

Rocks and Soil

Week 27 — Monday | Exploring Earth Materials

Reading Time

If you look around the world, you will see that Earth's surface is covered with rocks and soil. **Rocks** are solid materials made of one or more **minerals**. Minerals are naturally occurring substances with a specific chemical makeup and crystal structure. Common minerals include quartz, feldspar, mica, and calcite. Rocks can be huge boulders or tiny pebbles, but they are all made from these tiny mineral building blocks.

Soil is the top layer of Earth's surface where plants grow. It is not just dirt! Soil is a mixture of tiny broken-down rock pieces, decaying plants and animals called **organic matter** or **humus**, water, and air. Healthy soil is rich in organic matter, which gives it a dark color and helps plants get nutrients. Different types of soil include sandy soil (large particles, drains quickly), clay soil (tiny particles, holds water), and loamy soil (a mix of sand, clay, and organic matter, best for gardening).

Scientists classify rocks into three main types based on how they form. **Igneous rocks** form when hot molten rock called magma or lava cools and hardens. Examples include granite and basalt. **Sedimentary rocks** form when layers of **sediment** (sand, mud, pebbles) are pressed together over millions of years. Examples include sandstone and shale. **Metamorphic rocks** form when existing rocks are changed by intense heat and pressure deep underground without melting. Examples include marble and slate.

Reading Questions

1. What are rocks made of?

2. What four things make up soil?

3. How do igneous rocks form?

4. Compare the three main types of rocks. Explain how each type forms and give one example of each.

Vocabulary Grid

Write a definition or draw a picture for each word.

 **Rock**

 **Mineral**

 **Soil**

 **Organic Matter**

 **Igneous**

 **Sedimentary**

 **Metamorphic**

 **Sediment**

Rock or Not a Rock?

Read each item. Write R if it is a natural rock/mineral or NR if it is not.

Item	Rock (R) or Not (NR)?
A piece of granite found in a garden.	
A manufactured brick used to build a wall.	
A smooth river pebble.	
A plastic toy.	
A chunk of quartz crystal.	
A piece of pottery.	

Classifying Soil Types

Fill in the chart to compare different soil types.

Soil Type	Particle Size	Drainage Speed	Best For
Sandy Soil			
Clay Soil			
Loamy Soil			

Draw the Rock Cycle (Simplified)

Draw how magma turns into igneous rock, then weathering turns it into sediment, which becomes sedimentary rock, and heat/pressure turns it into metamorphic rock. Label each step.

Think About It

Why is healthy soil important for plants and the environment? What would happen if the soil lost all its organic matter?

✓ True or False — Circle Your Answer

- ☐ 1. Rocks are solid materials made of one or more minerals.
- ☐ 2. Soil is made only of tiny pieces of rock.
- ☐ 3. Igneous rocks form from cooling magma or lava.
- ☐ 4. Sedimentary rocks form from layers of pressed-together sediment.
- ☐ 5. Metamorphic rocks form when rocks melt into liquid.
- ☐ 6. Organic matter in soil comes from decaying plants and animals.
- ☐ 7. Sandy soil holds water better than clay soil.
- ☐ 8. Quartz and feldspar are examples of common minerals.

Fill in the Blanks

Word Bank: mineral soil organic matter igneous sedimentary metamorphic sediment magma

- 1. A naturally occurring substance with a specific structure is a _____.
- 2. The top layer of Earth where plants grow is called _____.
- 3. Decaying plants and animals in soil are called _____.
- 4. Rocks that form from cooling molten rock are _____ rocks.
- 5. Rocks that form from layers of pressed-together material are _____ rocks.
- 6. Rocks changed by heat and pressure are _____ rocks.
- 7. Sand, mud, and pebbles that settle in layers are called _____.
- 8. Hot molten rock beneath Earth's surface is called _____.

Collect and Observe

Go outside and collect 3 different rocks. Draw them and note their color, texture, and size.

Rock #	Color	Texture (Smooth/Rough)	Sketch
Rock 1			
Rock 2			
Rock 3			

Think About It

If you could invent a new type of soil, what would you add to it to make plants grow super fast? Explain your idea.
