

WARGO NATURE CENTER PRESENTS

SOIL WEEK

This week is all about soil. You probably haven't given much thought to the stuff underneath your feet, but the soil beneath us is as important as the air we breathe and the water we drink. Without soil we wouldn't have the food we eat, the lumber we need to build houses, and buildings or habitat for animals. SAFETY TIP: Activities this week involve digging. Before you dig, check with a trusted adult first. Ask them permission to use a shovel and where you can dig safely.

TERMS

Habitat: the place where an animal gets the things it needs to survive such as its food and water.

Decomposers: animals and microorganisms that help break down dead stuff in the soil. Examples are worms, bacteria, fungus.

Particle: a tiny or very small bit.

Organic matter: plant or animal in various stages of breakdown (decomposition).

Humus: the dark organic material in soils, produced by the decomposition of plant or animal matter.

Weathered: changed in color or form over a period of time because of the effects of sun, wind, rain.

Parent material: is generally a huge rock, that has broken down into smaller pieces with the help of rain and wind.

Scat: animal dropping or poop.

Nutrients: a substance that is needed for healthy growth and development.



SOIL WEEK

DAY 1

WHAT'S IN THE SOIL?

First off, let's talk about soil and dirt. You might not think there is a big difference, but to a soil scientist or gardener there is a big difference between the two. Dirt is what you find under your fingernails or on the bottom of your shoes. Soil is what you find under your feet. Think of soil as a thin, living skin that covers the ground.

Facts about soil

- Soil is what helps support plants up so they don't fall over. Plants would look silly lying on the ground.
- Soil makes food for plants to grow big and strong, just like you eat food to grow.
- Soil helps rain and snow soak into the ground. That way, plants can get a drink when they're thirsty. Rain and snow soaking in the ground also prevents flooding.
- Soil is alive! There are lots of living things like plants, mushrooms, and animals that call the soil home.

Soil Investigation Materials

Shovel

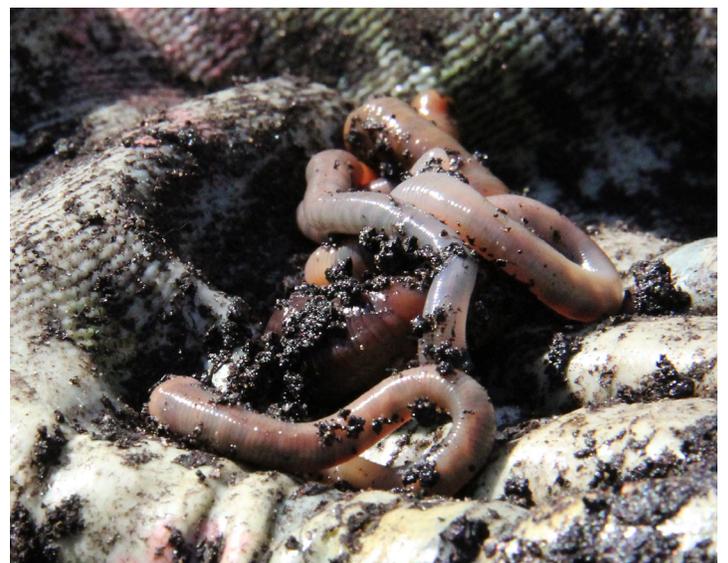
Worksheet on the next page or white piece of paper

Optional: gardening gloves

Ready to explore and get a little dirty? Let's find out what's in the soil.

SAFETY TIP: Before you dig, check with a trusted adult first. Ask them permission to use a shovel and where you can dig safely. If you don't have a shovel, you can use a stick, an old plastic container or even your hands (but this may be difficult, depending on where you dig).

Dig a hole and spread the soil out on the worksheet or paper. Use the worksheet on the following page to lead your investigation



Soil Investigation

THIS IS WHERE I
STUDIED SOIL
OUTSIDE

SOIL COLOR (RUB A
LITTLE SOIL BELOW TO
SHOW COLOR)

THESE ARE THE THINGS I
FOUND IN THE SOIL

- PLANTS
- ROCKS
- ANIMALS
- BONES
- DEAD THINGS

NAME:

DATE:

SOIL WEEK

DAY 2

TYPES OF SOIL

There are many different types of soil and they can be very different from one another. Soil can be sticky, slippery, or crumbly. It can be smooth or gritty. The type of soil has an impact on what plants and animals can live there.

Squeeze some soil between your fingers? Is it crumbly? Sticky? Soil contains small pieces of rocks and minerals. The 3 main soil types are sand, silt, and clay. Sand particles are coarse, silt particles are smaller, and clay particles are the smallest. Soil scientists measure the amount of each type of particle and sort soils using the texture triangle.

