# DIRT DISCOVERY

SUPERNOVA
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## OVERVIEW

### Description
Participants will observe a soil profile in this simple experiment.

### Learning Outcomes
- Campers will learn about what the ground beneath us is made of
- How the soil can differ around the world and its use for growing various plants
- What density is and why the soil settles in layers

### Outline
1. Explanation soil particles the experiment (20 mins)
2. Set up the experiment and discuss (10 mins)

### Materials

| Item | Quantity Per Child | Quantity Per Class |
|---|---|---|
| • Soil/dirt (taken from outside)<br>• Water<br>• Funnel<br>• Large clear glass or plastic jar | • N/A<br>• N/A<br>• N/A<br>• N/A | • 1-2 cups<br>• 3x as much soil<br>• 1<br>• 1 |

## KEY INFORMATION

### Topic 1:
Soil supports all life on earth and is capable of growing living things (plants). It's a complex mixture of minerals, water, air, organic matter and decaying organisms. Soil is very valuable to us because of its several uses:
- Media of growth for plants = food!
- Regulates the atmosphere by emitting and absorbing gasses like CO2, methane and water vapour
- Provides habitat (moles, groundhogs, fungi)
- Holds and purifies water
- Process recycle nutrients like carbon for continuous use

**Topic 2:** Once settled, the soil in the jug should separate into its different particles organized by density. The stones will be at the bottom as they are the most dense, followed by the large sand particles, then silt, clay, water and topped off by the organic humus layer.

**Topic 3:** The definition of good soil varies based on what it's needed for. A farmer wants soil that is fertile with nutrients, and soaks up water and different plants prefer different soil textures. An engineer would like soil that drains well or compacts easily to bear weight.

## LESSON PLAN & PROCEDURE

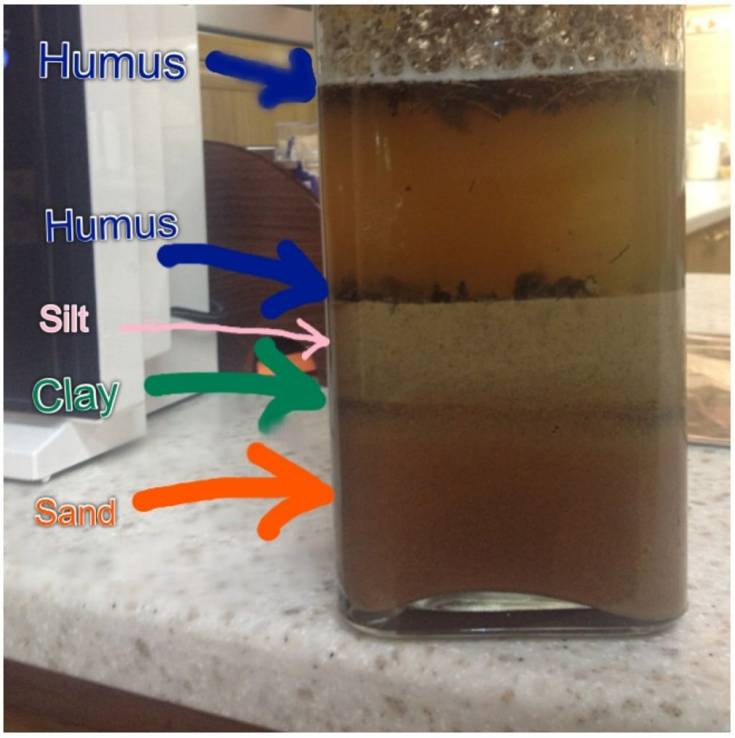
### Dirt Discovery

1. Explanation soil particles the experiment (20 mins)
    a. Ask campers what they think soil is made of
        i. Sand
        ii. Silt
        iii. Clay
        iv. Organic (living) matter
    b. Describe the soil profile and how each soil particle has a different density
        i. Drawing it out could be helpful
        ii. What makes up the best soil? For a farmer? To support buildings?
2. Set up the experiment and discuss (10 mins)
    a. Using your funnel, carefully put the soil into the jug
    b. Add water into the jug until it's ¾ of the way full
    c. Put the lid on and shake it up!
    d. Set the jug aside and wait until tomorrow to view the results OR until the end of the day if need be
        i. Ask campers what they think will happen to the soil
    e. After waiting, observe the soil layers and discuss the densities of each layer
    f. Campers can test out the composition of their own soil in their yard at home (with parents permission) and compare it to the tested soil

### Debrief

- Different places have different soil composition. Discuss the composition of: a desert, rainforest, tundra, etc.

## REFERENCES & RESOURCES


Humus
Humus
Silt
Clay
Sand