

Erosion Community

Post-visit activity connection to Energizer Weather and Nature

Grade level/standards: (for younger students they may only do steps 1-13) **Kindergarten** NGSS K-ESS3-2, K-ESS3-3, **2nd grade** NGSS 2-ESS1-1, 2-ESS2-1; CCSS RI.2.3, MP.2, MP.5 **3rd grade** NGSS 3-ESS3-1; NGSS MP.2, MP.5, **4th grade** NGSS 4-ESS1-1, 4-ESS2-1, 4-ESS3-2; CCSS MP.2, MP.5 **5th grade** NGSS 5-ESS2-1, 5-ESS3-1; CCSS SL.5.5, MP.2, MP.5

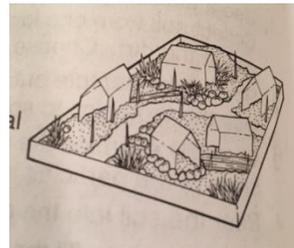
Concepts: effects of different forces of nature upon soil, conservation of soil, and erosion

Materials needed: (per group of 2-4 students) *Note: This is a messy investigation.

1. Large tray or flat box or lids of boxes or cereal boxes with the top taped securely and one broad side cut out
2. Small fan (1 for the class)
3. Toothpicks
4. Craft sticks
5. Index cards
6. Small stones marble-sized
7. Water sprayer
8. Soil (fine, dry works best) enough to fill tray at least three times
9. Water
10. Sod
11. Small blocks of wood

Procedure:

1. Fill the box or tray with soil about 1 to 1 ½ inches deep.
2. Using index cards, toothpicks, and craft sticks, have the students construct several buildings to create a community.



3. Make at least one road through the community.
4. Arrange the soil in any pattern the students wish.
5. Have the students write their predictions of what will happen when a fan is turned on.

6. Place the fan approximately one foot away from one end of the community. Turn the setting on low for 30 seconds.
7. Have the students record observations.
8. Turn the fan on high for 30 seconds.
9. Describe what happens to the soil and the buildings.
10. Rebuild the community.
11. Have the students write their prediction of what will happen to the soil and the buildings when sprayed with water.
12. Use a full water sprayer to spray your community and the soil until the sprayer is empty. Hold the sprayer approximately six inches from the community.
13. Have the students describe what has happened and record observations.
14. Have the students compile an inquiry plan for ways to prevent the damage from the wind or from the water. They should compile a list of ideas for how to prevent the erosion. Then have them create sketches, drawings, outlines or designs for how to test these ideas.
15. Have the students determine what materials they will need.
16. Have the students rebuild their community utilizing the methods they have decided upon and redo the experiment to see if the erosion is stopped and if their solution created any new problems for the community.

What's Happening:

1. Wind (aeolian) erosion is most destructive in areas where there is little to no ground cover and small rocks, sand, and silt are blown across the land. *Deflation* is the process by which rocks are picked up and moved by wind.
2. Running water (fluvial) erosion is when the force of moving water dislodges rocks and other solid particles which are carried along by the water. These particles scrape and scour the soil, loosening it and carrying it away.

Book List:

1. Erosion: Changing Earth's Surface by Robin Koontz
2. Cracking Up: A Story about Erosion by Jacqui Bailey
3. The Disapproving Mountain and Other Earth Mysteries by Louise Spilsbury
4. Soil Erosion and How to Prevent It by Natalie Hyde
5. Weathering and Erosion by Maria Nelson
6. Erosion by Becky Olien
7. Erosion: How Land Forms and How It Changes by Darlene Stille

Extension Activities:

1. Create a movie using software such as Windows Movie Maker to illustrate the effects of wind and water on the soil.

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2. Write the script to a documentary about what happened to a community when it was flooded.