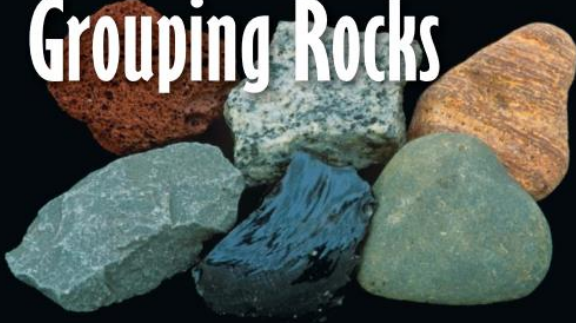


Grouping Rocks



Think of all the rocks on Earth. There are too many to count. But did you know scientists divide all rocks into three main groups?

The three groups are **igneous rock**, **sedimentary rock**, and **metamorphic rock**. A rock is classified into one of these groups by the way it was formed.

igneous rock – rock formed when hot, melted rock cools
sedimentary rock – rock formed when tiny pieces of rock and other particles get squeezed together
metamorphic rock – rock formed when extreme heat and pressure change one type of rock into another

Igneous rock comes from hot, melted rock below Earth's surface. This melted rock is called **magma**. Sometimes **magma** rises toward Earth's surface and begins to cool. It then hardens into igneous rock.

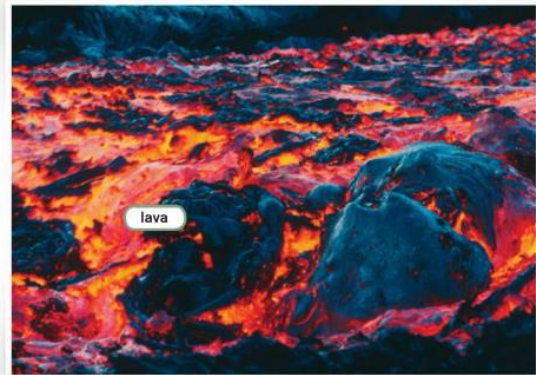
Igneous rock can form underground. It can also form above ground. When melted rock reaches Earth's surface through a volcano, it is called **lava**. As lava cools and hardens, it forms igneous rock.

magma – hot, melted rock under Earth's surface
lava – melted rock that reaches Earth's surface

Explore Language

Related Words

igneus (Latin) = of fire, from fire
igneous rock = rock formed when hot, liquid rock cools
ignite = to start burning



Sedimentary Rocks

Sedimentary rock forms from weathered rocks. Forces, such as wind and water, carry away tiny pieces of weathered rock and other particles and drop them in new places. The pieces, called **sediments**, pile up in layers.

As the layers build up, the top layers of sediments squeeze the bottom layers. After a long time, this can cause the bottom layers to stick together. Sedimentary rock can form.

sediments – tiny pieces of rock and other particles that are carried to new places by forces such as wind and water

SHARE IDEAS Compare how igneous and some sedimentary rocks form.

▼ This cliff in Utah has layers of sedimentary rock.



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Fossils Tell A Story

Sedimentary rock sometimes contain clues to life in the past. **Fossils** are the remains or signs of living things from long ago.

When living things die, their remains usually decay, or break down. But sometimes sediments quickly cover the remains. Then the remains may be **preserved** for a long time. That is why layers of sedimentary rock are often good places to find **fossils**.

fossils – the remains or signs of life in the past

preserved – saved or protected



This fossil of a Tyrannosaurus rex dinosaur was found in South Dakota.

Metamorphic Rocks

Deep underground, extreme heat or pressure can change the structure and composition of rocks. This changes the rocks into a different type of rock.

When one type of rock changes into another type of rock, metamorphic rock is formed. Metamorphic rocks can form from igneous, sedimentary, or even other metamorphic rocks.

Examples of Rock Changes



KEY IDEAS Rocks are grouped by the way they form. The three groups of rock are igneous, sedimentary, and metamorphic.

YOUR TURN

SUMMARIZE

Look back through this chapter on grouping rocks. Complete the sentence about each type of rock.

When melted rock cools, it hardens into

-- Select -- rock.

Sediments pile up. They squeeze together to form -- Select -- rock.

Extreme heat or pressure can change rock.

-- Select -- rock forms this way.



MAKE CONNECTIONS

Scientists have found many fossils in the Badlands of South Dakota. What type of rock do you think is found there?

STRATEGY FOCUS

Strategy Focus: Synthesize

Reread the ideas on page 14 and look at the rocks. Add what you already know about rocks. Make one statement that includes most of the information.

Choose from these words to fill in the blanks:

ingenious / sedimentary / metamorphic /

Earth's Changing Surface: The Rock Cycle

Chapter 2: Grouping Rocks

GREEN LEVEL
Student Book,
pages 10-14

USE KEY WORDS

Look at the Key Words on page 23 of your book.
Answer these questions about the Key Words in Chapter 2.

1. **Igneous rock** forms as _____ cools and hardens.
2. Hot, melted rock found deep within the Earth is called _____.
3. What are the remains or signs of living things from long ago that can be preserved in **sedimentary rock**? Circle your answer.
A. magma B. fossils C. metamorphic rock

KEY WORDS

fossils
igneous rock
magma
metamorphic rock
sedimentary rock

ORGANIZE IDEAS

As you read Chapter 2, complete the chart.

Type of Rock	How It Forms

STRATEGY FOCUS: SYNTHESIZE

Reread page 13 and look at the fossil. Add what you already know about fossils.
Make one statement that includes most of the information.