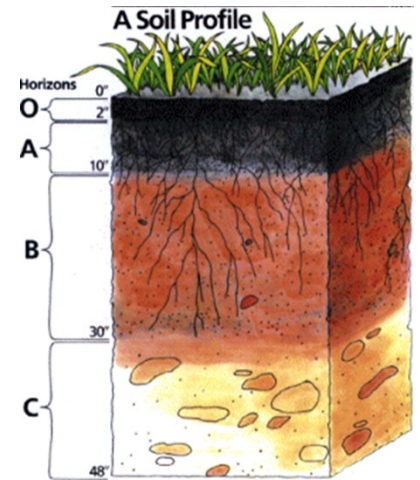


### Learn about the layers of soil through this tasty treat!

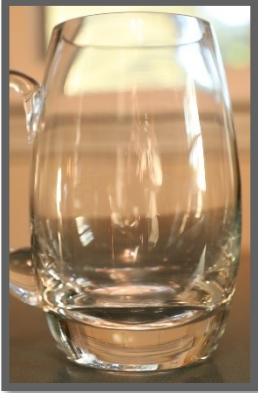
*If you don't have all the ingredients listed, that's OK; not all soils are the same! You can also substitute flavors and types of candy as you like.*

#### Ingredients\*:

- Chocolate Chips
- Chocolate Pudding
- Butterscotch or Vanilla Pudding
- Thin Mints, Oreos, or other dark/brown cookie
- Gummy Worms
- Gummy Bears (optional)
- Clear (reusable) cup
- (Reusable) spoon



\*Each ingredient represents a different soil layer, also known as a horizon. Every soil is a little different, so add as much or as little of each ingredient as you like!



### STEP 1: CREATE YOUR "R" LAYER

The "R" layer in soil is made of hard rock that you couldn't dig with a shovel. For our soil, the R layer is the bottom of our cup. Set your cup out on the kitchen counter or wherever you are doing this activity!

### STEP 2: ADD THE "C" LAYER

This is a layer of unconsolidated material that forms the rest of our soil. Unconsolidated means broken up and able to be dug with a shovel. Add a layer of chocolate chips to your cup for your C layer.



### STEP 3: ADD YOUR "B" LAYER

Next comes the "B" layer. This layer will be present in almost every soil except very young ones. It is often filled with minerals and other materials that have moved down from the layer above it. Add a layer of your light-colored pudding to your soil!



### **STEP 4: ADD YOUR “A” LAYER**

Our second to last layer is the “A” horizon. This layer is always present in soils because it is the first layer to form. It is a dark color. Add your dark-colored pudding on top of your “B” horizon. It’s OK if your layers mix—this happens in real soil too; they aren’t perfect lines!

### **STEP 5: ADD YOUR “O” LAYER**

Our final and top layer of soil is the “O” horizon. This is organic material, or material that came from living things like leaves. Organic matter won’t always look like what it is made from, though. Take your cookie and crumble it on top of your soil to form your O layer.



### **STEP 6: ADD YOUR LIVING ORGANISMS PART 1—EARTHWORMS**

Add some gummy worms to your soil to keep it healthy!

### **STEP 7: ADD YOUR LIVING ORGANISMS PART 2—TARDIGRADES**

What are tardigrades? They are adorable, teeny creatures (usually 1/2 to 1 mm long) that prefer to live in wet environments like wet moss, but can survive anywhere, including boiling temperatures, freezing temperatures as low as  $-328^{\circ}\text{F}$ , and even in space! Add some water bears (gummy bears) to your soil if you want! P.S.: Tardigrades would be much smaller than earth worms in real life.



**A Tardigrade, AKA  
Water Bear**

### **STEP 8: EAT YOUR DIRT!**

**Success! Now it’s time to enjoy your treat What layer was the tastiest?**

**Share your dirt with us! #gscncEarthDay**

## 10 FACTS ABOUT SOIL

- There are over **1 BILLION** organisms in a single **gram (1/2 teaspoon) of soil**.
- Only about **1% of the microorganisms** living in soil have been identified.
- There are **70,000** different types of soil in the U.S.
- **Earth worms** have not been in the northernmost parts of the continental United States since the last ice age.
- It takes about **500 years to form 1 inch of topsoil**. As such, soil is considered a non-renewable resource for humans.
- Soil acts as a carbon sink: there is approximately **2,500 billion tons of carbon** stored in soil (compared to 800 billion tons in the atmosphere). However, poor soil management practices are causing huge amounts of this carbon to be released into the atmosphere.
- We have **lost more than 1/3** of the world's arable (growable) land since 1950.
- It is estimated that we **lose about 1% of topsoil** every year from erosion.
- **95% of the food we eat** directly or indirectly requires soil.
- About **80% of our degraded soils** are only slightly or moderately degraded, meaning they can be still be restored if we make the effort.

### The moral of the story?

**We need soil and it is worth protecting!**

***“Whatever our accomplishments, our sophistication, our artistic pretension, we owe our very existence to a six-inch layer of topsoil – and the fact that it rains.”***

*-Anonymous, The Cockle Bur*