Soil & Recycling Department

Lesson 4 - Soil, Please Don't Erode Me

Essential Questions:

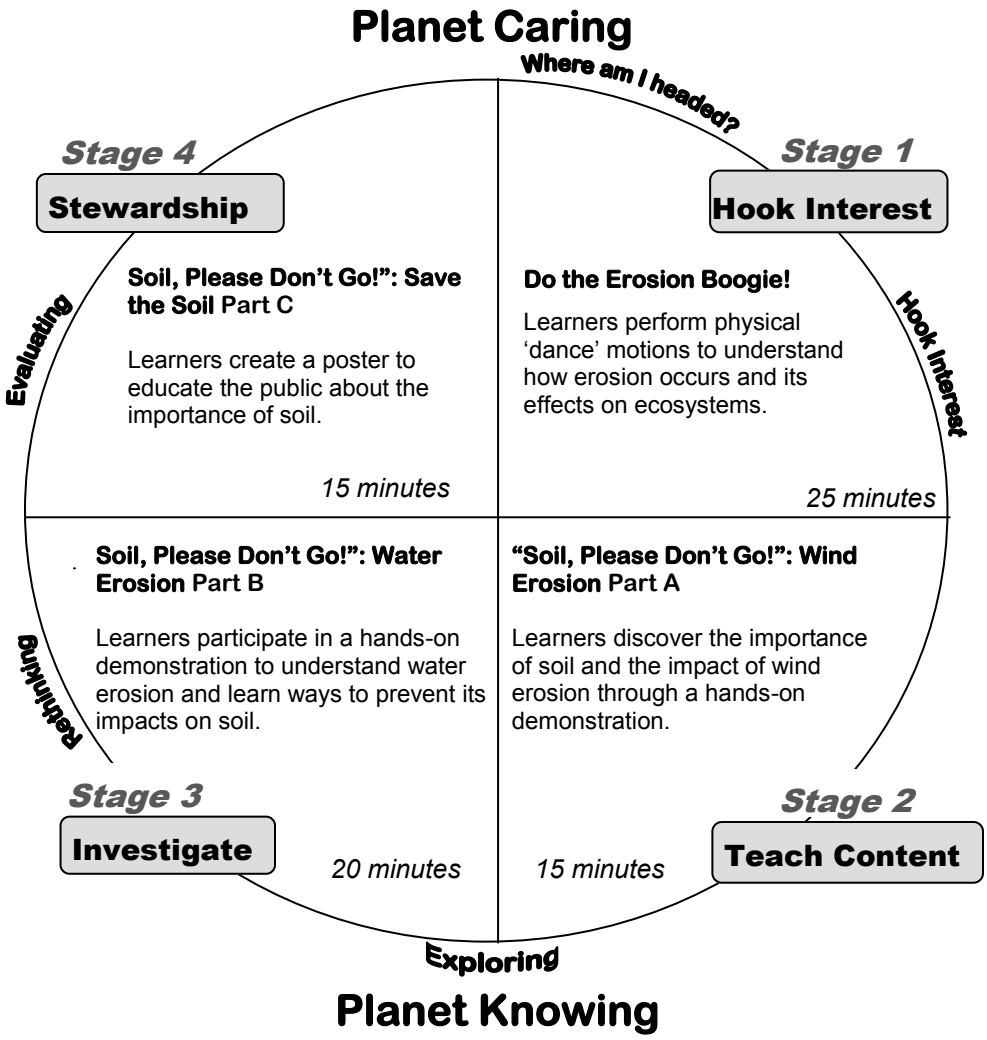
In what ways does erosion occur and how does it impact the Soil & Recycling Department?
How do wind and water impact soil erosion and what can be done to mitigate their affects?

At a Glance:

In Stage 1, learners will act out 'dance' motions to imitate how erosion occurs and its impact on soil. The Stage 2 activity demonstrates the affect of wind erosion by building up a mock landscape and using fans to represent wind. Water erosion is demonstrated using a similar hands-on method in Stage 3. The learners extend their knowledge by creating posters to educate others about the importance of soil in Stage 4.

Concepts:

- Soils are not considered a renewable resource.
- Topsoil is an important natural resource that takes a very long time to form.
- Erosion is a natural process, however humans contribute to its negative impacts through destructive practices.



Objectives

Learners ...

1) list 4 contributors to soil erosion.
2) name 3 ways erosion impacts ecosystems.
3) describe soil erosion.
4) identify ways to lessen the impacts of soil erosion.

