



GEORGIA  
FOUNDATION  
FOR AGRICULTURE



FALL '24 CHALLENGE  
TURNING TRASH INTO TREASURE  
**STEM CHALLENGE**



AG IN THE  
CLASSROOM

NAME: \_\_\_\_\_

# COMPOST PILE: UNEARTH NEW VOCABULARY!



P	C	A	R	B	O	N	R	G	Z	W	C	L	F
X	A	W	G	T	H	Y	B	R	K	Q	O	T	Z
D	E	C	O	M	P	O	S	E	W	R	M	W	N
W	R	D	F	G	T	A	C	E	F	D	P	X	U
I	B	R	O	W	N	S	R	N	G	U	O	C	T
R	C	V	O	C	A	H	A	S	P	K	S	F	R
E	R	F	O	X	S	N	P	J	R	O	T	V	I
C	G	G	D	G	O	H	S	K	V	C	X	Q	E
Y	H	R	O	S	I	F	D	I	P	H	W	A	N
C	U	E	R	L	L	O	R	G	A	N	I	C	T
L	Y	E	V	X	C	F	Q	P	B	Q	M	N	S
E	T	N	C	M	O	L	D	R	C	B	C	P	T
K	X	S	Q	N	A	A	P	P	L	E	R	G	X
N	B	O	N	I	T	R	O	G	E	N	X	B	E

**WORD BANK:**

- ORGANIC
- COMPOST
- ROT
- RECYCLE
- CARBON
- MOLD
- GREENS
- BROWNS
- NITROGEN
- DECOMPOSE
- ODOR
- APPLE
- SCRAPS
- NUTRIENTS
- SOIL
- GREENS

# Opening Activity:

# Get the “DIRT” on Georgia’s Soil!



## OBJECTIVES/PURPOSE

The student will be able to:

- Students will be able to identify and describe the different soil layers.
- Students will be able to explain the significance of soil layers and their composition in Georgia
- Students will be able to create a soil layers model that accurately represents the soil layers and their components.

## CONTENT/PROCEDURE ENGAGE:

Begin a discussion with your students to evaluate their prior knowledge of soil and its importance. Ask questions like:

- What is soil made of?
- Why do you think soil is important for plants and animals?
- What would happen if we didn't have healthy soil?
- Did you know there are different layers of soil?

## VOCABULARY WORDS

- Soil: the upper layer of earth in which plants grow.
- Horizon: a layer of soil.
- Organic matter: material composed of decayed plants and animals.
- Topsoil: the top layer of soil, rich in nutrients.
- Subsoil: the layer of soil beneath the topsoil. Bedrock: the solid rock layer beneath soil layers.

## DID YOU KNOW?

- **Georgia’s Red Soil:** Georgia’s soil is often red because it contains a lot of iron. This iron gives the soil its bright, reddish color and helps it stay rich and healthy.
- **Georgia’s State Soil:** Tifton soil is Georgia’s official state soil. It’s perfect for farming because it drains well and is great for growing crops like peanuts, cotton, and soybeans.
- **Soil Supports Wildlife:** The soil in Georgia supports diverse plants and animals. Healthy soil is crucial for forests, gardens, and wetlands, providing a home and food for many species.
- **Protecting Soil from Erosion:** Erosion happens when rain or wind washes soil away, which can harm plant growth. Farmers use methods like planting cover crops and avoiding tilling to keep soil in place and prevent erosion.

## RESOURCES

- Soil Layers Anchor Chart
- USDA Natural Resources Conservation Service Georgia: <https://gfb.ag/usdasoilresources>
- FREE Soil Booklets: <https://gfb.ag/FreeSoilBooklets>
- Soil Survey for all Georgia Counties: <https://gfb.ag/GASoilSurvey>

## EXPLORE

### Activity 1: Create a Paper Soil Model

#### 1. Review Soil Layers:

- Show an anchor chart or poster of soil layers to the class. Explain each layer: **Humus:** Contains decomposed plants and leaves. **Topsoil:** Rich in nutrients and where plants grow. **Subsoil:** Contains minerals leached from the topsoil. **Parent Material:** Made up of weathered rock fragments. **Bedrock:** The solid rock layer underneath all the other layers.

#### 2. Model Creation:

- Provide dark brown construction paper for the background. Cut grey construction paper for the Bedrock layer and glue it to the bottom of the paper. Add Weathered Rock Fragments using torn pieces of light brown paper. For Subsoil, color with crayons and add glitter for minerals. For Topsoil, use white crayons to draw roots and add green paper for grass and flowers. Discuss each layer's role as you add it.

#### 3. Labeling:

- Provide sticky labels or markers for students to label each soil layer on their models.

### Activity #2: Make Edible Soil Layers

#### 1. Materials:

- Clear plastic cups
- Gummy worms
- Chocolate pudding
- Crushed graham crackers
- Crushed chocolate chip cookies

#### 2. Instructions:

- Humus: Add a layer of crushed graham crackers to represent the organic matter.
- Topsoil: Add a layer of chocolate pudding for the nutrient-rich layer.
- Subsoil: Add a layer of crushed chocolate cookies to represent the minerals.
- Parent Material: Add another layer of chocolate pudding for the weathered rock fragments. Bedrock: Add a layer of larger cookie chunks for the solid rock layer.
- Top Decoration: Place gummy worms on top to represent soil organisms.

