

Physical Science Laboratory: Soil Analysis

Objective: To carry out various tests on a soil sample and observe soil properties

Materials: approximately 30mL of a dry soil sample

Equipment: For each pair of students: hot plate, evaporating dish, one 6 inch test tube with matching rubber stopper, 250 mL beaker, gloves, 3M HCl dropper bottles, pH test paper (one piece)

Detailed Instructions – Step by Step:

Date _____ **Soil Sampled From** _____

1. Place your soil into an evaporating dish and warm it on a hot plate for 10 minutes then remove it and allow it to cool.
Describe your soil:

2. Place a small amount of your soil onto a white piece of paper and rub it into the paper.
What color is the smudge on the paper? Describe what you see.

3. Place a small sample onto a fresh piece of white paper and place it on the document camera at the instructor station. The instructor will assist you to zoom in and magnify your soil.
Describe what you see?

4. Place soil into the test tube provided to you to a height half way to the top. Add water so that it covers the soil. Place a stopper on the test tube and shake your sample vigorously for about a minute. Place the test tube into a holder and allow the soil to settle.
Do you observe any layers or areas of different colors? Describe what you see. Draw a diagram here:

5. Once the soil has settled in the test tube use one piece of pH test paper to test the pH of your soil. Do this by placing the paper into the water above the soil. What is the pH of your soil? Is your soil acidic or basic?

6. From the tests you have conducted so far do you think your sample is a loam or is it mostly sand or mostly clay?

7. Empty the test tube of soil and water into a beaker and add some dry soil until the soil is moist but not soggy. Try to form the soil into a ball. Is it possible? Does it stick together? What happens? (Wear gloves!)

8. On a fresh sample of your dry soil add a few drops of 3M HCl. Do you observe any reaction - bubbles, fizzing? What does this tell you about your soil?

Summarize all of the results from your tests on your soil into some bullet points about your soil sample: