Name _____ Class period_____ Date_____

Am I Neutral? pH Properties in Soil

Objective: Students will determine the pH of three different soil samples.

Time Allotment: 55 minutes

Materials: test tubes, plugs, scoops, pipettes, graduated cylinders, universal indicator solution, beakers, three different soil types, stop watch, color chart for pH scale

Background: pH, a measure of how acidic or basic things are, is measured on a scale of 0 to 14. Lemon juice and battery acid are acidic and fall in the 0-7 range. Seawater and bleach are basic and fall in the 7-14 range. Pure water is neutral, or 7. Soils also have a pH which influences which nutrients are available for plants. For example, Nitrogen is available if the pH is increased above 5.5 and Phosphorus is available when the pH is between 6.0 and 7.0

Procedures:

1. Complete question, hypothesis, and variable on investigation record

2. Do the Experiment:
    1. Using your pipette and the graduated cylinder measure 5 mL of indicator solution
    2. Transfer 5mL of indicator solution to test tube
    3. Using the Scoop, add one measure of soil to the test tube
    4. Plug the test tube and gently shake the mixture for one minute (using the stop watch)
    5. Without removing the cap, allow the tube to stand undisturbed while the soil particles settle, leaving a layer of colored solution above the layer of soil particles

3. Answer the questions

Questions:

1. What color appeared in the test tube?

Soil A _____

Soil B _____

Soil C _____

2. Compare the color of the liquid layer with the colors of the pH color chart

What is the pH value of the soil sample?

A_____B_____C_____

3. Is soil sample A acidic, neutral or alkaline? _____

Is soil sample B acidic, neutral or alkaline? _____

Is soil sample C acidic, neutral or alkaline? _____

4. How might the pH of the soil samples affect the plant growth? _____

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