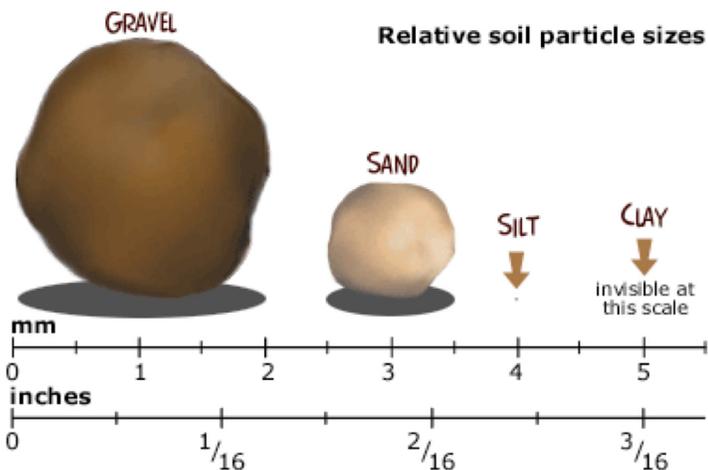
Soil Texture Activity

Materials

- Shovel
- Paper
- Water in a cup
- Bucket or water bottle

1. Gather a small bit of soil. Pick out any large leaves, stones or stick and set them aside. Use a spoon or your thumb to crush any soil clumps until they are not larger than 1/8 inch (the size of a pea).
2. Wet your clean index finger with some water.
3. Rub a bit of soil from your sample between your wet index finger and thumb.

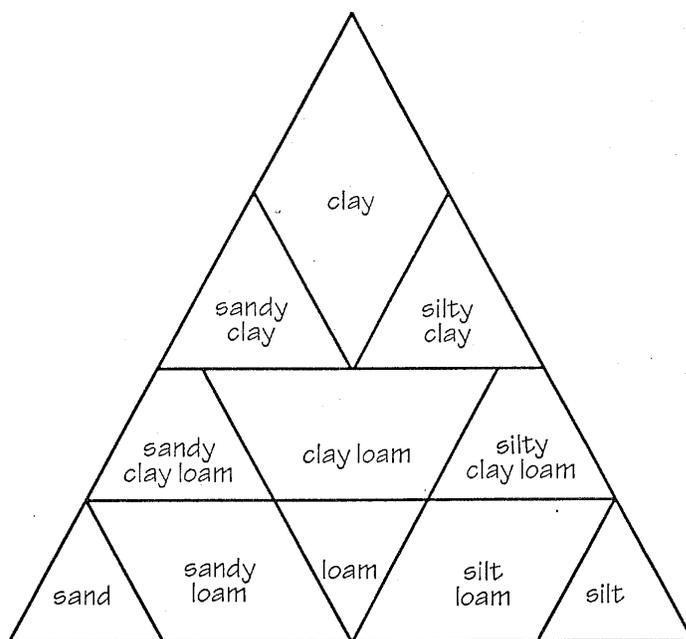
How does the soil feel?



Sand particles feel grainy or gritty. Silt particles feel smooth or silky, like powder or flour, even when moist. Clay particles feel sticky when moist and can be pressed or squeezed into small ribbons between your thumb and finger.

Most soils are a mixture of these particles and organic matter, but may have more of one type than the others. If a sample has equal amounts of all three particles, it is called "loam." Loam is considered the best type of soil for growing plants.

Estimate where your soil sample would fall on the texture triangle. Circle or shade in that "class" of soil. Repeat this experiment in several different places around your home or in a local park.