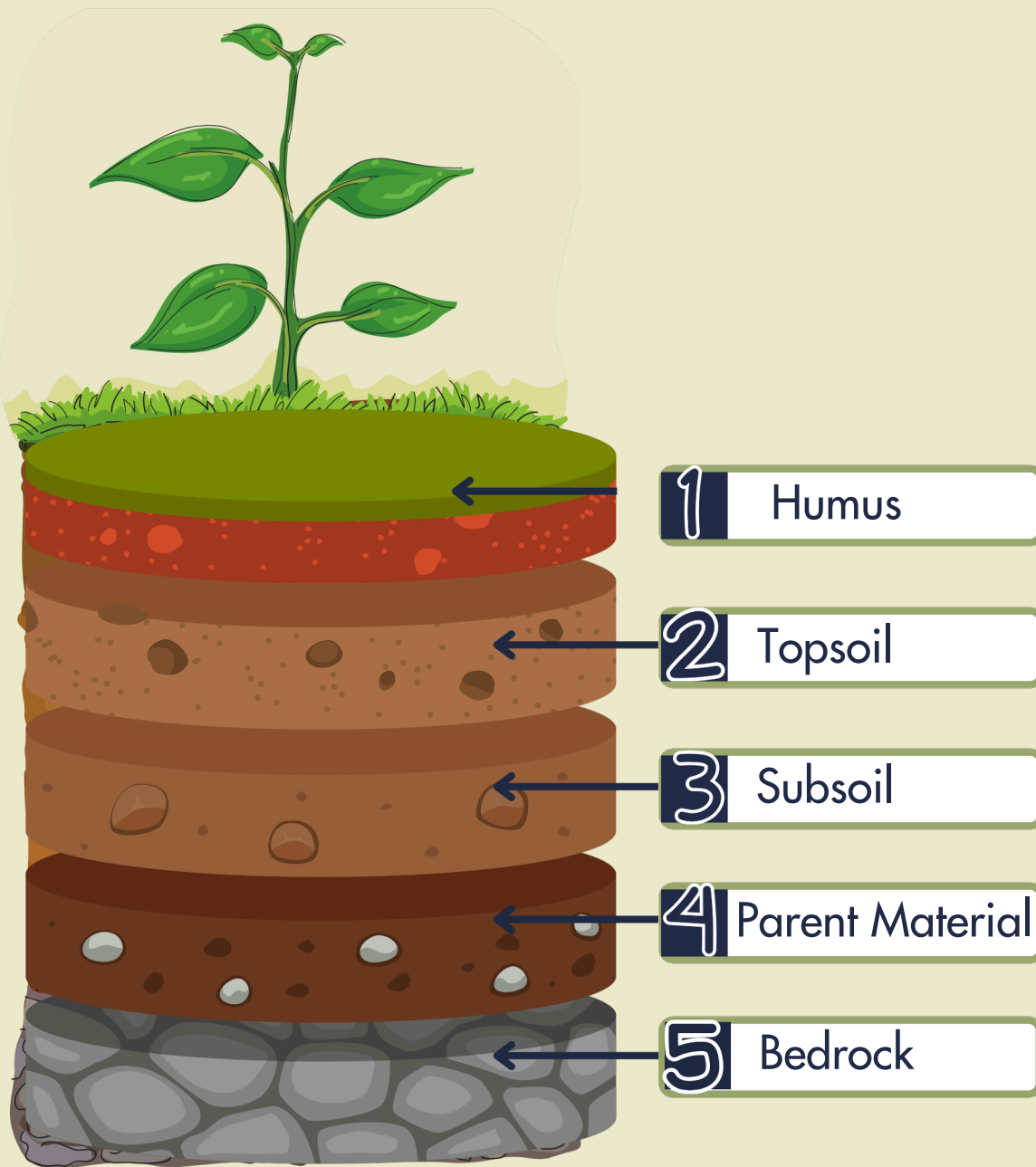
#### 3. Discussion:

- Explain how each layer of the dessert corresponds to a layer of soil as you build it. Discuss why each layer is important for plant growth and soil health.

#### Closing:

- Review the five layers of soil: Humus, Topsoil, Subsoil, Parent Material, and Bedrock. Explain that soil formation is a slow process, with each layer taking hundreds to thousands of years to develop. The order of the layers remains consistent, similar to how you cannot bake a cake without following the proper sequence of steps. Discuss the importance of each layer in supporting plant growth and maintaining soil health. Relate the layers to the edible dessert model, highlighting how each component of the dessert represented a specific soil layer.

# LAYERS OF THE SOIL



- 1 Humus:** Contains decomposed plants and leaves.
- 2. Topsoil:** Rich in nutrients and where plants grow.
- 3. Subsoil:** Contains minerals leached from the topsoil.
- 4. Parent Material:** Made up of weathered rock fragments.
- 5. Bedrock:** The solid rock layer underneath all the other layers.

