

OUTDOORS ✿ GRADES 5-6 ✿ FALL, WINTER, SPRING ✿ ACTIVITY



A Day at the Races

DESCRIPTION

Students prepare soil flats using five different soil conservation techniques and then compare water flow and soil loss.

OBJECTIVE

To demonstrate soil erosion and ways to conserve soil.

TEACHER BACKGROUND

Throughout history, different means of soil conservation have been used. Terracing has been used to keep soil on hillsides by creating level platforms for farming that step down the hill. Terraces take a long time to build. Contour farming is a simpler practice, in which the planting takes place in rows across the hill rather than up and down the slope. But the key to soil conservation is to mimic nature and keep the soil rooted in with plants.

MATERIALS

- ✿ A Day at the Races Lab Sheet, 1 per group, page 423
- ✿ 5 shoeboxes trimmed to 5 cm deep, V-notched on one end, and lined with plastic
- ✿ 5 watering cans
- ✿ 5 measuring cups
- ✿ sod (enough to fill one shoebox)
- ✿ soil
- ✿ water
- ✿ 5 blocks
- ✿ 3 rulers
- ✿ clock or watch
- ✿ science journals

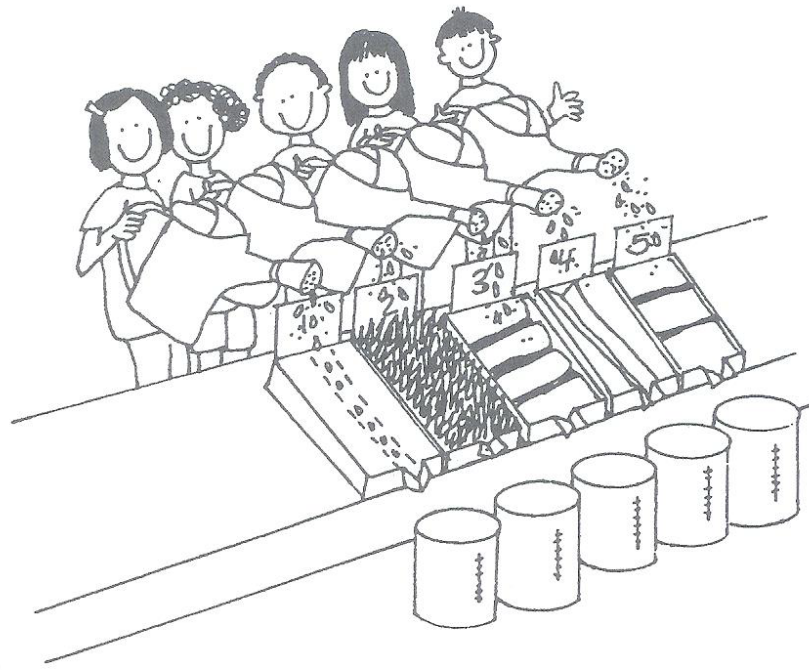
CLASS DISCUSSION

Why is soil important to plants? Have you ever seen soil washed away by rain or rivers? What do you think will happen to soil if it gets washed away year after year? Do you have ideas for saving soil and keeping it where it is? (*List responses on the board.*) Let's design a soil race and see who the real winners are.

ACTION

1. Divide the class into five groups.
2. Distribute the materials.
3. Have each group fill a box with soil prepared in the following ways:
 - Group 1:** Fill the box with moist soil and pack it down tightly.
 - Group 2:** Fill the box with sod.
 - Group 3:** Fill box with moist soil and, using fingers, make packed furrows across the slope. (Furrows run the width of the box.)

- Group 4:** Fill the box with moist soil and, using fingers, make furrows up and down the slope. (Furrows run the length of the box.)
- Group 5:** Fill the box with soil and, using a ruler, make steps (terraces) across the slope. If other ideas were suggested during discussion, another group can be added to test the ideas.
- Have each group use the blocks to line up their boxes on an incline and place measuring cups beneath the V-notches to catch the water that drains off.
 - Have one student from each group sprinkle a measured amount of water from about 12 inches (30 cm) above each box, pouring steadily for 5 seconds.
 - Have groups record in their journals how long water continues to flow out of the V-notch.
 - Let the water in the cups settle and have groups measure the sediment in each, recording the results in their journals.

**WRAP UP**

Discuss which box lost the most soil. Which lost the most water? Which methods were most effective in controlling erosion in the experiment? What other methods might help conserve the soil?

DIGGING DEEPER

Have students walk around school grounds and identify evidence of soil erosion. How can it be prevented?