SOIL WEEK

DAY 3

SOIL LAYERS

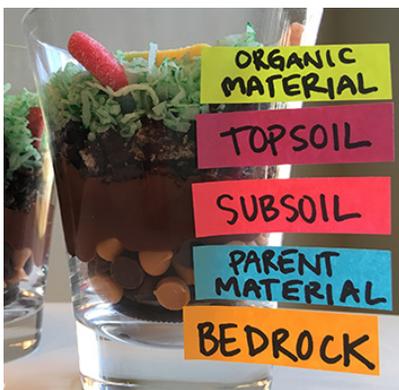
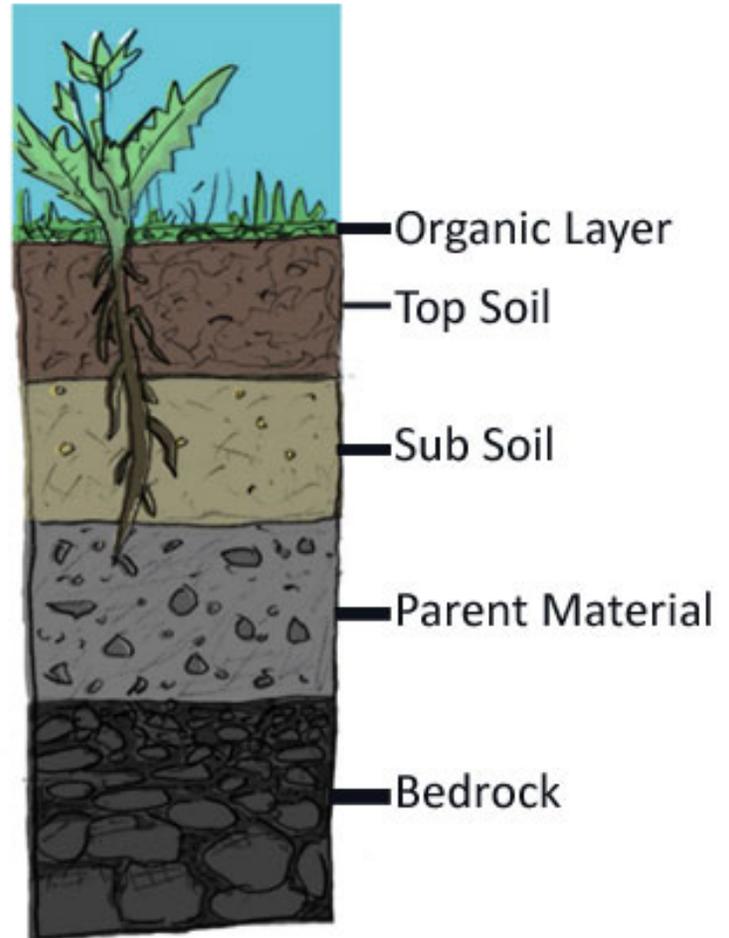
Let's take an elevator ride from the surface of the soil to the bedrock below. We'll pass several distinct layers, or horizons, as we go. Together, these layers form the soil profile. Here we go!

Topsoil: Plants grow and animals live on top of the soil. This is sometimes called the organic layer. A thick cover of plants can keep the soil cool and keep it from drying out. Decomposers recycle dead plants and animals into humus.

Subsoil: This is a mix of mineral particles and some humus near the top. Subsoils are very low in organic matter compared to the topsoil. This is the layer where most of the soil's nutrients are found. Deep plant roots come here looking for water. Clays and minerals released up above often stick here as water drains down.

Weathered parent materials: This horizon can be very deep. There's no organic matter here at all. It's all rock particles, full of minerals.

Bedrock: We've finally gone down far enough to hit solid rock! The bedrock formed before the soil above it. It will wait here until erosion or an earthquake exposes it to the surface. Then some of it will be weathered to become the next batch of parent material. The soil making process will start all over again.



Soil Layers Snack

What better way to remember the difference soil layers than making a tasty treat? Don't worry, there's not real dirt in this snack, just yummy chocolate pudding and candy. Layer the ingredients in a clear container if possible. If you don't have everything on the ingredient list have your grown up help find something else to use.

Get the recipe here

<http://blog.learningresources.com/diy-earth-day-edible-soil-layers>

SOIL WEEK

DAY 4

ANIMALS IN THE SOIL

When you think of animals that live in the soil, what ones come to mind? Worms were probably what you first thought of, and that's right! But did you know that the soil provides home for many other animals? Imagine an area the size of a football field: 5-10 tons of animal life can live in the topsoil in an area that large. Let's meet a few of them below:

Ants - Ants live in large colonies and burrow in the soil to build their nests. They eat a wide variety of food. Careful! All ants can pinch!



Beetles - There are lots of different types of beetles. Some eat wood, some eat plants, some eat other insects and some eat scat. All of them add nutrients back into the soil.



Earthworms - Earthworms burrow through the soil making it looser and letting in air. The soil provides them food and a home. Did you know, there are no native earthworms in Minnesota?



Sowbugs - Also called pill bugs or roly pollies, eat decaying things. They break them down into smaller pieces, adding nutrients to the soil to feed the plants.



Millipedes - Millipedes mainly eat decaying things and help turn them back into useful things for the soil. Millipedes have 4 legs per body segment. They will not bite but can let out a stinky liquid that is harmless to humans.



Centipedes - Centipedes live under logs and rocks and in the soil. They are predators and eat other small creatures. Centipedes have 2 legs per body segment. Since they are hunters, they can pinch.



Activity

Try to observe one of these animals for a few minutes. Imagine you have the chance to interview one of these creatures. What questions would you ask? How would they answer? See if you can come up with 5 questions and answers from your pretend interview with a soil animal.

