

SOIL PROPERTIES

KEY OBJECTIVES

1. Understand how scientists identify soil using a variety of tests
2. Understand the scientific process e.g. observation and deduction
3. Awareness of variety of soils

INTRODUCTION

The soil pH is a measure of soil acidity or alkalinity and it is an important indicator of soil health. It affects the type of plants that grow in the soil, the availability of nutrients and activity of micro-organisms. Applying fertilizers such as nitrogen fertilizer can improve and maintain the soil pH and overall soil health.

The soil-forming agents - parent material(rocks), time, relief or topography, climate, and organisms) affect the soil pH. In warm areas with high rainfall, soil tends to be acidic due to leaching and in dry environments the soil pH may be neutral or alkaline. There are three common types of soil - sand, silt and clay. In this activity you will investigate soil properties.

GUIDING QUESTIONS

1. What do we mean by the word SOIL?
2. Where do we find different soils?
3. How might soil form?
4. What are the three types of soils? How are they different?
5. What type of soil is in the bottom of the jar? Why?
6. Compare the soil colours?
7. What soil holds the most and least water?
8. What kind of soil pH is optimum for plants?

MATERIALS

- 4 x large soil samples from different areas e.g. riverbed, garden, hill.
- Water
- 4 x glass jars
- Bowl
- 4 x glass beakers
- 4 x funnels
- 4 x coffee filters
- pH meter

TASKS

1. Take a handful of soil, over the bowl, and squeeze (Shape kept/No shape).
2. Place the coffee filter and funnel over the glass beaker and add a spoon of soil into the coffee filters.
3. Measure percolation (Drains fast/slow). Add water and measure how much water drains in 5 mins.
4. Place the collected soil into different glass jars.
5. Measure the pH (Acidic/Alkaline).
6. Fill the jars, leaving 2cm space for air and shake hard. Leave the jar for 24hrs.
7. Observe the soil layers and record the soil types in each jar.

FOSTERING DISCUSSION

How are soils important to us? What types of soil are most important? Can we improve soils, can we loose soils? What is the consequence of us losing or degrading soils?

SAFETY INSTRUCTIONS

Follow laboratory protocol and COVID-19 protocol

POSSIBLE EXTENSIONS

None

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CONNECTION TO SDGS



TOPICS

ENVIRONMENTAL STUDIES NATURAL SCIENCE
HEALTH EDUCATION AGRICULTURE

CROSS LINKS

SDG 13 Climate Action

KEYWORDS

SOIL PH PROPERTIES PLANTS

LEVEL

Primary

RESOURCE TYPE

EXPERIMENT

INTENDED AUDIENCE SIZE

Flexible

MODE OF DELIVERY

Video online

TIME FOR ACTIVITY

30 min.