

# DIRT DETECTIVES

THE SECRET LIFE OF SOIL!



# Agenda

- Welcome and overview of what soil is made of
- Types of soil and how they affect plant growth
- Importance of soil health for food systems and the environment
- Composting as a sustainable practice
- Hands-on soil testing and pH concepts
- **Career Spotlight:** Soil Scientist, Conservation Planner, NRCS conservation roles
- **College Connection:** Soil science, environmental science, agricultural engineering pathways
- Reflection: “Why protecting soil matters for our future”

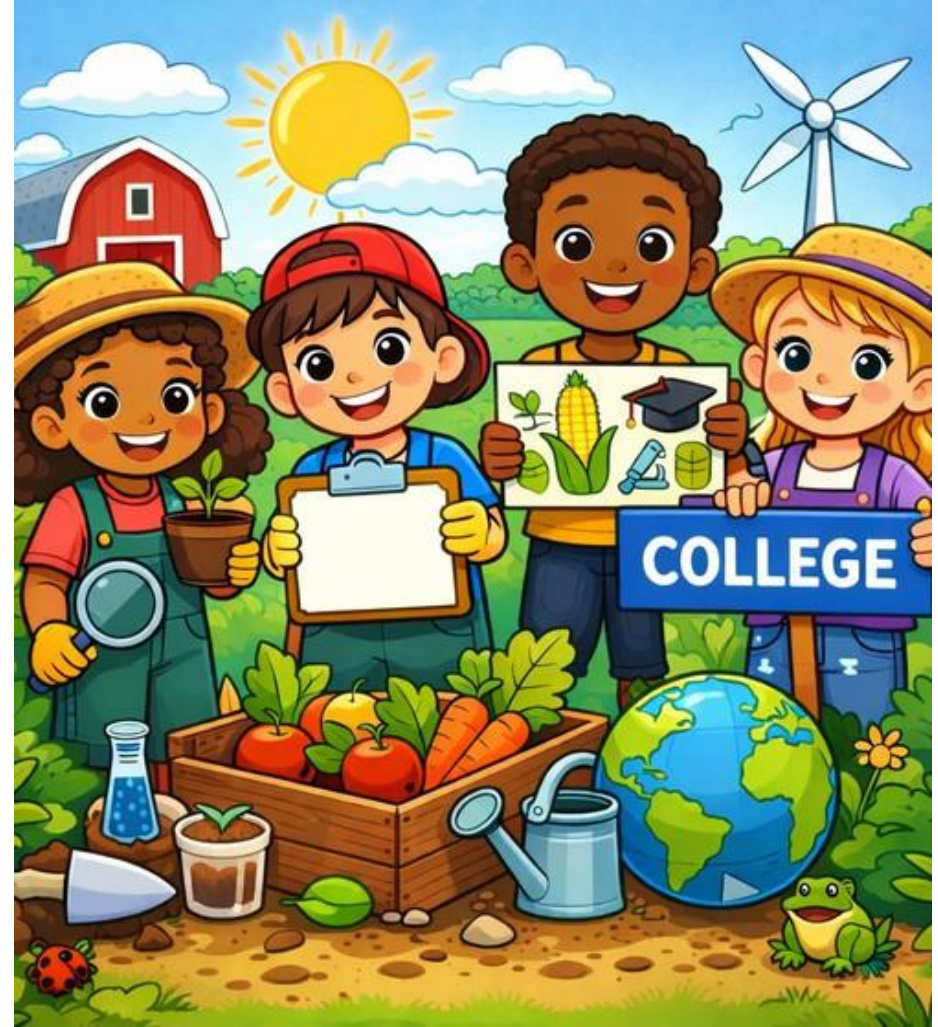




# Objectives

**At the end of this session, participants will:**

1. Explain the components and importance of healthy soil.
2. Demonstrate understanding of composting and soil testing as conservation practices
3. Recognize USDA NRCS careers related to soil conservation and land management
4. Identify soil science and environmental science as college-level agricultural disciplines



# Welcome to the World Beneath Your Feet!

Who's ready to become a  
*Dirt Detective* today?

We are going to explore what's hiding right  
under your feet—SOIL! It might look like  
plain dirt, but it is actually full of secrets that  
help plants grow!



