

Soil!

A green-handled shovel is shown digging into a mound of dark, rich soil. The shovel's head is partially buried in the dirt, and its handle extends upwards towards the top right of the frame. The background is a green grid pattern.

Let's Dig In

Soil!



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This book was developed in collaboration with Region 4 Education Service Center, Houston, Texas.



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For the teacher

Students may have varied experiences and knowledge of soil, its components, and its uses. They may think that dirt and soil are the same. In this book, they will learn that dirt is loose soil found in places that soil does not belong, like the dirt you sweep off the floor or shake off your shoe. Soil is found almost everywhere and is an important natural resource of our world.

Different types of soil contain different components. The amount of each component in the soil determines its color, its capacity to retain water, its texture, and the way(s) it is used. These components include air, water, decayed materials (plant and animal remains), and tiny pieces of rocks. Depending on the size of the particles, we call these rock pieces sand, silt, or clay. Students will discover they cannot easily see the particle size of clay and silt, but they can see the sand particles and some pieces of organic material in the decayed materials.

Did you know? Dirt is not soil.



Soil is found in nature. Soil is an important natural resource.

Dirt is loose soil found in places that soil does not belong. Dirt can be found on your clothes or shoes after you have played or worked in the soil.



Soil is important and useful.

We eat and make our clothing from plants.
Plants grow in soil.





We build things using plants and trees that grow in soil. Different types of soil are mixed to create bricks and cement. Bricks and cement are used to build homes and buildings.

Soil is found almost everywhere.



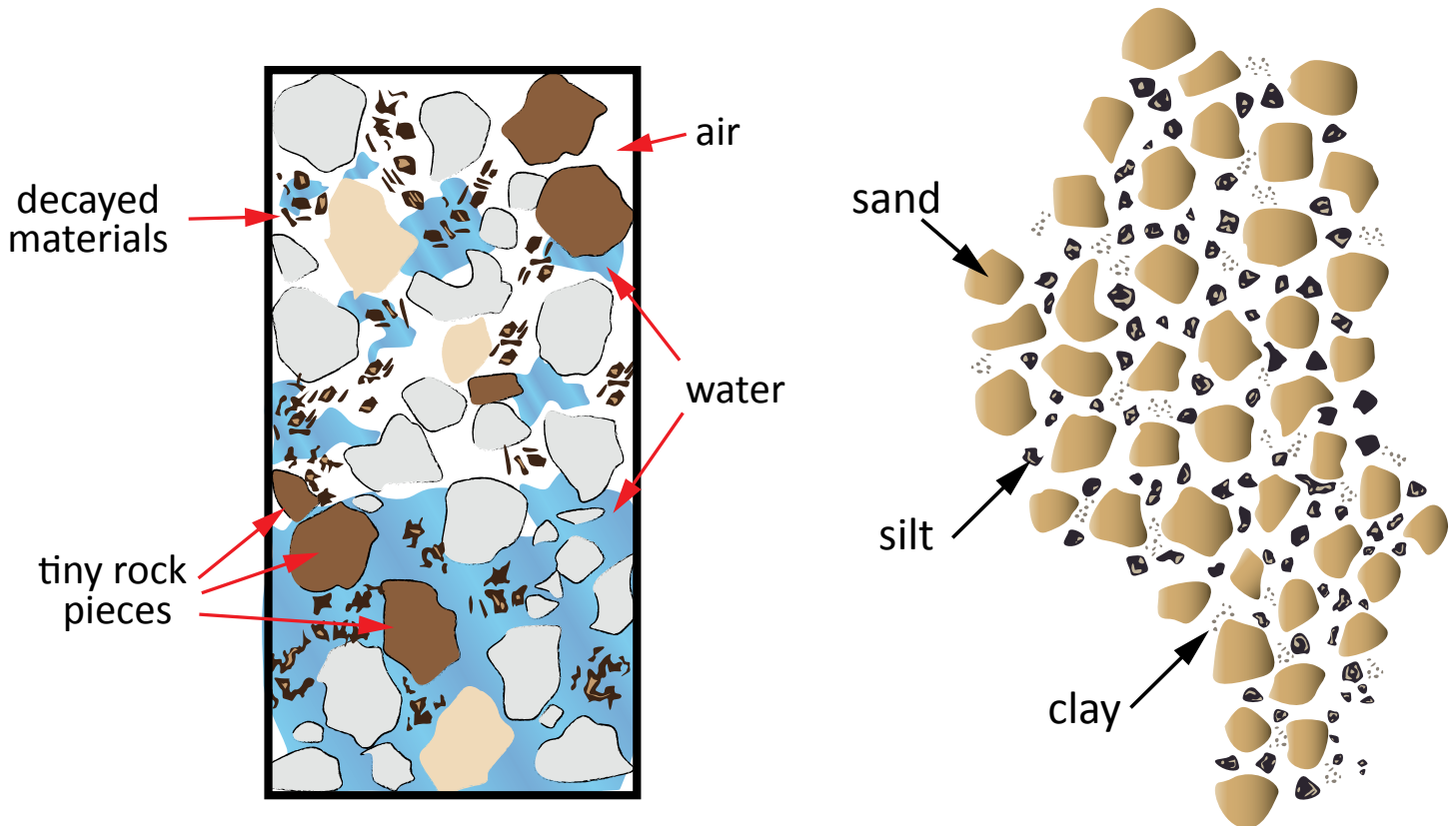
You might find soil in a yard, in a garden, and on a beach.

