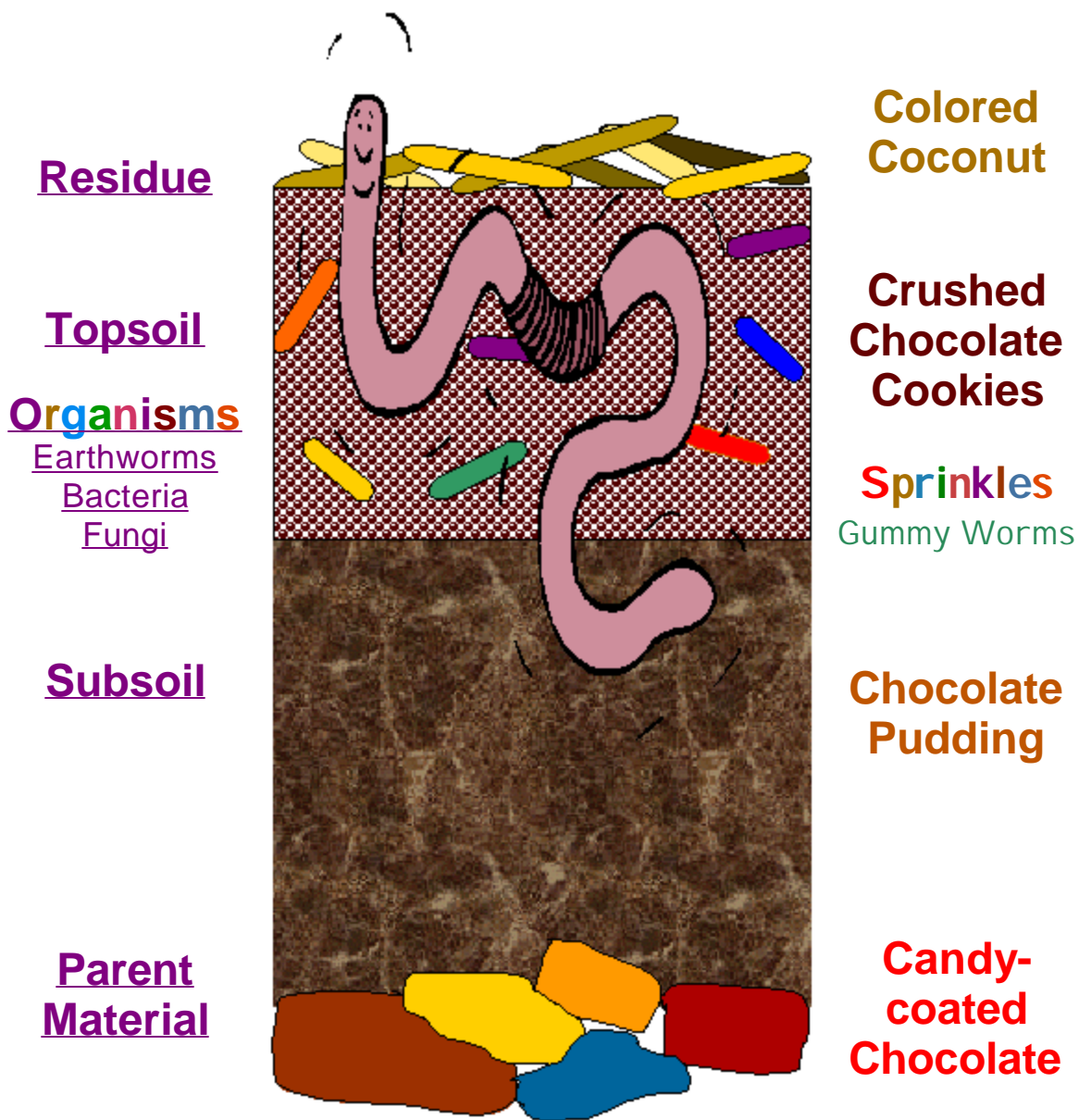


# Building Better Soil – Taste the Difference!

It has been said that the average person consumes over a bushel of dirt in their lifetime. Doesn't sound too appetizing, does it? Although it takes a long time to build real soil, you can make a fun visual representation of soil in a few minutes.