PROCEDURES IN BRIEF: Lesson 4—Soil—Please Don't Erode Me!

Stage 1. Do the Erosion Boogie!

Procedure:

Supplies
- Optional: stereo, dance music

1. Ask learners the different ways in which erosion can occur and give background on human-induced erosion causes.
2. Explain that they are going to perform dance moves to exhibit different types and causes of erosion. After you have demonstrated the moves, you may either tell a story of erosion OR put on some music and dance an 'Erosion Boogie'!
3. The moves are as follows,
   - Erosion (pick up and move things): picking up motion with hands and moving an 'object' to another location.
   - Wind blowing; arms waving, as in the wind; make the sound of wind blowing "Whoo".
   - Water rushing: mimic flowing water using hands/arms; sound of rushing water "whoosh".
   - Raindrops: hands up in air, balled into a fix. As bring hands down, open into a 'splat' and making 'plop, plop' sound.
   - Gravity: act as though pushing against an object to hold it to the ground.
   - Ice (freeze): wrap arms around self like chilled; then briskly stretch all limbs outward to mimic how ice expands.
   - Man-made
     - Deforestation: act as if cutting trees down with an ax.
     - Plowing: act as if plowing using a hoe or following behind an ox and plow.

Stage 2. "Soil, Please Don't Go!": Wind Erosion
Part A

Procedure:

Supplies
- wood plank or cardboard
- bucket of DRY soil
- trowel
- leaves, grass, rocks
- paper fans

1. Learners should set up their erosion boards on outdoor tables or the ground. Have supplies laid out beside work area.
2. Let learners work in groups of 4-5 to prepare a poor agricultural scene (like in the Dust Bowl).
3. Once the learners have prepared their site, tell them that a bad windstorm is coming through. Pass out paper fans (or paper/ plastic plates). Have learners fan their farm scenes. Use a lot of force to show the damage of wind erosion. NOTE: make sure no learners are standing on the opposite side of the erosion board where fanned soil could get in their eyes.
4. The simulation should show how soil is blown away when there are no plants or topsoil to keep it in place.
5. Next, tell learners to add some 'plants' to their farm. They may place leaves, grass, sticks, etc. to their boards to represent planting a cover crop on off-seasons. They may want to wet the plant material and soil lightly. This will represent rooted plants that would not easily erode away.
6. Fan the farm scenes again. Most of the plant material should stay put, as will the soil. Some may blow away, but remind learners that plants with established roots help hold soil in place.

Stage 3. "Soil, Please Don't Go!": Water Erosion
Part B

Procedure:

Supplies
- wood plank or stiff cardboard
- bucket of DRY soil
- trowel or large spoon
- leaves, grass, rocks
- paper cups with holes poked in bottom
- Straw
- Spray bottle
- bucket of water

1. Discuss how water erodes the landscape. Mention natural erosion of streambeds, mountain canyons, and coastal areas. Then discuss negative impacts of water erosion that can be related to human impacts.
2. See the manual for how to set up the Water Erosion board. Use a cup with one hole and straw to do a focused stream of water. Alternatively, a spray bottle may be used.
3. Learners should set up there erosion board with soil and a few rocks.
4. Have learners predict what is going to happen when a hard 'rain' hits their site.
5. Proceed to pour water in the cup or spray water on the Erosion board. You may need to slightly incline the board. Make sure to add enough water that the soil starts to erode away.
6. After the first erosion test, ask: What might happen later to the soil and rocks washed down the slope?
7. Get kids to clean off the erosion board and add a new soil layer.
8. Repeat with the boards at a higher angle. Ask: Why would water flowing down a steeper slope wash down more soil and bigger rocks? (The water has more energy.)
9. Challenge kids to contain the erosion. Create a landscape to control water flow by packing soil around stones, sticks, leaves. Reinforce the need for plants to prevent of soil erosion.

Stage 4. "Soil, Please Don't Go!": Save the Soil
Part C

Procedure:

Supplies
- construction paper
- crayons, colored pencils, or markers

1. Pass out a piece of construction paper and crayons, colored pencils, or markers to each learner.
2. Ask them to make a poster about the importance of soil and the negative impacts of soil erosion. Tell them to be creative in making up slogans and drawing pictures.
3. Allow learners to share their posters with the rest of the club.

Discussion/Assessment:

Is erosion a natural process of Garden Earth?
When is erosion a problem?
What can we do to reduce erosion?

Background information, standards, worksheets, and complete activity write-ups are available in the GEN manuals and also at www.gen.uga.edu