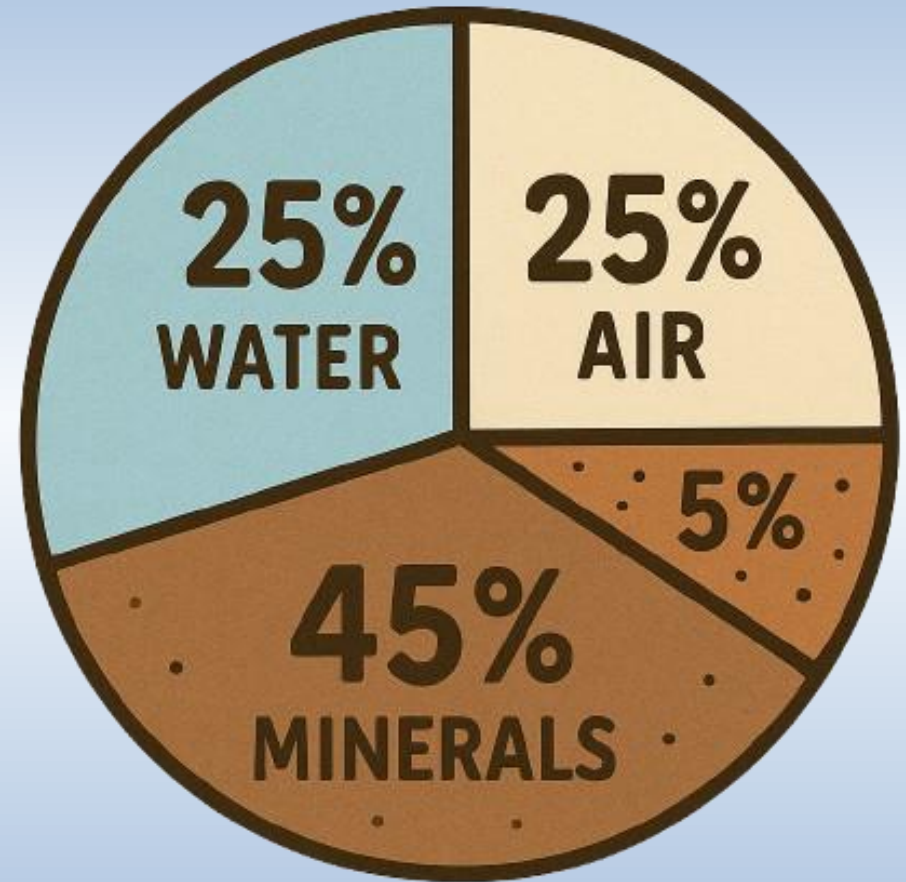
# What's in Soil?

## Breakdown:

- Minerals **M** Tiny pieces of sand, silt, and clay.
- Organic Matter **O** Bits of old plants and animals that make the soil rich.
- Water **W** + Air **A** Fill the gaps between soil pieces to help roots grow strong.

- ✓ Who remembers the 4 things soil is made of?
- ✓ Raise your hand if you've ever made mud pies or played in dirt!

**Guess what!** You were actually working with MINERALS!





# Types of Soil

**Not all dirt is the same!** Some soils are dry and crumbly, others sticky and thick. Let's match them!"

**Sandy:** Drains water fast—great for beaches

**Clay:** Sticky, holds water—hello mud pies!

**Loam:** The superhero soil—just right for gardens!



# Why Healthy Soil Matters!

Healthy soil is like a grocery store, water bottle, and house for plants, all in one!

-  Nutrients feed the plants.
-  Water balance keeps them hydrated.
-  Roots stay strong and anchored.
-  pH balance keeps everything just right 6.0 7.0 .

Think About It: “If plants could talk, what would they say to thank the soil?”



# Composting: Nature's Recycling!

- Composting is how we turn trash into treasure for the garden!
- Bacteria, worms, and fungi are the *real superheroes* breaking down leftovers into rich, dark compost called humus.





# What Can You Compost?

## Call & Response:

“Banana peel?” Yay!

“Chicken bones?” Nay!

“Grass clippings?” Yay!

“Yay or Nay?” “Old pizza?” Nay!



# How Composting Works Steps:

Who can act out turning the compost pile?