You might find soil along the road and in the city.



Soil has several components, or parts.

Soil is made of air, water, decayed plant and animal remains, and rocks.



Decayed materials are a component of soil.

This mix of plant and animal remains helps to make the soil better.

Decayed materials are found in the top level of soil. They are usually black or brown.





Soil is a mix of different things. It has different-size particles. It will feel different depending on what is in the soil.

Rock particles come in different sizes.



Based on their size, we call these rock particles sand, silt, or clay.

Sand is an example of rock material.



Sand may be tan, pink, white, or even black. The rock or shell it comes from determines its color.

You can see and feel particles of sand. Sand feels gritty because it has large particles.



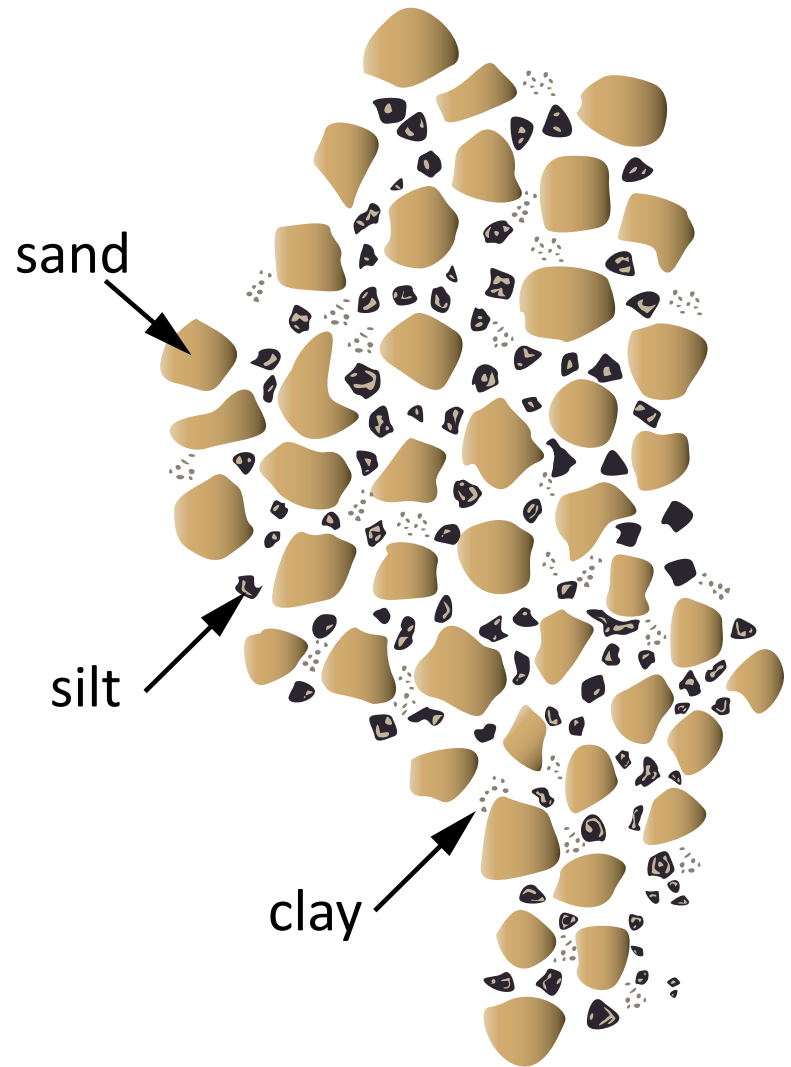
Silt is an example of rock material.