**SOIL PROFILE**

## Explanation of Soil Profile

All soil starts with a **parent material** such as weathered bedrock (e.g. limestone, sandstone, gneiss, schist, etc.) or boulders transported by glaciers. The type of parent material determines the type of texture (amount of sand, silt and clay) a soil will have, and thus whether the soil is a silt loam, silty clay, sand, etc.

**Subsoil** takes hundreds or thousands of years to build. Agents such as rain and growing plants slowly break the parent material down into smaller and smaller pieces until it eventually becomes subsoil.

**Topsoil** is at the surface of the soil and is necessary for plant growth. As subsoil continues to be exposed to the elements of weather such as freeze-thaw cycles and rain, it begins to develop horizons or visible layers. As plants and animals in the uppermost layer die, their remains become organic matter and make a healthy dark brown or black topsoil. .

**Organisms** such as fungi, bacteria, earthworms and plant roots live in topsoil. They decompose manure, plant residue and crop pests. Other organisms in the soil “fix” nitrogen from the air and make it available to help plants grow.

**Residue** is the stalks, stems, leaves of last year’s crop that is left on top of the soil. Conservation tillage is a system of farming where the soil is disturbed as little as possible (minimally tilled), allowing lots residue to cover and protect the soil surface.

**Earthworms** love residue because it provides food for them and moderates the temperature of the soil. The practice of conservation tillage not only protects the precious topsoil from erosion (where soil is washed into rivers making them dirty), but it encourages more earthworms - and the more earthworms, the better the topsoil!

**Bacteria** are microscopic, single-celled organisms. A teaspoon of soil generally contains over 100 million bacteria!

**Fungi** are usually multi-celled organisms that are neither plants nor animals. Fungal cells form long chains called hyphae and may form fruiting bodies such as mold or mushrooms to disperse spores.

# Better Soil Recipe

*Ingredients/Items needed for a class of 30:*

- Copy of SOIL PROFILE from Better Soil website
- 6 small (approx. 1-cup) clear containers
- 30 (2 oz.) plastic portion cups (available at restaurant food store)
- 36 plastic spoons
- 30 napkins
- 16 oz. candy coated chocolate (with or without nuts)
- 2 (15 oz) cans of pudding (light chocolate or butterscotch)\*
- 30 gummy worms
- ½ cup+ colored sprinkles
- 15 chocolate sandwich cookies, crushed
- ½ cup coconut
- yellow, brown or green food coloring

*Instructions:*

1. Print a copy of the SOIL PROFILE. Laminate for durability.
2. Pour candy coated chocolate into a clear container and place by the word **Parent Material** on the SOIL PROFILE.
3. Open a can of pudding (or make a box of pudding\*) and pour it into a clear container and place by the word **Subsoil**.
4. Place chocolate sandwich cookies into a sealed plastic bag and crush using a rolling pin. (Or, cookies can be crumbled with a food processor.) Pour into a clear container and place beside the word **Topsoil**.
5. Pour sprinkles into a clear container and place by the word **Organisms**.
6. Place coconut in a plastic container with a tight-fitting lid. Add a couple of drops of food color. Snap lid on and shake container for 30 to 45 seconds. Dump coconut onto paper towels to dry. When coconut appears dry (about ½ hour), place into clear container and put beside the word **Residue**.
7. Place gummy worms in clear container and put beside the word **Earthworms**.
8. Place a plastic spoon in each container of the 6 clear containers.
9. Demonstrate building better soil to the audience before turning them loose to make their own! Scoop a spoonful of candy-coated chocolates into the bottom of a 2 oz. portion cup; discuss what **Parent Material** is. Repeat this procedure with the pudding (**Subsoil**), followed by cookie crumbs (**Topsoil**), sprinkles (**Organisms**), coconut (**Residue**) and finally a gummy worm (**Earthworms**).
10. Let the audience make their own better soil....and enjoy!

\* One (3.8 oz) box of instant pudding may be used in place of the canned pudding. Mix according to directions on package. If light chocolate pudding is not available, mix vanilla pudding with chocolate to obtain a color similar to subsoil.