Testing Dirt

Main Objectives

- determine a method for testing soil and rock sample
- hands-on experiences with various soils
- determine the texture, color, of various soil
- Observe soils ability to absorb water
- Discuss plant growth and conditions supporting various types of plans
- Work together in a group
- Communicate findings to others

ACTIVITY

Groups of students will determine porosity and permeability of various soils to determine which soil will be best for their greenhouse of orchids. They will need to collaborate with their team to research orchids and the best growing medium for healthy plants. By setting up the soil test, they will time the length of time for soil drainage for the 3 soils they selected based on their research.

Students will be asked to record their findings. They will also be asked to keep an ongoing journal of the classroom's orchid, logging observations in growth, health, and improving conditions if needed.

Materials

- Water
- Gravel, sand, potting soil, perlite, orchid medium, violet medium (about 6 cups each)
- 6 Funnel or clear 2 liter bottle turned upside down
- 3 coffee filters
- Ring stand
- Stopwatch or watch with a second hand
- 1 planter suitable for an orchid
- 1 small orchid for the classroom for students to maintain.

CURRICULUM COMPONENTS

- 1.E.2.1 Summarize the physical properties of Earth materials, including rocks, minerals, soils and water that make them useful in different ways.

- 1.E.2.2 Compare the properties of soil samples from different places
  relating their capacity to retain water, nourish and support the growth of certain plants.

  Vocabulary:
  color, size, shape, texture, minerals, soil, sand, clay, top soil, physical property, recognize, nourish, observations

- 3.L.2.2 Explain how environmental conditions determine how well plants survive and grow.

- 3.L.2.4 Explain how the basic properties (texture and capacity to hold water) and components (sand, clay and humus) of soil determine the ability of soil to support the growth and survival

  Vocabulary:
  Seed, Seedling, Roots, Stem, Leaves, Flowers, Environment, Life cycle, Soil, Sand, Humus, Survive, Texture, Capacity, Retention, Drought, Stages, Conditions, Components, Synthesize, Environmental Conditions