

Making Waves

Standards of Learning

Science 6.1, 6.5, 6.7, LS.1, LS.7, LS.10, LS.12

Objective

Students will:

- Explain how a wetland helps to control shoreline erosion, reduced flood damage, and provides a place for aquatic life to reproduce

Materials

- 2 rectangular cake pans
- 2-3 lbs of clay
- Thin plastic strips (could be cut from plastic bottles)
- 1 carpet scrap
- Water
- Tape
- 2 popsicle sticks
- Topsoil
- Sand

Background Knowledge

Wetlands serve an important function in the environment. Functions of wetlands include water quality improvement, erosion prevention, and flood control. They are critical to the survival of a wide variety of plants and animals, including many on the endangered species list. In the United States nearly 45% of the plants and animals on the endangered species list and watch list live in the wetlands. Wetlands also serve as a shelter for a great deal of wildlife during the cold weather months in the north. This environment is also an important fishing ground for U.S. fish and shellfish harvesting. Preservation and protection of our nation's wetlands is crucial to our environment and agricultural production.

Procedure

1. Put topsoil in the center of pan 1. Form soil in a mound sloping upwards one end of the pan while leaving the other end bare.
2. Sink a piece of carpet into the top of the mound. This will serve as our simulated wetland "vegetation." Sprinkle topsoil over the carpet.
3. Cover the soil with clay to create an elevation to the mound and form a lagoon behind the mound.
4. Put sand in the center of pan 2. Form sand into a mound sloping upwards on one end of the pan while leaving the other end bare.
5. Cover the sand with clay creating an elevation to the mound and form a lagoon behind the mound.
6. Cut 2 pieces of plastic large enough to fit securely into the pans. Attach a Popsicle stick to the center of each piece of plastic. The plastic piece will be used to create waves.
7. Slowly fill each pan with water being careful to saturate the mound of soil, carpet, and filling the lagoon.
8. Use the plastic "wave generator" to create waves washing up on shore every 5 seconds.



9. Record observations for each pan.
10. Simulate a storm and create waves rapidly and strongly. Record observations.
11. Summary questions:
 - Which pan showed the most erosion?
 - What function does the wetland serve?
 - What protection did the lagoon have?
 - Why do lagoons serve as good places for sea life to reproduce?
 - How can preserving wetland benefit landowners, wildlife, and the community?

Extension

- Discuss causes of wetland loss.
- How can those involved with agriculture preserve wetlands?
- Describe how prosperity affects wetlands.

References

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