Geological material

The majority of geological data comes from research on solid Earth materials. Meteorites and other extraterrestrial natural materials are also studied by geological methods.

### Mineral

Minerals are natural occurring elements and compounds with a definite homogeneous chemical composition and ordered atomic composition.

Each mineral has distinct physical properties, and there are many tests to determine each of them. Minerals are often identified through these tests. The specimens can be tested for.

* [*Luster*](https://en.wikipedia.org/wiki/Lustre_(mineralogy)): Quality of light reflected from the surface of a mineral. Examples are metallic, pearly, waxy, dull.
* *Color*: Minerals are grouped by their color. Mostly diagnostic but impurities can change a mineral's color.
* [Streak](https://en.wikipedia.org/wiki/Streak_(mineralogy)): Performed by scratching the sample on a [porcelain](https://en.wikipedia.org/wiki/Porcelain) plate. The color of the streak can help name the mineral.
* Hardness: The resistance of a mineral to scratching.
* Breakage pattern: A mineral can either show fracture or [cleavage](https://en.wikipedia.org/wiki/Cleavage_(crystal)), the former being breakage of uneven surfaces, and the latter a breakage along closely spaced parallel planes.
* [Specific gravity](https://en.wikipedia.org/wiki/Relative_density): the weight of a specific volume of a mineral.
* Effervescence: Involves dripping [hydrochloric acid](https://en.wikipedia.org/wiki/Hydrochloric_acid) on the mineral to test for fizzing.
* Magnetism: Involves using a magnet to test for [magnetism](https://en.wikipedia.org/wiki/Magnetism).
* Taste: Minerals can have a distinctive taste such as [halite](https://en.wikipedia.org/wiki/Halite_(mineral)) (which tastes like [table salt](https://en.wikipedia.org/wiki/Table_salt)).

### Rock

A rock is any naturally occurring solid mass or aggregate of minerals or [mineraloids](https://en.wikipedia.org/wiki/Mineraloid). Most research in geology is associated with the study of rocks, as they provide the primary record of the majority of the geological history of the Earth. There are three major types of rock: [igneous](https://en.wikipedia.org/wiki/Igneous), [sedimentary](https://en.wikipedia.org/wiki/Sedimentary), and [metamorphic](https://en.wikipedia.org/wiki/Metamorphic). The [rock cycle](https://en.wikipedia.org/wiki/Rock_cycle) illustrates the relationships among them (see diagram).

When a rock [solidifies](https://en.wikipedia.org/wiki/Solidifies) or [crystallizes](https://en.wikipedia.org/wiki/Crystallization) from melt ([magma](https://en.wikipedia.org/wiki/Magma) or [lava](https://en.wikipedia.org/wiki/Lava)), it is an [igneous rock](https://en.wikipedia.org/wiki/Igneous_rock). This rock can be [weathered](https://en.wikipedia.org/wiki/Weathering) and [eroded](https://en.wikipedia.org/wiki/Eroded), then [redeposited](https://en.wikipedia.org/wiki/Deposition_(geology)) and [lithified](https://en.wikipedia.org/wiki/Lithification) into a sedimentary rock. It can then be turned into a [metamorphic rock](https://en.wikipedia.org/wiki/Metamorphic_rock) by heat and pressure that change its [mineral](https://en.wikipedia.org/wiki/Mineral) content, resulting in a [characteristic fabric](https://en.wikipedia.org/wiki/Fabric_(geology)). All three types may melt again, and when this happens, new magma is formed, from which an igneous rock may once more solidify. Organic matter, such as coal, bitumen, oil and natural gas, is linked mainly to organic-rich sedimentary rocks.

To study all three types of rock, geologists evaluate the minerals of which they are composed and their other physical properties, such as [texture](https://en.wikipedia.org/wiki/Texture_(geology)) and [fabric](https://en.wikipedia.org/wiki/Fabric_(geology))

### Unlithified material

Geologists also study unlithified materials (referred to as [*superficial deposits*](https://en.wikipedia.org/wiki/Superficial_deposits)) that lie above the [bedrock](https://en.wikipedia.org/wiki/Bedrock).[[5]](https://en.wikipedia.org/wiki/Geology#cite_note-5) This study is often known as [Quaternary geology](https://en.wikipedia.org/wiki/Quaternary_geology), after the [Quaternary period](https://en.wikipedia.org/wiki/Quaternary_period) of geologic history, which is the most recent period of geologic time.

#### Magma

[Magma](https://en.wikipedia.org/wiki/Magma) is the original unlithified source of all [igneous rocks](https://en.wikipedia.org/wiki/Igneous_rocks). The active flow of molten rock is closely studied in [volcanology](https://en.wikipedia.org/wiki/Volcanology), and [igneous petrology](https://en.wikipedia.org/wiki/Igneous_petrology) aims to determine the history of [igneous rocks](https://en.wikipedia.org/wiki/Igneous_rock) from their original molten source to their final crystallization.