

Soil Erosion

Age: 2nd grade and up

Purpose: Students will observe the effects of erosion.

What is soil erosion? It is when rain and wind wash away the fertile topsoil and leave infertile land exposed. Crops and native plants can no longer grow there. This leaves the land even more exposed to weather. Eventually the land will become drier (more arid) and this leads to desertification. Desertification is where continued exposure to the elements causes all the nutrients to be washed from the soil until the land is so barren it cannot support its native plants. It had become a desert.

How does soil erosion start? Areas that once had fertile soil can be exposed to erosion in many ways. Overgrazing by livestock can cause the soil to be exposed to the elements and begin the erosion cycle. Clear cutting forest for timber harvest can expose soil to erosion. Forest fires or blow downs uncover fragile soil.

This is a simple demonstration of how erosion works.

Materials: 5 dish pans, potting soil or sand, rocks, leaves, sticks, grass, water, watering can

Procedures:

1. Divide class into 4 groups.
2. Talk to them about the concept of erosion.
3. Tell them they will each build a mountain in different ecosystems. Then they will see how erosion effects soil, in their ecosystem.
4. Have each group make a “mountain” (small mound in dishpan) using rocks, sand and soil. Pat it down firmly.
5. Have one group keep their mountain as is to represent a desert. Have 2nd group sprinkle a bit of grass onto their mountain to represent an overgrazed area (don’t cover the soil much). Have 3rd group sprinkle lots of grass until soil is well covered to represent a healthy grassland. Have 4th group lay sticks and leaves over their mountain until covered the soil is fully covered to represent forest.
6. Each group should make a label to tell what ecosystems their display represents. Make sure they pat their mountain down firmly.
7. Each ecosystem should then be exposed to the elements. Fill the watering can with about a quart of water. Start with the forest and sprinkle the water over the mountain. It must fall with enough force to show how the leaves and sticks protect the mountain. Next use the same amount of water and pouring force on the grassland, then the overgrazed grassland, then the desert.
9. Have the students observe how the water affected the different ecosystems. Can they explain why some mountains washes away more than others? Compare this to real ecosystems.

