

# IT'S TIME TO EXPLORE YOUR POLK COUNTY BACKYARD



**4-H**   
**GROWS HERE**

## WEEK ONE: THE SOIL ISSUE

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## 4-H Comes to You!

Dear 4-H Families,  
With the warmer weather and longer days, and our being mostly homebound, this is the perfect opportunity to take some time to explore your backyard more closely.

In this week's unit we will investigate **soil**. It affects our daily lives far more than we think, and our Polk County soil has some unique characteristics worth noticing.

Each of the activities included here is designed to not only help you learn more about the dirt beneath your feet, but to give your whole family the chance to get outside and interact with nature (and each other!) in a positive way.

**Polk County 4-H Youth  
Development Agent  
Helen Blackwell**



**Contact Helen**

The content for  
this newsletter was  
pulled from the NC  
State Extension  
"Soil Solutions"  
curriculum.

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Polk County Center



## THE SOIL SITUATION

Soils is a very important natural resource, from growing our food and favorite flowers, to providing the materials to build the houses we live in, filtering impurities out of our water, helping us recycle wastes, and providing recreational activities we enjoy.



## HOW MUCH SOIL IS THERE?

Since it is all around us, you would think there is an abundant supply of soil. Let's explore that question by comparing the planet to an apple. If you have an apple and a cutting board handy, follow along!



**Can't view the video? Click [this link](#) instead.**



Can you name 3 things you can see right now that required soil to be produced?

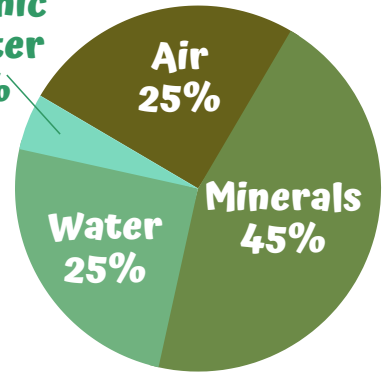
Examples:

- a piece of wood furniture (lumber product)
- a sweatshirt (fiber product)
- cereal (plant product)

# WHAT IS SOIL MADE OF?

Soil **texture** refers to the proportion of sand, silt, and clay particles it has. Texture affects many fundamental soil properties, such as **fertility** (its ability to grow things), **erosion** (how quickly the topsoil is removed before it can be replaced), **water-holding capacity**, **pollution**, and **compaction** (how pressed down it is).

**Organic Matter**  
5%



Soils contain four parts: weathered minerals, organic matter, water, and air.

**Sand**

**Silt**

**Clay**

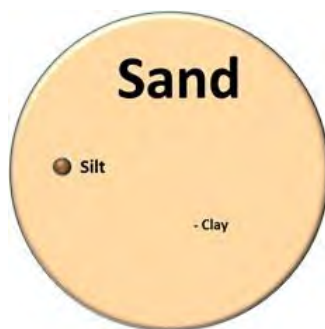


The color of soil is like a clue. It can reflect the different mineral content, how much oxygen is available to it, and the presence of organic matter.



Soils are composed of particles of different sizes:

- **Sand** (.05 to 2 mm)
- **Silt** (.002 to .05 mm)
- **Clay** (smaller than .002 mm)
- **Humus** (decomposed organic matter)



Do you compost your food scraps? The soil digestion process that happens when composting converts the fresh material into **humus**, a dark brown component of rich in plant nutrients.



**What exactly is our Polk County soil made of? Go outside and dig up a cup full of soil and dump it out on a piece of paper for inspection. Describe and sketch what you see on the soil observation sheet.**



## DIGGING DEEPER: HAND TEXTURING

### Hands On Activity



Hand texturing is a field exercise soil scientists use to determine soil texture, or whether the soil is made up of sand, silt, or clay.

Take an egg-sized soil sample, and spray it with water to lightly moisten it. Now, knead the soil with your hands. If it is too dry, and completely falls apart, spray more water. Conversely, if it is too wet, add dry soil.

**Sand** tends to have a gritty texture, like salt or sugar, and it falls apart when squeezed into a ball. Soil with a lot of **silt** has a silky feel, similar to flour. **Clay** tends to be sticky and greasy, and it easily forms a ball. Most soils have varying amounts of these particles, and will have a combination of the properties.



Once you have a moist soil ball, gently press your thumb and push the soil over your forefinger into a ribbon. The longer you can make your ribbon, the higher the clay content. Clayey soil can ribbon out for  $\frac{3}{4}$  of an inch or greater. If your ribbon is short (less than  $\frac{3}{4}$  of an inch) and cracks, the soil is considered to have a loamy texture (usually containing varying amounts of sand, silt, and clay).

**Here is a key to help you determine what kind of soil you have at your house.**



**PRINT THE KEY**



**Email Helen with your conclusion about your soil!**



## THE SOIL SHIMMY

### Hands On Activity



1. To determine what soil particles make up the collected samples, have your 4-Her use a funnel to put at least a half cup of soil into a clear 20-ounce plastic soda bottle.

2. Have them add a tablespoon of powdered dish detergent in with the soil, and fill the bottle with water. (Dish detergent clings to the soil particles, helping to separate them.)

3. Secure the bottle cap, and have your child dance around and shake the bottle vigorously for at least two minutes.

4. Have them place their bottles in a location where they can sit undisturbed for 24 hours. The soil should settle out from bottom to top in layers of sand, silt, clay, and organic matter, respectively.

5. Ask your 4-Her what they observe. Which layer has the most? Which layer has the least? How does this compare to when you hand textured? Why is some water still murky?



## DIRT SHIRTS

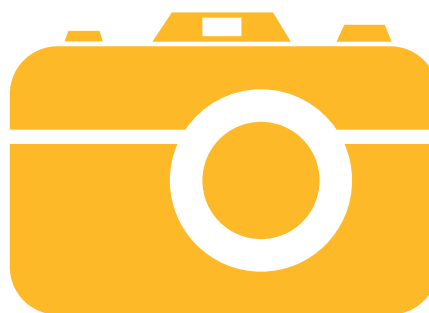
### Craft



Find a clean, washed, white t-shirt that you won't get you into trouble when you dye it with dirt.

Gather enough of our Polk County red clay soil to fill the bottom of a bucket. Make a mud slurry by adding some water to your soil in the bucket. You want it to be a little thinner than a mud pie.

To make a tie-dyed dirt shirt, tie rubber bands tightly onto the shirt. Put your shirt into the mudpie mixture, and mix it in really well. Let it soak for at least four hours or even overnight. Take your shirt out of the bucket and wash it off, preferably outside using a garden hose. Let your shirt dry outside, and then rinse it again in cold water. Dry the shirt in a hot dryer to set the color. The color will fade over time, but you should end up with a glorious shirt from the garden!



**Email Helen a pic of your shirt!**