What is Geology?

The word *geology* comes from the Greek "geo" meaning earth and "logos" treaty or knowledge; therefore it's defined as the science of earth and aims at understanding the evolution of the planet and its inhabitants, from ancient times to the present through the analysis of rocks.

It is considered as a historical science based on the premise that the current relief of Earth is the result of a long and varied evolution, that's why analyzes the spatial and temporal development to identify factors and forces that are involved in the process and have given the form we know today, both outside and inside of our planet.

Rocks on the earth crust, the petrified remains and traces of organisms (fossils), are items that have been used to make biological history as they represent documents and testimony that allow geologists to deduce the conditions and events of past centuries.

Geology is based on physics principles dealing with energy laws and atomic structure; on chemistry principles related to composition and interactions of materials; some others emerged from biology and astronomy, giving rise to another sciences such as geophysics, geochemistry, paleontology, geobotany, and zoo-geology.

Based on studies and analysis, geology also tries to answer questions that mankind has made over the centuries: What forces have elevated mountain chains? What do volcanoes and earthquakes mean? How old is life on Earth? How long have humans exist on Earth?

Sierra de La Paila, Coah., Mexico

Sierra Madre Occidental, Mexico

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Colima Volcano, Mexico

Bridge destroyed by
an earthquake.

Illustrations of Geology Today 1999

Study of geology is generally divided into two parts:

1) Outer geology: deals with the study of the materials that form the earth's crust and the processes of the atmospheric layer and the biosphere that influence on it.

2) Inner geology: studies the processes that take place under the earth's crust and the causes that produce them.

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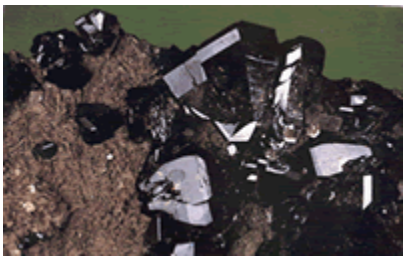
Outer geology is divided as well in:

1. Physics geology: studies the formation and material properties that compose the Earth, their distribution across the globe, the processes that formed and altered the way they have been transported and distorted, nature and landscape evolution.

2. Historic geology: studies the evolution of life on Earth, from the most basic forms that existed two billion years ago, until current flora and wildlife including humans. It also studies the changes of the planet through millions of years, the advance and retreat of the seas, rock erosion and sediment deposits, and the formation of mountain chains.

Several specialized branches emerge from geology such as:

- *Mineralogy:* studies the rock-forming minerals that compose earth's crust.



- *Petrology:* studies the origin, appearance, structure and rocks history, which is divided into igneous, sedimentary and metamorphic rocks.

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- *Petrography*: is the part that describes the features of crystalline rocks, helped with a polarized light microscope.

- *Paleontology:* studies prehistoric life and investigates the relationship between fossils of animals (paleozoology) and plants (paleobotany) with animals and plants currently existing.

- Sedimentology: investigates the terrestrial or marine deposits, their evolution, fauna, flora, minerals and their textures. Studies the numerous imbricated features of soft and hard rocks and their natural sequences, with the aim of restructuring the primitive terrestrial environment in its stratigraphic and tectonic.

- *Structural Geology:* study the different geometric structures of the rocks for classification and explain the relationships between them, their appearance and movement; is an auxiliary of the study of the great external features for the prospection of coal and petroleum.

Geology of Mexico

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