Name of those in your group: Due at the end of period

Erdkinder Team Study Guide

Soil Unit; pH of Different Types of Soil

Overview: These past few weeks we have done activities to learn about what particles are in soil, the layers of soil, and the water holding capacity of different soil types (and some of you were able to smell their decaying, but nutrient stench when it got wet.) In our final experiment we are going to look at the different pH levels of soils. Most plants grow in a fairly neutral or slightly acidic pH range, but some plants need a specific pH balance.

Essential questions: How does one adjust the pH in soil to accommodate maximum plant growth?

Things You Will Need

- Trowel
- Bucket
- Quart jar with lid
- Cup measure
- Distilled water
- Litmus paper

Chores: Feed & Water Chickens (3-4), place their poop in the 4ftX6ft garden; water plants in greenhouse; water flowerbed on north side of school; plant carrot seeds (16/ft square) in 2 empty squares, plant 9 beets in one square & water 4ftX6ft garden; clean up labyrinth by piling rocks next to building; sweep wood chips; weed or pick up trash; pick up trash from north and south sides of school.

Checklist

_____ Test the pH of 3 different soil sites. Fill a jar 1/3 the way with the soil you wish to test. Add water until the jar is full.

Group 1

Our 2 foot cubed hole we dug on the east side of portables. Take a thin slice of soil from the top of the hole down to the bottom so that you get soil from a range of depths.

Group 2

Dig a hole 6 to 8 inches deep using a trowel or shovel in the area you want to test. Take a thin slice of soil from the top of the hole down to the bottom so that you get soil from a range of depths. Different garden boxes (note which one you wish to test, note the location)

Group 3

Dig a hole 6 to 8 inches deep using a trowel or shovel in the area you want to test Take a thin slice of soil from the top of the hole down to the bottom so that you get soil from a range of depths. Soil from the bog (by the drain on the playground)

✓Take a thin slice of soil from the top of the hole down to the bottom so that you get soil from a range of depths. Fill your jar 1/3 the way with the soil and add water until the jar is full.

✓ Place the soil in a bucket, and blend it thoroughly

✓Take 1 cup of the blended soil, and place it in a clean glass quart jar.

✓Measure 1 cup of distilled water, and add it to the soil in the jar.

✓Secure the lid on the jar, and then shake it thoroughly.

✓Set the jar down, and allow the soil particles and the water to separate. The water will go from brown to mostly clear as the dirt particles settle out.

✓Dip the pH paper into the water until it is saturated, and then remove it. Hold the pH strip until it starts to change colors.

✓Match the color to the color table on the package for an exact pH reading. The greener the color, the more basic the soil, while red and orange indicates acidity. Yellow range colors indicate a neutral pH.

Note: The pH range goes from 1 to 14, but, as most soil isn't ever either extreme, many test strips will indicate a range between 4 and 9. The soil pH indicates nutrient levels in the soil. When soil is acidic or basic, it locks some nutrients up, making them unavailable to the growing plants. That's why a neutral pH is ideal for the majority of plants. But there are exceptions. Rhododendrons (Rhododendron spp.), hardy in U.S. Department of Agriculture plant hardiness zones 4 through 9, need acidic soil with a pH range of 4.5 to 6.

Adjusting pH requires adding specific elements to the soil. Sulfur, available as a pellet or powder amendment, will lower the pH levels, increasing acidity. To raise the pH level, creating a more basic environment, powdered or pellet limestone amendments work well. (http://homeguides.sfgate.com/)