>	Dennie, Devin	J 552 DEN
<i>My Little Book of Rocks, Minerals and Gems</i>	Martin, Claudia	J 552 MAR
<i>Rocks and Minerals</i>	Oxlade, Chris	J 552 OXL
<i>Rocks and Fossils</i>	Pellant, Chris	J 552 PEL
<i>Rocks and Minerals</i>	Simon, Seymour	J 552 SIM
<i>Rock & Mineral</i>	DVD	J 552 (DVD) ROC
<i>Science. Earth Science</i>	DVD	J 550 (DVD) SCI

Websites:

URL
https://kids.nationalgeographic.com/explore/science/geology-101/
http://mineralogy4kids.org/minerals-your-house

Vocabulary

Rock – A rock can be a single mineral, several minerals, and/or a combination of minerals and organic substances in solid form. Earth's rocks are classified into three main groups: igneous, sedimentary, and metamorphic rocks.

Minerals – Minerals are naturally occurring solid substances that have a definite chemical composition. Almost all chemical elements in the Earth's crust are associated with at least one mineral. Most minerals occur naturally as crystals. Examples include sodium, chlorine, and over 4,000 other naturally occurring minerals.

Crystals – A crystal is a solid mineral body that is often transparent. Crystals have a very distinct atomic structure. While all minerals have a crystalline structure, not all crystals are minerals as there are crystals that are synthetic or manufactured. Examples of crystals include diamonds and table salt.

Rock cycle – The rock cycle is the process in which new rocks are continuously made and old rocks are continuously destroyed or changed into new rocks.

Geologist – Geologists are scientists who study rocks and mineral deposits. A geologist studies the origin, structure, and composition of the Earth and other planets.

Mineralogy – This is the study of minerals, their physical properties, chemical composition, internal crystals and occurrence, and distribution in nature. As a discipline, mineralogy has close connections with geology, as minerals are a basic constituent of rocks.

Fossils – A fossil is the remains of any organism that once lived. Fossils are not the remains of the organism itself, they are rocks. Bones, shell, feathers, and leaves can all become fossils.

Geodes are rocks that are plain on the outside but have a wonderful surprise inside in the form of beautiful crystals. Geodes can be round or oblong like an egg. They can be just a couple of inches or several feet in size. Geodes are found throughout the world. In the United States they are found in several states including California, Arizona, Illinois, and Iowa. In fact, the geode is Iowa's state rock.

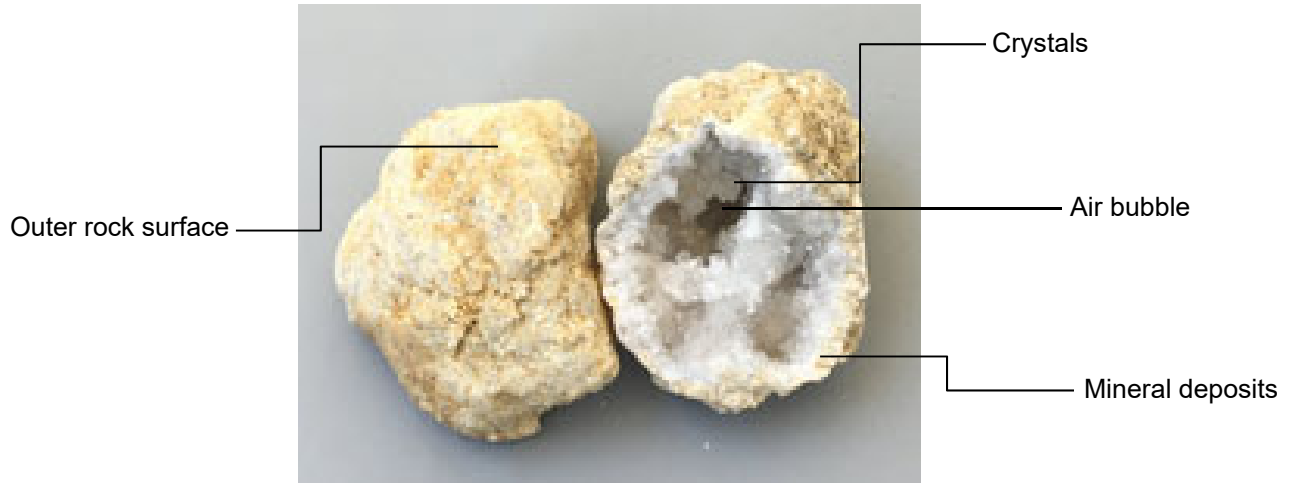
How are geodes formed?

Geodes are formed in a variety of ways. In igneous rocks they are formed in voids in a lava flow, and cavities like gas bubbles. In sedimentary rocks they can be formed around animal burrows, mud deposits, or even tree roots.

Over time the surface surrounding the cavity hardens into a spherical shape. While geodes look like a solid rock, the surface is porous. Rain water and ground water seeps in through the pores or minute holes on the surface, carrying along with it dissolved minerals. These minerals are deposited inside the cavity, and over time this allows crystals to form inside the hollow chamber.

Geodes are formed over thousands, even millions of years and each geode is unique. Some of the most prized geodes are those that contain black calcite or amethyst crystals.

Parts of a Geode



Geode take-away-kit

The kit contains:

- One Geode

**When doing this activity
PLEASE ASK A GROWN-UP FOR ASSISTANCE.
THIS IS A REQUIREMENT.**

A geode is a rock with a surprise inside. To get to the surprise, geodes have to be cracked or broken open. Breaking open a rock can cause rock shards, so PLEASE wear safety goggles. You will also need a hammer and other implements to break it open.

With your grown-up helping, put on your safety goggles. Take the unbroken geode in your hand and look at it. What does the surface look like? Is it smooth or rough? Does it offer any clues as to what is inside?

Next, is the most exciting part, using a hammer, and with your grown up helping, break open the geode.

Examine the inside, what color are the crystals? Are there any empty spaces or cavities inside? Look at the edge of the geode do you notice layers of deposits? What colors are they?

Geodes are a fascinating way to engage with geology. For further reading, please refer to the book list included.

Some tips for a safe and happy geode experience -

- It is best to do this activity outside. This will help if there are flying rock pieces.
- If you wish, you can put the geode into an old sock or wrap it in some material before breaking it.
- If you do not want to shatter the geode, score the geode and use a chisel as a lever.

Investigate, experiment and explore like a scientist!

