

Soil Sample Data Sheet

Names: _____

Sample Number: _____

Where did you collect the soil sample?		
Which plants were growing on this site?		
Describe the slope of the ground. Was the ground level, slightly sloping, or steep?		
What color is the soil?		
Does the soil have an odor? Describe it.		
How does the soil feel when rubbed between your fingers? gritty, sticky, smooth ?		
What size are the largest particles? (mm)		
What size are the smallest particles? (mm)		
How much air space is in 100 ml of your sample?		
Soil Layer Profile		
Measure the layers in your sample after mixing the sample with water.		
Clay Layer (mm)/percent of sample		
Silt layer(mm)/ percent of sample		
Sand Layer (mm)/ percent of sample		
Percolation test results		
Percolation Time		
Soil drainage rating :		
Well-drained, moderately drained, poorly drained		

Subjects:

science

Skills:

collection, observation, analysis

Setting:

outdoor collection, indoor analysis

Materials:

soil test kits (available from DTF office)

Participants:

Entire class

Duration:

field trip

Vocabulary:

soil amendment, plant nutrient

Objectives:

Students will:

- learn how to test for soil composition
- learn what nutrients are needed for plant growth

SOIL NUTRIENT TESTING

Background:

Soil makes up the thin layer of the earth where we live. It supports the plants that provide us with food, fiber, and forest products. The soil stores and purifies water. Many waste products and chemical pesticides are destroyed by soil organisms. Soil sediment in water or dust in the air contributes to pollution in the environment. Since the quality of our environment is so important to the wise use of the soil, it is very important that all of us know some basic facts about soil.

pH affects the availability of nutrients and prevents the spread of soil borne diseases.

There are three major plant foods which are essential to plant growth, Nitrogen, Phosphorus and Potash (potassium), expressed as **N, P, K**.

Nitrogen (N) is the element which stimulates above ground growth. It increases the protein content of food crops and is needed by most leafy vegetables, foliage plants and grass. Nitrogen gives plants their dark green color and helps the growth of leaves and stems. The plants utilization of other major elements is stimulated by the presence of nitrogen.

Phosphorus (P) is the most important nutrient in root formation, creating good fibrous root systems. It enables plants to get off to an early start and hastens maturity. Phosphorus encourages blooming and seed formation, helps plants' resistance to wintry weather and disease and increases the vitamin content of plants. Lettuce, potatoes, and carrots, for example, require good reserves of phosphorus.

Potassium (K) has much to do with the vigor and vitality of plants, encouraging the development of a healthy root system and offsets the harmful effect of excess nitrogen. Soils high in clay content usually have a high potassium content.

Organic Matter results from the decomposition of plant and animal matter. It aids in moisture retention and supplies nutrient elements for plant use, increases the nutrient holding capacity of soils, and helps prevent soil erosion. Wetland soils are high in organic content.

Instructions for soil testing kits

Take the soil sample from about 2-3" below the surface. Avoid touching the soils with your hands. Place the soil sample into a clean container. Break the sample up with the trowel and allow it to dry out naturally, if possible. Remove any small stones, organic material such as grass or weeds. Crumble the sample and mix it thoroughly.