SOIL WEEK

DAY 5

DECOMPOSITION

The process of breaking down plants and animals into smaller parts and eventually into soil is called decomposition. Air, temperature, and water help with this process. Earthworms, slugs, insects, bacteria, and fungi are decomposers and do most of the work. When leaves fall from the trees in the fall, they decompose into soil in about a year! Some things that are human made take a lot longer.

Did you know it takes up to 20 years for a plastic bag to decompose?



Activity

Your challenge is to guess how long it takes different things to decompose. Find three or four things in your house or yard to decompose. These things could be a banana peel, a piece of bread, an egg carton - whatever you want! How long do you think it will take for each item to decompose? Write it down. Then, place each item in a sealable plastic bag. Check on them each day. It might take several days for things to start happening. Record how long it really took to start decomposing. How close was your guess? Then, draw or describe what the decomposing item looks like!



SOIL WEEK

CRAFT - MOLE IN A HOLE

Supplies

2 Paper Plates
Construction paper- Pink, Black or Brown or Blue
Paint & Brush
Popsicle Stick
Stapler
Glue
Scissors

Instructions

Paint one plate with your background, bottom brown for soil and top blue for sky. Add grass once dried. You can also use construction paper for the background and glue it to the plate. Cut the other plate in half and paint the back of the plate brown. Set aside to dry.

Cut out a rounded triangle shape from your dark color construction paper for your mole. Next cut out pink hands and a star shape for the nose. Glue pieces to the dark paper to create a mole and draw on eyes. Glue mole to a popsicle stick.

Place the half plate over the other plate and staple on the sides to create a pocket with an opening in the bottom. Drop the popsicle stick mole into the pocket so the stick comes out the bottom and the mole is able to hide "underground" in the pocket.

Use your mole in a hole to have a puppet show, add some pipe cleaner worms for the mole to chase and eat.



To read these books and more search under the
Anoka County Library E-library page.

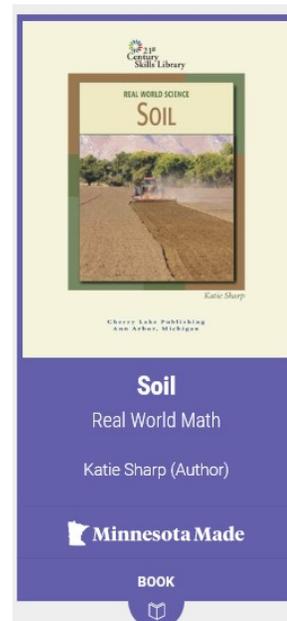
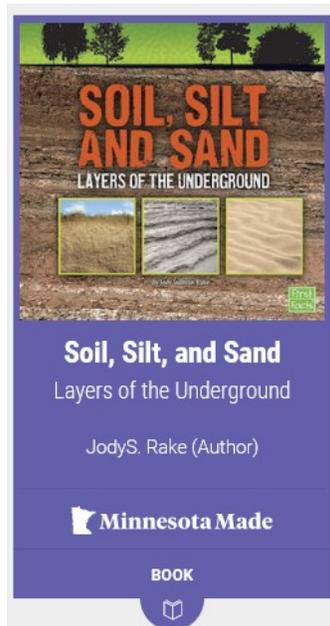
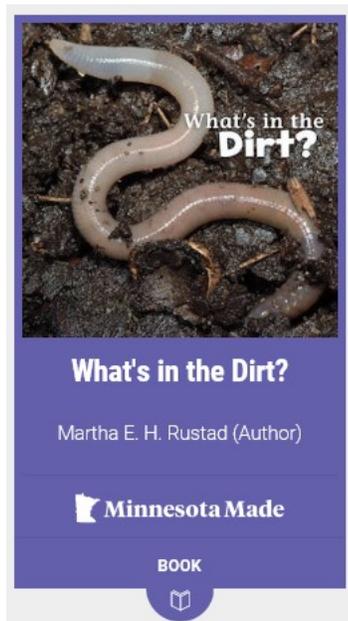
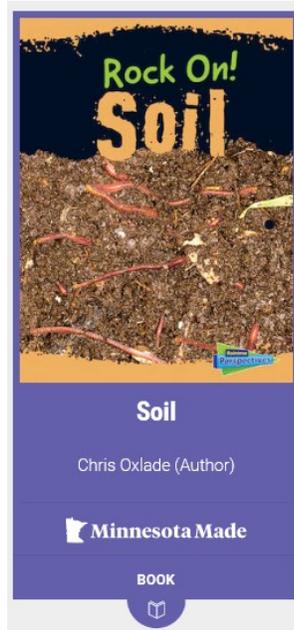
No library card needed!



<https://www.anokacounty.us/2599/eLibrary>

SEARCH WORD FOR THE WEEK:

Soil



Anoka County
LIBRARY

Ideas, Information, Inspiration.