

## Rocks and Minerals

### *What are Rocks and Minerals*

Rocks and minerals are fundamental components of the Earth's geology.



Soapstone from Brazil

*Rocks* are solid, naturally occurring aggregates composed of minerals or mineral-like substances. They are classified into three main types:

*Igneous Rocks:* Formed from the solidification of molten magma. Examples include granite, basalt, and obsidian.

*Sedimentary Rocks:* Formed from the accumulation and compression of sediment over time. Examples include limestone, sandstone, and shale.

*Metamorphic Rocks:* Formed from the transformation of existing rocks through high heat and pressure. Examples include steatite (soapstone) marble, slate.

*Minerals* are naturally occurring inorganic substances with a specific chemical composition and a characteristic crystal structure. They are the building blocks of rocks and can be found in various geological settings. Some common minerals include quartz, feldspar, calcite, and mica. Minerals have specific physical and chemical properties that distinguish them from one another.



Quartz- photo by [Didier Descouens](#)  
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While rocks are composed of minerals, not all minerals form rocks. Some minerals can occur as individual crystals or as small grains within rocks. Minerals have different properties such as hardness, color, luster, cleavage, and specific gravity, which help in their identification and classification.



Calcite variations- photo by  
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## Mohs scale

The Mohs scale, developed by German mineralogist Friedrich Mohs in 1812, is a qualitative scale used to measure the hardness of minerals and other materials. It ranks minerals on a scale from 1 to 10 based on their ability to scratch one another.

The scale consists of ten minerals, each assigned a hardness level from 1 to 10. The softest mineral, talc, is assigned a hardness of 1, while the hardest mineral, diamond, is assigned a hardness of 10.

The ranking on the Mohs scale indicates the relative hardness of minerals. A mineral with a higher number can scratch any mineral with a lower number on the scale. For example, a mineral with a hardness of 5 can scratch any mineral ranked 1 to 4 but can be scratched by a mineral ranked 6 or higher. Some common minerals on the Mohs scale include talc (1), gypsum (2), calcite (3), fluorite (4), apatite (5), orthoclase feldspar (6), quartz (7), topaz (8), corundum (9), and diamond (10).


Mohs Hardness Scale			
	Mineral Name	Scale Number	Common Object
↑ Increasing Hardness	Diamond	10	
	Corundum	9	Masonry Drill Bit (8.5)
	Topaz	8	
	Quartz	7	Steel Nail (6.5)
	Orthoclase	6	
	Apatite	5	Knife/Glass Plate (5.5)
	Fluorite	4	
	Calcite	3	Copper Penny (3.5)
	Gypsum	2	
	Talc	1	Fingernail (2.5)

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### ***Where is soapstone on the Mohs scale***

Soapstone also known as steatite or soaprock typically ranks around 1 to 2 on the Mohs scale of hardness. It is a relatively soft mineral primarily composed of talc, which gives it its characteristic smooth texture. Talc itself is the softest mineral on the Mohs scale and has a hardness of 1. Soapstone's softness makes it easy to carve and shape, but it is also more susceptible to scratches and wear compared to harder minerals.



Soapstone - several colored samples. Photo by [Ra'ike](#) , [CC BY-SA 3.0](#)