What’s going on under our feet
And in our gardens.

SOIL: THE FOUNDATION FOR A PLANT’S SUCCESS

Soil provides plants with --

- Nutrients
- Minerals
- Water
- Oxygen
IT’S NOT JUST DIRT

Soil consists of:

- Mineral particles - sand, silt, or clay
- Organic matter - decomposing plants, animal matter and droppings
- Small organisms - worms and insects and microorganisms, such as bacteria and fungi
- The space between mineral particles (pore space)
SOIL: IT'S A MIX

Three minerals comprise soil:

- Sand
- Silt
- Clay
These minerals are classified by size. You can see -

- Sand with your eye or magnifying glass
- Silt with microscopes
- Clay with electron microscopes
Particle size influences soil texture.

The particles *feel differently*, due to their sizes and structure.

The minerals in a soil define its *texture*.

We can tell the general composition of soil from its *texture*. 
The spaces between soil particles are called **pore spaces**.

Pore spaces house water, oxygen, and microorganisms.

Plant roots grow into and make pore spaces.
Different types of minerals have different sized pore spaces.
Which type of mineral has the largest pore spaces?

- Sand?
- Silt?
- Clay?
Infiltration: water passing into the soil.
Porosity: the amount of pores in soil.

- Which soils are the most porous?
- Which soil would rain infiltrate into the fastest?
ORGANISMS LIVING IN SOIL

- Bacteria and protozoa
- Algae and fungi
- Microscopic nematodes and arthropods
- Worms, insects, animals
- Plants

- Interestingly, these organisms cleanse our water and air
What are some factors that cause pore spaces in soil?

Which would retain water the best - a sandy soil or a clayey soil?

What types of organisms do you think you will find in your school soil?
Plants need nutrients, oxygen, and water from the soil.

Rain gardens are meant to let large amounts of storm water percolate slowly through the soil.

Which mix of soils would work best in a rain garden?

Think about this question during your soils experiments.
RESOURCES

- **Flow diagram for Texture by Feel.** Commonly used in the field. Provided by the USDA Natural Conservation Resources Service. (Click [here](#) for a high-resolution version of the graphic.)
