# The Soil's Alive

**LEVEL:** Grades PreK – 6
**SUBJECTS:** Science
**SKILLS:** Observing, comparing
**MATERIALS:** Small shovels or trowels, Plastic jars, Permanent marker, Samples of soil from different areas, 1-liter plastic freezer bags, magnifying glasses, journals, map of location

PRE-TEACH: Animals live by eating plants or other animals that are plant eaters. Plants get many of the nutrients they need to live from the soil they grow in. It's not just "dirt"! Our lives depend on it.

There are many different kinds of soil. They contain minerals, air, water and organic matter. A typical sample of soil contains 45% minerals (erosion of different types of rocks), 25% water, 25% air and 5% organic matter (living and dead plants and organisms). Soil is full of various minerals like calcium, iron, nitrogen, phosphorous and potassium, which are key nutrients for plants. Soil organisms breakdown the minerals into forms that can be used by plants to live.

## BRIEF DESCRIPTION

Discover more about what lives in the soil and what it is composed of.

## OBJECTIVES

The students will:
-- Observes relationship by comparing and contrasting soil samples

--Note differences in soil texture, color, and moisture content

--Describe living creatures in the soil

## ESTIMATED TEACHING TIME

45-60 minutes

## MAINE LEARNING RESULTS

Grades 3-4
Math: B4
Science: D3

PROCEDURE:

Preparation

a. Do a survey walk
   i. Take note of locations that the students would be interested in taking samples from.
   ii. Be sure to have a variety of locations.
   iii. Suggestions:
      1. Garden or flower bed
      2. Wooded area
      3. Near a parking lot
      4. Near a sidewalk
      5. Turf (grassy area)
b. Have a table in the classroom ready for observing soils
c. If students will be drying soil, you'll need a place where soils can be left for several days
d. Have students draw a map of the school grounds

Digging Soil

e. At each area, have students: Observe location and vegetation, Describe location and vegetation orally, write about location and vegetation in journals, Use trowel or shovel to collect several clumps of soil, and place soil in freezer bags.

Observations

f. Place soil samples on table in classroom
g. Divide students into groups
   i. One soil sample bag per group
h. Students observe characteristics of the soil
   i. Characteristics may include: gravel, rocks, sand, earthworms, ants, other soil creatures, color, moisture, texture
   ii. Chart observations by location
   iii. Predict from chart which soils might be best for growing crops
   iv. Contact your local Soil and Water Conservation District Office with questions or for resources http://maineswcds.org/
   v. Request soil sample kits at http://anlab.umesci.maine.edu/ and submit samples for analysis.

Sample Chart:

| | Example | Wooded | Hillside | Near Parking | Near Sidewalk | Other |
|---|---|---|---|---|---|---|
| Texture | Sticky | | | | | |
| Color | Reddish Brown | | | | | |
| Living creatures | Worms, spiders | | | | | |
| Moisture content | Not very wet | | | | | |
| Gravel | none | | | | | |

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