

SOIL TEXTURE

Grade Level: 1st - 12th
Time Duration: 30 minutes
(to see best result let jars sit for 1-2 days)

INTRODUCTION

Different plants need different soil types to grow happy and healthy. Some plants need clay soil that is sticky and high in nutrients, others need a silt soil that is fertile and light, retains moisture well and is easily compact. Still other plants need a sandy soil that is light and dry, low in nutrients and often acidic. Some plants, similar to rice, need a loamy soil which is a mixture of two or more soil types; clay, silt and/or sand.

Rice is a semi-aquatic plant, meaning it does not have to be grown in standing water, but rice does enjoy a high moisture environment, therefore it thrives in a clay and silt loam soil. The clay is able to hold standing water in the field as well as the roots of the plant, while the silt loam (mostly sand) helps add a light texture to the soil, which makes sprouting easy for the seed during the beginning stages of growth.

Knowing the soil texture of a field or home garden helps farmers and gardeners understand the strengths and weaknesses of their field, what crops they can plant and how to best maintain them in good health.

In this activity, students will be able to observe the three soil types and which one is predominant in the area their soil sample came from.

This Activity pairs well with the “Soil Sampling” Activity

MATERIALS NEEDED

- Jar with a lid filled halfway with soil (one large jar or small jars for each student)
- Dry soil
- Water
- Flat, stable surface



STUDENT ENGAGEMENT

- Begin by discussing the different soil types (clay, sand & silt) listed above.
- Before putting the water in the jars, have students observe the soil sample or samples you have collected. What color is the soil? Does the soil stick to the side of the jar or is it dry? Is there organic matter in the soil?

SOIL TEXTURE JAR TEST

Continued

ACTIVITY OUTLINE

This activity can be done with one large jar at the front of the class or small individual jars for each student. Fill a jar or jars half way full with soil, add water to the jar, leaving some air at the top and give it a good shake. Once it is all mixed together sit the jar on a flat surface and wait for the layers to settle out. You will be able to see the soil begin to settle out in about 10-15 minutes but for best results, leave to jar on a stationary, flat surface for 1-2 days and you will be able to see the distinct soil layers best. Once settled out, the thickest layer of soil is most likely the predominant soil type of the area that the soil was collected from. Discuss with students the different soil types and what makes each one different from the other.

This is a great activity to start class with and then once class is almost over, the soil will have begun to settle and students will be able to observe the beginning of the separating process. When all of the soil has settled to the bottom, students will really be able to observe the different types of soil that make up that soil sample. Nature is variable, therefore, each soil sample will look different with some having very distinct layers and others not.

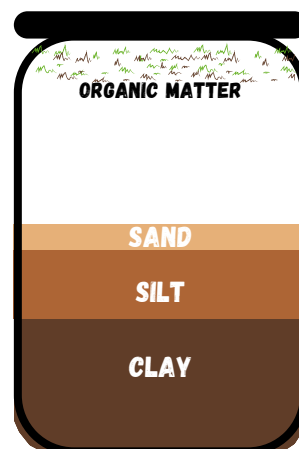
SOIL LAYERS:

Sand is heavy so it will settle at the bottom.

Clay is the lightest and least dense of the three soil types so it will settle on top.

Silt is denser than clay, but still lighter than sand so it will make up the middle layer.

Looking at the thickness of each layer will give you a good idea of the soil type of the sampled area.



THE SOIL TYPE
OF THIS SAMPLE
IS CLAY