Create your own Watershed

Grades 6-12

Summary

Use simple items to create a watershed to model stormwater runoff, pollution, and the application of best management practices.

Time: 1 hour including introductory activities

Introductory Activities

Use the "We all live in a watershed" power point presentation to learn the definition of a watershed, stormwater runoff, runoff pollution, and best management practices.

Use the EPA website to "surf your watershed" and learn your watershed address:
http://cfpub.epa.gov/surf/locate/index.cfm

Materials

Each group will need:

- Disposable roasting pans
- Several sheets of newspaper
- Small garbage bags or plastic sheeting
- Paper towels
- Spray bottles filled with blue tinted water
- Masking tape
- Various color Sharpies
- Spoon
- Packets of flavored drink mix powder (the sugar less type)

Activity

The roasting pan will become your watershed. Crumple pieces of newspaper and tape them in the pan to create hills and valleys. Cut the garbage bag open and drape it over the newspaper "hills," letting some hang over the edge of the pan. Secure the edges of the plastic to the roasting pan with tape.

Fill the spray bottle with blue tinted water. Make it rain in your watershed by spraying the model you just created with the squirt bottle. Note how the water runs off and where it pools.

Dry your watershed with paper towels and use a Sharpie or other waterproof maker to outline the creeks, rivers and lakes in your watershed.

Draw other features on your watershed such as homes, towns, natural areas, farms, and shopping centers.

Use your spoon to sprinkle unsweetened drink mix over the "land" in your watershed to simulate pollutants such as nitrogen, phosphorous, and sediment. Make it rain. What does the runoff look like? Is it different from before? Why?

Dry off your watershed. Tape pieces of paper towel to around the watershed to represent infiltration areas including natural areas and BMPs. Add colored drink mix to your model to simulate pollutants. Make it rain. What does the runoff look like? Are the results different from before? How do the paper towels/infiltration areas affect runoff?

Wrap-up Questions

1. How many smaller watersheds make up your larger watershed?
2. How is your model different from a real watershed?
3. How did stormwater BMPs (simulated by paper towels) affect stormwater runoff? Do they reduce pollution? Do they completely remove pollution? Why or why not?

Create Your Own Watershed

Student Guide

Terms to Know

Watershed

Runoff

Pollution

Best management practice

Materials

Your group will need the following items:

- One disposable roasting pan
- Several sheets of newspaper
- One small white garbage bag or a piece of plastic sheeting
- Paper towels
- One spray bottles filled with blue tinted water
- Masking tape
- Several different color Sharpies
- One spoon
- One packets of sugarless flavored drink mix powder

Instructions

1. Crumple pieces of newspaper and tape them into your roasting pan to make hills and valleys; this will serve as the bedrock of your watershed.
2. Cut down the sides and across the bottom of your plastic garbage bag so you have two equally sized sheets of plastic
3. Lay one piece of plastic over your newspaper in the roasting pan, making sure to push the plastic down into the valleys, the edge of the plastic should hang outside of the roasting pan
4. Secure the plastic to the outside of the roasting pan with tape so it will not shift with the weight of the water
5. Where in the watershed do you think streams and lakes will form?
6. Use the spray bottle to make it “rain” in your watershed. Where did the rain form lakes? Is this what you expected to happen?
7. Use paper towels to dry off your watershed.
8. Use a Sharpie or other waterproof marker to draw in the streams and lakes you saw form in your watershed.

9. Use your spoon to sprinkle the drink mix “pollution” on the yards, farms and impervious surfaces in your watershed.
10. Use the spray bottle to make it “rain” in your watershed. What does the water in you lakes and streams look like? How was the water affected by the pollution?
11. Use paper towels to dry and clean off your watershed.
12. Cut pieces of dry paper towel so simulate BMPs and tape them around your watershed. Where do you think is the best location for BMPs? On slopes? On flat areas? Near the lake? Near farms or parking lots?
13. Use your spoon to sprinkle the drink mix “pollution” on the yards, farms and impervious surfaces in your watershed.
14. Use the spray bottle to make it “rain” in your watershed. What does the water in you lakes and streams look like this time? How was the water affected by the pollution? What did the BMPs do? Did they affect the amount of pollution reaching the lakes and streams? How?

Questions

1. How many smaller watersheds make up your large watershed?
2. How is your model different from a real watershed?
3. How did pollution on the land affect the lakes and streams in your watershed?
4. How did BMPs affect the water in lakes and streams?