# Why Composting Rocks!

“When we compost, we:

- Help the Earth 🌍
- Feed our plants 🌱
- Reduce trash 🗑️

That’s what we call ***Sustainability!*** Big word, right? It means taking care of the Earth so it can take care of us.”

★ Skill Highlight:  
Resource Management  
+ Responsibility



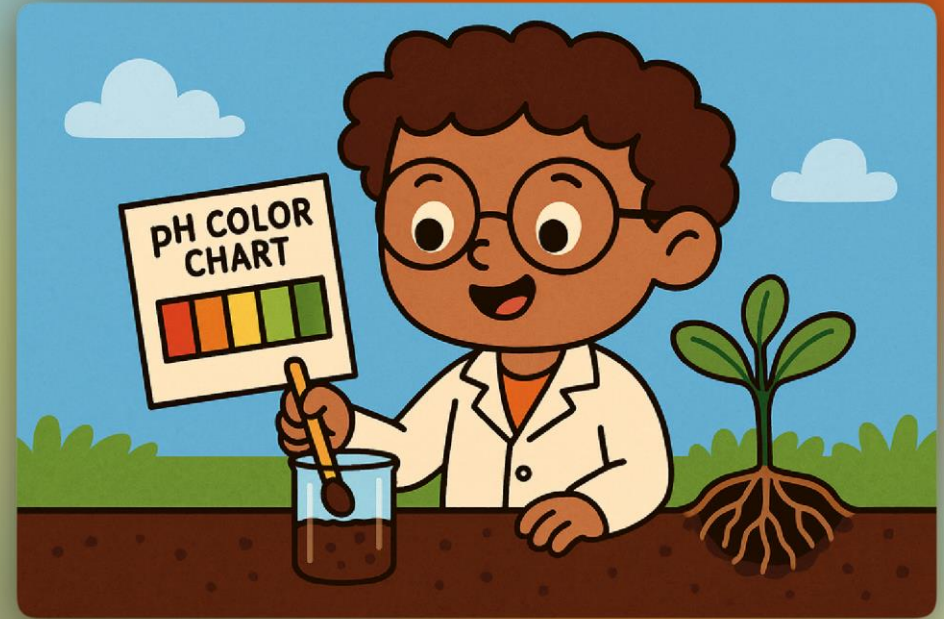


# Soil Testing: Be a Soil Scientist!

Scientists test soil to see if it's too sour (acidic) or too sweet (alkaline). The sweet spot for plants is pH 6 to 7!"

Think of it like checking your garden's report card: A+ soil grows A+ plants!

- Try it: Mix soil with water and vinegar/baking soda to see reactions (fun experiment).



# Keeping Soil Healthy

To keep soil happy, feed it compost and avoid too many chemicals.

✚ “Who remembers what we can add to make soil healthy again?”



Answer: compost and organic matter!

# Composting in Action!

Composting isn't a one-time job, it is a project that keeps growing with you! Just like caring for a pet, your compost pile needs air, food, and attention."

 "Over time, you'll see it turn into magic soil!"





# Quick Recap Challenge

 “Let’s play ‘Soil or Spoil!’ I’ll say something, and you tell me if it helps or hurts the soil.”

1. Composting  → Soil! or Spoil
2. Littering  → Soil or Spoil!
3. Adding worms  → Soil! or Spoil
4. Using too many chemicals  → Soil or Spoil!

 “Let's see how many we got right!”



# Let's play 'Soil or Spoil!'

I'll say something, and you tell me if it helps or hurts the soil.

Composting  → Soil!

Littering  → Spoil!

Adding worms  → Soil!

Using too many chemicals  → Spoil!

# Reflection Time Prompt:

Think about this: How does composting help the planet?

 Write or share one way you can help the Earth by caring for soil.



