

Rocks

Introduction

Rock, or stone, is a hard material made up of one or more minerals. Rock makes up the outer layer of Earth, called the crust. The lower parts of this layer are solid rock, or bedrock. Broken bits of rock lie on top. The tiniest bits of rock make up sand and soil. Underneath Earth's crust is another layer of mostly solid rock, called the mantle. Pools of melted rock, or magma, form in the mantle.

Types of Rocks



Figure 1: Limestone, a sedimentary rock, makes good paving blocks.

There are three types of rock: igneous, sedimentary, and metamorphic. These names describe how each type of rock was formed.

Igneous rock is hardened magma. Magma may escape through cracks in Earth's crust. It may also come to Earth's surface when a volcano erupts. As the escaped magma cools, it hardens into solid rock. Granite and basalt are examples of igneous rock.

Sedimentary rock may form from pieces of other rock. In a process called erosion, wind and water slowly break rock into tiny pieces. Water washes the pieces into rivers. They settle along the river bottom in soft, loose layers called sediment. Over millions of years the sediment builds up, hardens, and becomes solid rock. Sandstone is a sedimentary rock that forms in this way. Sedimentary rock also may form from the remains of dead animals or plants. Limestone is a sedimentary rock that is made up of the shells and stony skeletons of certain kinds of living things.

Metamorphic rock forms from old igneous or sedimentary rock. Several forces can change old rock into new metamorphic rock. Great heat and pressure inside Earth's crust can shape old rock into metamorphic rock. Water can dissolve minerals in old rock or carry new minerals into it to form metamorphic rock. The heat of magma can also change old rock into metamorphic rock. Marble and slate are examples of metamorphic rock.



Figure 2: Slate is a metamorphic rock that splits off into flat layers.

The Rock Cycle

Rock is always being formed, worn down into pieces, and then formed again. This is called the rock cycle. Rock wears down through erosion. Pieces of rock then settle down and slowly become sedimentary rock. If sedimentary rock becomes deeply buried, it may melt into magma. Then the magma may return to the surface as igneous rock. Deeply buried rock may also become metamorphic rock. The rock cycle takes many millions of years.

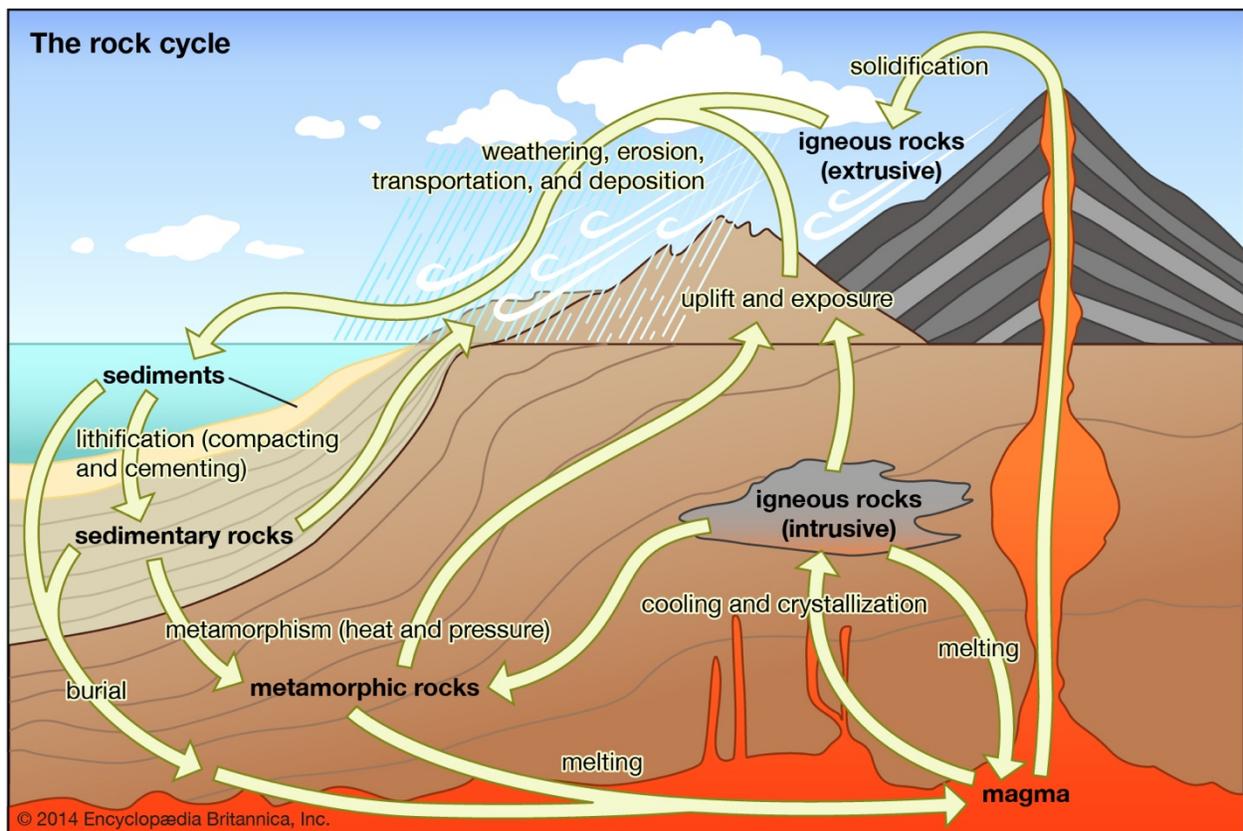


Figure 3: A diagram shows the different ways that rock can change from one type to another in the rock cycle. It can take many millions of years for these changes to happen.

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