Rocks

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Classifying Rocks

What characteristics do geologists use to identify rocks?

- When studying a rock sample, geologists observe the rock's mineral composition, color, and texture.
  - Rock-forming minerals: one of the common minerals that make up most of the rocks of Earth's crust
  - Granite: a usually light-colored igneous rock that is found in continental crust
  - Basalt: a dark, dense, igneous rock with a fine texture, found in oceanic crust
  - Grains: the particles of minerals or other rocks that give a rock its texture
  - Texture: the look and feel of a rock's surface, determined by the size, shape, and pattern of a rock's grains

Classifying Rocks

What are the three main groups of rocks?

- Igneous rock: the type of rock that forms from the cooling of molten rock at or below the surface
- Sedimentary rock: a type of rock that forms when particles from other rocks or the remains of plants and animals are pressed and cemented together
- Metamorphic rock: a type of rock that forms from an existing rock that is changed by heat, pressure, or chemical reactions

Igneous Rocks

What characteristics are used to classify igneous rocks?

- Igneous rocks are classified according to their origin, texture, and mineral composition.
  - Extrusive rock: igneous rock that forms from lava on Earth's surface
  - Intrusive rock: a type of rock that forms from the cooling of molten rock at or below the surface

Igneous Rocks

How are igneous rocks used?

- People throughout history have used igneous rock for tools and building materials.

Sedimentary Rocks

How do sedimentary rocks form?

- Most sedimentary rocks are formed through a series of processes: erosion, deposition, compaction, and cementation.
  - Sediment: small, solid pieces of material that come from rocks or organisms
  - Erosion: the destructive process in which water or wind loosens and carries away fragments of rock
  - Deposition: the process by which sediment settles out of the water or wind that is carrying it
  - Compaction: the process by which sediments are pressed together under their own weight
  - Cementation: the process by which dissolved minerals crystallize and glue particles of sediment together into one mass

Sedimentary Rocks

What are the three major types of sedimentary rocks?

- Clastic rocks: Sedimentary rock that forms when rock fragments are squeezed together under high pressure
- Organic rocks: Sedimentary rock that forms from remains of organisms deposited in thick layers
- Chemical rocks: Sedimentary rock that forms when minerals crystallize from a solution

Sedimentary Rocks

How are sedimentary rocks used?

- People have used sedimentary rocks throughout history for many different purposes, including building materials and tools.

Rocks From Reefs

How do coral reefs form?

- When coral animals die, their skeletons remain. More corals build on top of the, gradually forming a coral reef.
    - Coral reef:

Rocks From Reefs

What evidence do limestone deposits from coral reefs provide about Earth's history?

- Limestone deposits that began as coral reefs provide evidence of how plate motions have changed Earth's surface. These deposits also provide evidence of past environments.

Metamorphic Rocks

Under what conditions do metamorphic rocks form?

- Heat and pressure deep beneath Earth's surface can change any rock into metamorphic rock.

Metamorphic Rocks

How do geologists classify metamorphic rocks?

- Geologists classify metamorphic rocks according to the arrangements of the grains that make up the rocks.
  - Foliated: term used to describe metamorphic rocks that have grains arranged in parallel layers or bands

Metamorphic Rocks

How are metamorphic rocks used?

- Certain metamorphic rocks are important materials for building and sculpture.

The Rock Cycle

What is the rock cycle?

- Forces deep inside Earth and at the surface produce a slow cycle that builds, destroys, and changes the rocks in the crust.
  - Rock cycle: a series of processes on the surface and inside Earth that slowly changes rocks from one kind to another

The Rock Cycle

What is the role of plate tectonics in the rock cycle?

- Plate movements start the rock cycle by helping to form magma, the source of igneous rocks.
- Plate movements also cause faulting, folding, and other motions of the crust that help to form sedimentary and metamorphic rocks.