# Did you know?

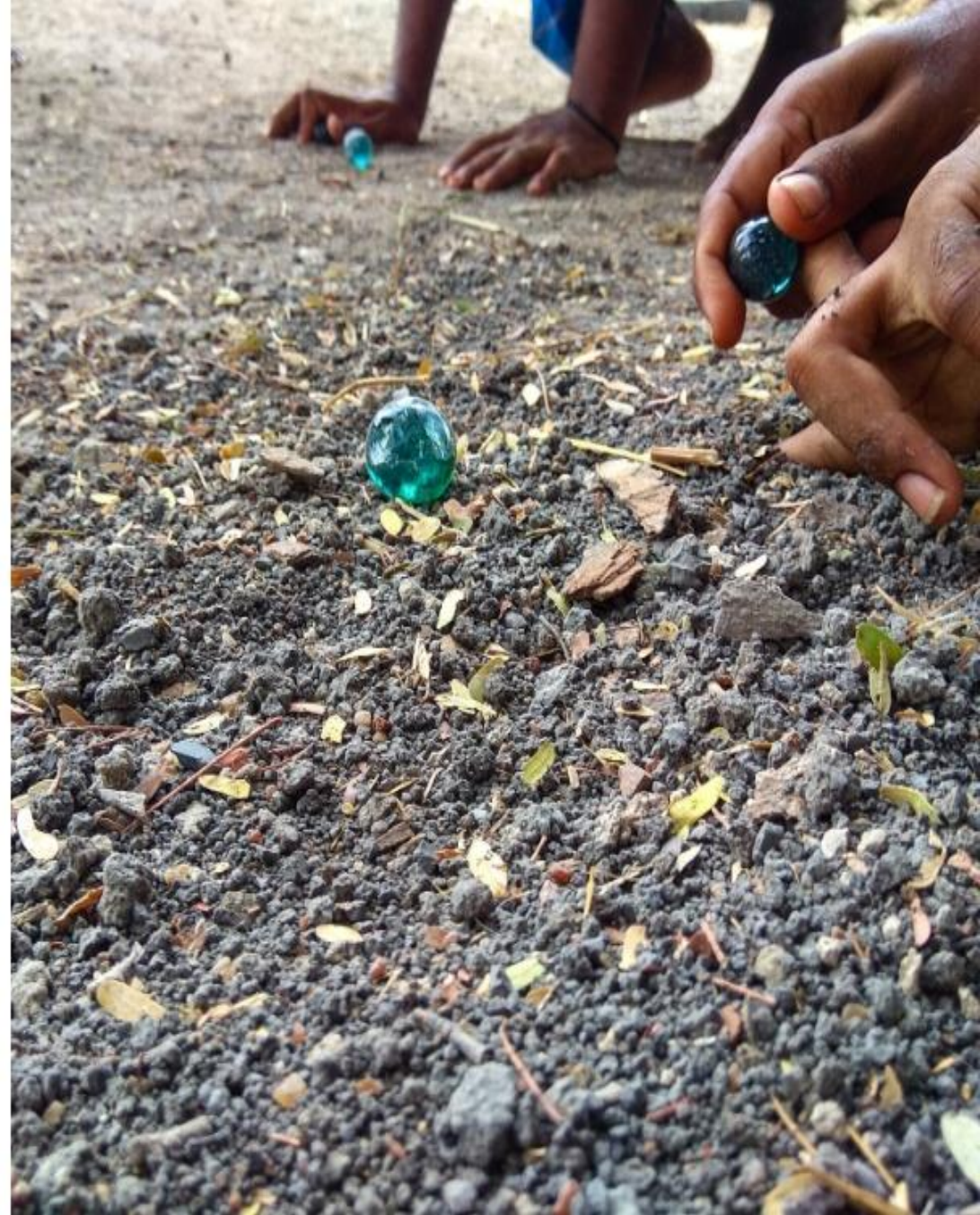
Soil is more than just dirt! It is the foundation of plant life and entire careers are dedicated to studying and protecting it.



# Who Studies Soil for a Living?

Real-world soil testing, like the kind you might do in school, connects directly to college programs and future careers in protecting land.

- Soil Scientist
  - Studies soil composition, health, and helps plan for healthy crops and gardens.
- Conservation Planner
  - Helps communities plan land use and protects natural resources.





**Write or share one way  
you can help the Earth  
by caring for soil.**



**Add compost  
to your garden!**





# Dirt Detectives Mission

## Your mission this week:

- ☐ Check your school garden soil.
- ☐ Identify what type of soil it is.
- ☐ Start collecting compost items at lunch.
- ☐ Share what you learned with your family!”



You did it! You learned how soil works, how composting helps, and how **YOU** can keep our Earth healthy.

Now let's go outside and test what we've learned!

