

Welcome/ Staff/Volunteer/Guest Expert Names

Introduction: **Today's Topic-Soil Conservation**
Question: Why is it important to protect our soil?

Ice Breaker/ Go around the group, each taking a turn giving his/her name and one thing they
Game: know about soil or soil conservation.

Background/ Ask the students how soil forms. The rock cycle (show a poster).
Exploration: Soil forms from the erosion of minerals and rock with addition of organic matter.
Ask students to come up with examples of inorganic and organic soil components.
Soil- There are many different kinds of soil.
Soil is made of minerals, air, water, and organic matter (humus).
Soil is its own ecosystem-it teems with life! (show soil illustration).
Microbes live off of the organic matter in soil and help recycle/decompose it.

Soil Formation-In nature soil organisms, air, temperature, and moisture interact to decompose organic matter (dead plants/animals). The inorganic portion of soil comes from freezing, wind erosion, water erosion, and chemical interactions. The kind of soil depends on what kind of parent material eroded, the length of time it has weathered, the topography, the vegetation cover, and changes due to human activity.

The **prairie ecosystem** makes one inch of soil every 500 years. It builds up from dead plant roots and other organic matter. **Woodland** soils are not rich and black, are much thinner and build up even more slowly.

Activity: **Soil Sample Investigation**

Activity: **Arable Land Demo**

Activity: **Soil Erosion**

Loss Prevention- Briefly describe the Dust Bowl of the 30's.

Modern farming techniques can minimize soil loss by leaving crop cover on fields, plowing less frequently, plowing/planting rows that follow the land's contours, building terraces, using filter strips, and not farming sensitive soils.

Soil can be made healthier/richer or regenerated by composting.

Soil erosion in urban areas & construction sites is also a concern, as this runoff also pollutes water.

Erosion control-preventing detachment and movement of soil particles by wind or water.

Sediment control-trapping and retaining detached soil particles on site.

Sediment control is often mistaken for erosion control.

Soil Horizons-explain how they look and what they mean

OUTDOOR Walk to the wetland.

EXPLORATION: Discuss how soil surveys are done.

Discuss natural placement and reconstruction of wetlands

Activity: Show some survey equipment and learn to use it.

Take some elevations.

Learn how to plot a contour line.

Use a soil corer to take samples at various places during your hike.

Hike to ancient bog. Look at impermeable iron soil sample.

Why did this pond/bog form here?

Closing: Soil conservation can be done in your backyard, as a community, in construction, in agriculture, and in other businesses.

Send Off: Goodbye!

Take Home: Parent Outline

Next Month-Population Ecology

NRCS publications

Vocabulary

Humus, rock cycle, nutrient cycle, organic matter, erosion, sediment, siltation, runoff, topsoil, subsoil, parent material, water cycle, crop residue, Natural Resources Conservation Service (NRCS)

Background and Activity References

www.iadnr.com Department of Natural Resources. Information on environmental quality & issues.

www.nrcs.usda.gov Natural Resource Conservation Service. Soil conservation information.

USDA-NRCS Publications: Challenging Careers in the NRCS
Backyard Conservation
In Partnership with People and a Healthy Land
Conquest of the Land Through 7,000 Years (Agricultural History)

Dig In! Hands-On Soil Investigations. 2001. Ed. Beth Daniels. National Science Teachers Association, Arlington, VA. General soil information and activities; P. 44-45 Arable Land apple demo; p. 93-100 soil erosion background and activities

Iowa's Biological Communities. 1993. Iowa Association of Naturalists Booklet Series. ISU Press, Ames, IA. *Iowa Biological Communities* (IAN-201) P. 9 soil section illustration-good take home

Iowa Environmental Issues Series. 1998. Iowa Association of Naturalists Booklet Series. ISU Press, Ames, IA. (IAN-101—107)

Iowa Water Pollution (IAN-103) P. 6-7 Erosion and siltation; pp. 15-19 low-input farming

Iowa Agricultural Practices and the Environment (IAN-1041) Soil as a pollutant and solutions
<http://www.extension.iastate.edu/pubs/wi>.

Iowa Physical Environment Series. 1999. Iowa Association of Naturalists Booklet Series. ISU Press, Ames, IA. *Iowa Soils* (IAN-703) <http://www.extension.iastate.edu/pubs/wi>.

Background P. 3 relative sizes clay, silt, sand particles; p. 15 Iowa soil loss illustration; p. 18 conservation practices chart

Lines on the Land. 1991. Soil Conservation Service-USDA, Des Moines, IA. Video and guide