Silt may be different colors such as tan or black. The rock it comes from determines its color.

Silt feels like powder when it is dry. It feels slippery when it is wet.



Silt particles are smaller than sand particles. Silt particles are larger than clay particles. They are hard to see with just your eyes or a hand lens.



Clay is an example of rock material.



Clay has very small particles. Clay particles are smaller than those of silt.

Clay soils may be red, gray, or white.

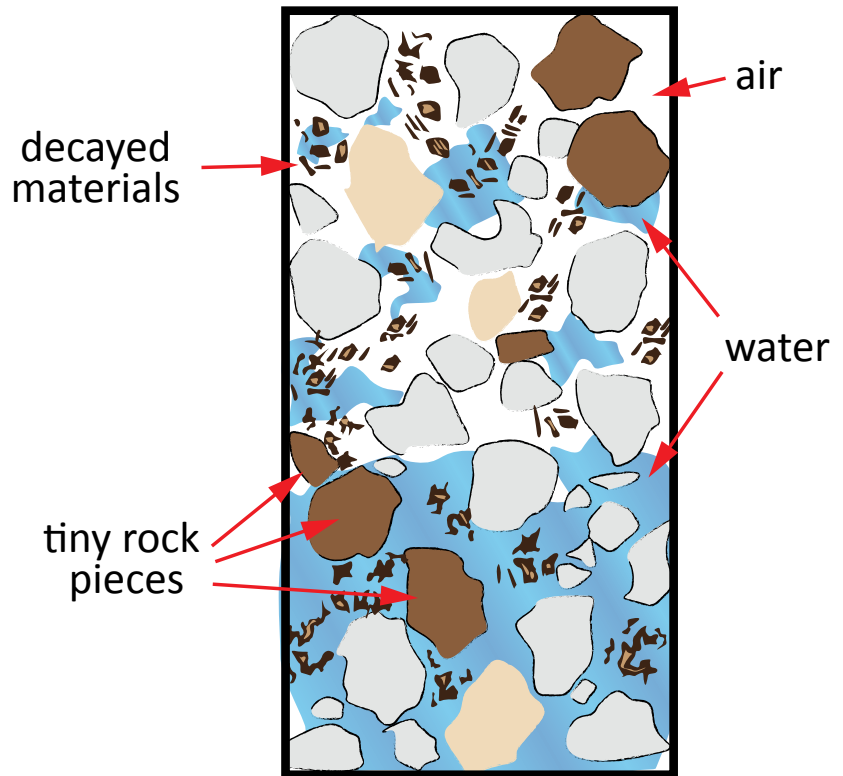


Clay soil gets sticky and heavy when wet. Wet clay soil will stick to your hands and your shoes.



Did you know air and water are important components of soil?

Air and water fill the spaces between the decayed materials and the rock particles.



There are different amounts of air and water in different types of soil.

Some plants grow better in soil with more water.



Others grow better in soil with less water.

See for yourself!

Shake and Settle Soil Investigation

- Using a funnel and your soil sample, fill an empty water bottle half full of soil.
- Fill the bottle with water, add a small drop of liquid dish soap, and secure the lid.
 - What happened when you added water? Record your observations in your notebook.
- Shake the bottle vigorously and make observations.
 - What do you see? Record your observations in your notebook.
- Observe the bottle after one hour. Record your observations in your notebook.
- Observe the bottle again at the end of the school day and at the beginning of school the next day. Record your observations in your notebook.



You should be able to observe different layers in the container.

Decayed materials will be on top and possibly float in the water that fills the remaining space.

Clay will be in the top layer.

Silt will settle above the sand.

Sand and any pebbles in the soil will fill the bottom layer.



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