It's all dirt, right?

Materials
Several different types of soil, small containers for growing plants, seeds (beans, radishes, peas, marigolds, zinnias, etc), journals, markers, Alaska map, water.

Optional materials
Soil profile (check with local USDA NRCS or soil conservation district office) or poster showing soil profile.

Objective
Familiarize students with Alaska soils, soil in general and the importance of soil. Also should help students identify different soils and vegetation differences because of soil types.

Suggested grade levels
4-8

Alaska Content Standards
Language Arts A1-4; C1-4; Science A2,7, 14, 15; B1-4; D1; Geography A1; B1; C1.

This project presented by Alaska Agriculture in the Classroom through funding from the Alaska Division of Agriculture and the Alaska Farm Bureau. For information, visit www.agclassroom.org/ak

Introduction

Dirt is what you get on your clothes when you play outside; plants grow in soil.

Not all soil is the same. There are many different types of soil:

• Sand has the largest soil particles. Rub it between your fingers and you will feel its rough, sharp edges. Because of its large, rough particles, it doesn't hold water well. Sand is generally light colored.

• Silt has smaller particles. It is smooth and powdery when dry. It is often dark colored.

• Clay has the smallest soil particles. It is smooth when dry and sticky when wet — so sticky you can make balls of clay when it is wet. It holds water well. Sometimes it is brightly colored.

• Humus is the layer of rotting leaves, bugs and other organic portions at the top layer of the soil.

Are all of these types of soils in Alaska? Yes, but Alaska has very little clay soil because clay erodes (or wears off) different types of rocks than are found in Alaska, and clays are generally from "older" soils — soils that are very weathered, so the particles become tiny. The clay soils near Glennallen formed from lake deposits.

Alaska has more silt, sand and humus soils.

How do you know if the soils are different from one area to another?

One way is to look at the trees. Different types of trees require different types of soils. For example, birch trees like drier, more fertile soils; spruce trees often grow where the ground is wet

How well does each type of soil grow plants? Let's find out.

Directions

Students should be asked to bring in a soil sample from their yard or garden, or students should be supplied with a variety of soil samples.

Take some time to compare the soil samples, noting the texture and color of each soil. Ask your local Soil & Water Conservation District office to come in and explain more about soils, if you'd like

Give each student a container for growing a plant -- a styrofoam cup, half-pint milk container, flower pot, margarine dish, etc. Have them write their name, seed and soil type on the container before filling it with the soil. Punch drainage holes with a pen, as needed.

Have the students fills the container three-quarters full with their soil

sample. Plant four to five seeds according to packet instructions. Use quick-growing seeds like radishes or marigolds. Water; place in sunny window sill. Monitor daily, keeping soil moist but not wet. Some soils dry out more quickly than others. Discuss this.

Have students keep daily records. Which plants emerged first? Is there a pattern according to soil type? Monitor plants for about three or four weeks. Discuss findings.

Related websites

http://soils.ag.uidaho.edu/soilorders/orders.htm
http://www.florence.ars.usda.gov/kidsonly/hb.htm
http://soils.usda.gov/education/resources/k_12htm

More investigation

Use in conjunction with field trip showing soil profiles or borings.

Terms to define

soil texture
particles
fertile
silt
sand
humus
clay
weathered

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