

Name _____

Date _____

It's All Dirt to Me!

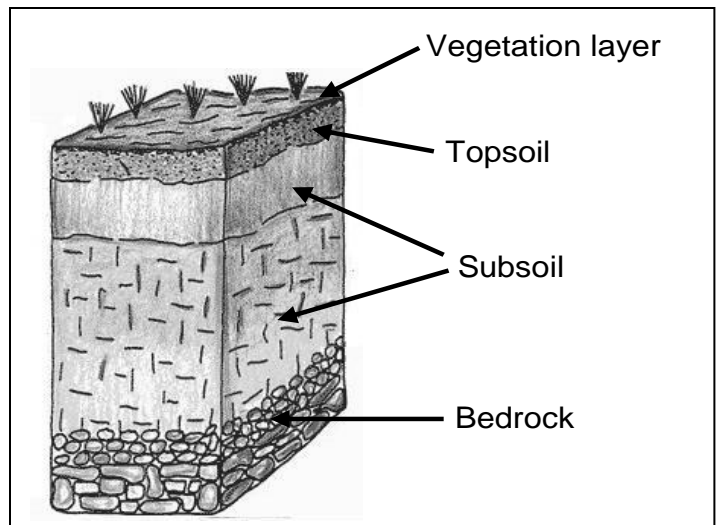
Key Words

coarse	dense	deposition
erosion	fine	horizon
humus	loam	nutrients
organic	pebbles	soil
soil profile	texture	weathering

Rocks in the Earth's crust gradually wear down and break apart. This process is called **weathering**. The sun, water, ice, wind, temperature changes, plant roots, and movement of animals all cause rocks to break and crumble very slowly. After thousands of years, rocks become sand grains. Plants and animals die and decay, and then they form a material known as **humus**. When humus is mixed with inorganic parts, like sand, clay, and rocks, fertile **soil** is created.

As rocks weather, they break into pieces of different sizes. Larger rock pieces that are mixed in with the soil are called **pebbles**. Soil itself is made from three smaller-sized particles: sand, silt, and clay. In almost any soil **horizon**, or sample, there will be combinations of these three types of particles along with humus. The richest soil for growing plants is called **loam**. Loam is equal parts of each of the three particles.

If you have ever seen a deep hole dug into the soil, you may have noticed that there are different layers of soil in the Earth's crust. Each layer has different properties. By digging a hole, scientists can see the way the soil changes as the hole goes down through the layers. These changes are called the **soil profile**. The diagram shows the layers in a soil profile.



Weathering, **erosion**, and **deposition** all lead to the formation of these layers of soil. Wind, moving water, and glaciers move large amounts of sediments to new places. Over time these sediments build up in layers, forming land areas such as islands along the coastline. New sediments can also come from volcanoes that deposit ash on the land. This ash is often rich in the **nutrients** that plants need to grow.

One important feature of soil is its structure. A soil can be **dense**, like clay, or **fine** and crumbly, like sand. A soil's structure depends on what it is made of and how it was made. Structure can affect how well soil holds water, as well as how easily plant roots can grow. Sandy soils drain off water the quickest. Soils with high clay content tend to retain water longer than others. Some plants need clay soils to hold water near their roots for a while, but some plants need the fast drainage that sandy soils provide.

Color is another property that different soils possess. Most soils get their colors from minerals. For example, many red and brown soils are high in iron content. It only takes a small amount of iron to make soil red! Very dark colored soils are usually high in carbon, or **organic** matter. These dark soils are formed where dead plant and animal materials build up. The organic matter in the soil can have a big effect on how well plants can grow. Medium-colored soils are good for growing plants. Light-colored soils do not have very much organic material; they are not good for gardening or farming.

Soils can also be classified according to **texture**, or how they feel. Texture can be tested by getting a small soil sample wet and rubbing it to feel whether it is **coarse** or fine. Heavy soils feel smooth and sticky. Medium weight soils can be smooth or gritty. Light soils feel gritty.

Suppose you want to plant a flower in your backyard. You must study the soil to decide what plant would grow best there. The soil is sticky and reddish-brown, with no visible particles of humus. You know that reddish soil is high in iron and the sticky texture means that the soil is mostly clay. Next, you ask your local garden shop to recommend a plant. After a few months, your new azalea plant is doing great!

1. What is the meaning of the word *texture* in Paragraph 6?
 - A How the soil feels
 - B How much water the soil retains
 - C How much the soil weighs
 - D How old the soil is

2. Soil is mostly composed of sand, silt, clay, and—
 - A topsoil
 - B humus
 - C magma
 - D pebbles

3. What is humus?
 - A A type of clay found in soil
 - B Material from decayed plants and animals
 - C Small rocks left after weathering
 - D A synonym for people

4. Why are different types of soil different colors?
 - A Some soils are better for growing plants.
 - B Dark soil is older than younger soil
 - C Light colored soils are gritty.
 - D Soils get their color from minerals.

5. Which of the following soils will retain water for the longest time?
 - A Soil that contains mostly sand
 - B Soil that is mostly humus
 - C Soil that contains mostly clay
 - D Soil that is mostly silt

6. What is the top layer of soil called?
 - A Clay
 - B Topsoil
 - C Bedrock
 - D Humus

7. Which of the following components of soil is NOT formed by the weathering of rocks?
 - A Pebbles
 - B Rocks
 - C Clay
 - D Humus

8. A student wants to know what kind of soil retains the least water. She uses four identical containers and pokes holes in the bottom of each one. She fills each pot with a different kind of soil and waters the pots with the same amount of water. How can she find out how much water is left in the soil of each pot?
- A Measuring the amount of water that drains from each pot
 - B Planting flowers in each pot and measuring their height
 - C Looking at the soil color in each pot
 - D Feeling the soil in each pot to test its texture

Directions: Study each word carefully. Write the root word in the correct blank. Then write the prefix or suffix the word contains.

	Word	Root Word	Prefix/suffix
9.	weathering	_____	_____
10.	combinations	_____	_____
11.	richest	_____	_____
12.	erosion	_____	_____
13.	deposition	_____	_____
14.	drainage	_____	_____
15.	inorganic	_____	_____
16.	sediments	_____	_____

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fine	horizon
humus	loam
nutrients	organic
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soil profile	texture
weathering	

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Word Study Maps

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