



Kankakee County  
Soil and Water  
Conservation District



## SOIL HEALTH: A RECIPE FOR HEALTHY SOILS

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**BACKGROUND:** This activity is designed to show students the components that make up healthy soil. This activity was created for 4<sup>th</sup> graders, but can be modified for younger and older audiences.

**INTRODUCTION:** Welcome to the Soil Test Kitchen! Today I need some help to prepare a healthy batch of soil.

Did you know? It takes upwards of 500 years to make just one inch of topsoil! That's a long time!

Soil isn't the dirt under your fingernails – its "alive" with important organisms! One teaspoon of soil is home to billions of tiny living creatures. (Optional: Take a teaspoon of soil out of a dish to illustrate the idea). The living creatures within soil keep it healthy and provide nutrients for plants, like the food we eat every day. We need to treat our soil right in order to keep it healthy!

Can I have a volunteer to help me follow a recipe to whip up some healthy soil?

**ACTIVITY:** A recipe for healthy soil! Start by calling a student to volunteer as sous chef at the front and let them don an apron. Follow the recipe below, measuring out and adding the components to a clear cup. Explain the importance of each ingredient as you go.

### **INGREDIENTS**

**Sand** – ¼ cup of graham cracker crumbs

**Silt** – ¼ cup of chocolate cookie crumbs

**Clay** – ¼ cup of vanilla cookie crumbs

The three main particles that make up soil are sand, silt and clay. If we have sand, silt and clay in even amounts, we will make a soil type called a "clay loam".

Ask the student volunteer to mix together the sand, silt and clay in the bowl. Let them add the other ingredients as you talk about them.

**Bacteria and Teeny, Tiny Microbes** – 1 scoop of colored sprinkles

Bacteria and teeny, tiny microbes are so small that we can only see them under a microscope. They help create and cycle nutrients to provide food for plants to eat.

You can use the "giant microbes" stuffed animals to show students examples of microorganisms that live in our soil and water. <https://www.giantmicrobes.com/us/>

**Worms and Good Insects** – 2 gummy worms

Worms and insects help burrow through the soil to create tunnels, so roots and water can get into the soil easier. Insects also eat bad bacteria and fungi.

**Fungi** – 1 scoop coconut flakes

Special fungi work together with plant roots to help find nutrients for plants to eat! The fungi can reach farther than the roots, and get nutrients that the plant can't reach.

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**Plant Roots** – a few pretzel sticks stuck into the soil

Healthy soils have plants with deep root systems. Roots provide a habitat for critters that live in the soil, and help to make soil healthy.

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**Organic Matter** – 1 scoop green coconut flakes (mix coconut flakes with green food coloring)

Organic matter is like snack packs scattered throughout the top layers of the soil, providing food for microorganisms and other life.

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**Air & Water** – don't add any "ingredients" but explain that healthy soil allows air and water to pass through it. It's the ductwork and plumbing that gets everything flowing. A healthy soil is about 25 percent air and 25 percent water. This is needed for organisms to survive.

**CONCLUSION:** If we don't protect our soils and keep them healthy, the environment won't be able to follow the recipe and produce healthy soils!

How many of us like to eat vegetables? What about cookies? A juicy steak? Almost everything we eat comes from plants, or relies on plants – and plants need HEALTHY SOIL!

One way we can protect our healthy soil is to plant native plants & trees to cover our soil so it isn't exposed to wind and rain. We can also recycle and make sure we don't put any harmful pollution into the earth.

You can give the edible soil to the volunteer, or the teacher. Provide the teacher with edible soils recipe cards to copy and distribute to the students.



Photos taken at the 2018 Kids Day at the Farm event, hosted by the Kankakee County Farm Bureau.