



Parachute that Pollution!

Students will learn about sources of water pollution and the detrimental effects that pollution has on freshwater ecosystems. Students will practice identifying pollution and removing it from waterways.

For grades K - 5

Lesson created by the ACCGOV Stormwater Management Program

Lesson Summary

Students learn about stormwater runoff and the many different types of pollutants that can get into our water sources. Students will use this interactive activity to practice identifying and removing pollutants from our waterways.

Objectives

- Students will learn the definition of stormwater.
- Students will learn that stormwater runoff is the number one source of water pollution.
- Students will learn about common water pollutants, including animal waste, litter, excess fertilizers and pesticides, oil, and sediment.
- Students will learn about specific effects of pollution on humans and animals.
- Students will learn several simple ways for humans to reduce their impact on water quality, i.e. pick up after pets and routinely check cars for oil leaks.

GSE Science Major Concepts

1st Grade:

S1L1. Obtain, evaluate, and communicate information about the basic needs of plants and animals.

2nd Grade:

S2E3. Obtain, evaluate, and communicate information about how weather, plants, animals, and humans cause changes to the environment.

3rd Grade:

S3L2. Obtain, evaluate, and communicate information about the effects of pollution (air, land, and water) and humans on the environment.

4th Grade:

S4E3. Obtain, evaluate, and communicate information to demonstrate the water cycle.

S4L1. Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem.

Materials

- 1-2 large parachutes
- Clean garbage bags (or containers to hold the “pollutants”)
- Fake dog poop
- Clean trash
- Items to represent paint (ex: colored ball or balloon)
- Items to represent soapy water (ex: colored ball or balloon)
- Items to represent oil (ex: colored ball or balloon)
- Items to represent leaves or grass clippings (ex: colored ball or balloon)
- Litter clean-up safety vests (optional)
- Litter clean-up grabbers (optional)

Background Information

This activity focuses on stormwater runoff and common household pollutants.

Stormwater runoff is rainwater or snowmelt that flows over the ground. In natural areas, most rainwater soaks into the ground, because the ground there is pervious, allowing water to pass through it. In developed areas, the ground is hard and impervious, which prevents stormwater from infiltrating, resulting in runoff.

As runoff moves across the landscape, it can pick up many different pollutants. In Athens-Clarke County, when runoff enters a storm drain, it carries those pollutants directly from the streets and sidewalks to the streams and rivers (freshwater ecosystems). Some common pollutants include:

- **Sediment.** Sediment can cloud the water and harm aquatic plant and animal life. Sediment also presents points of nucleation for bacteria, promoting the growth of harmful bacteria.
- **Bacteria and pathogens.** Present in animal waste, bacteria and pathogens can enter the stream through septic tank leaks, pet waste and wild animal waste. Once there, the bacteria can make the water unsafe for recreation and drinking.
- **Nutrients.** Found in fertilizers and animal waste, plant nutrients such as nitrogen and phosphorous can cause problems. Once in the stream, nutrients promote algae growth, resulting in algal blooms and the disruption of aquatic ecosystems.
- **Litter.** Trash and dumped items can suffocate, choke or otherwise harm aquatic animal life.
- **Household chemicals.** Soaps, pesticides, paints and other commonly used household chemicals can enter streams and rivers and poison aquatic life.

Procedure

To prep the activity, lay the parachute flat on the ground. Scatter the fake pollutants all over the parachute. Have students start by sitting around the parachute without touching anything. Open the activity by discussing stormwater and the common pollutants we often find in our streams and rivers. See background information above for more details.

To begin the game, choose a few students to be Polluters and a few to be Clean-Up Volunteers. At this point, if you have any vests or other costume materials, distribute them. Ask the remaining students to circle around the edge of the flat parachute and position themselves by one handle (if there are too many students, you may be able to double up the number of students at each handle). Each group has a different job:

- **Students holding the parachute:** These students represent stormwater as well as streams, rivers, and lakes. Their job is to pop the parachute so that items on top (stuffed animals and “pollutants”) bounce on and off the parachute. By bouncing the parachute, students are representing the movement of water.
- **Polluters:** These students represent human and non-human sources of pollution. In order to simulate the addition of pollution to stormwater, when a “pollutant” is tossed out of the water, it is the polluters’ job to add the pollutants back by throwing it into the waterway. They need to do this as quickly as possible.
- **Clean-Up Volunteers:** These students represent people who proactively dispose of pollutants correctly as well as those who help to restore waterways. Their job is to collect “pollutants” that have been tossed out of the water way (parachute) and put them in garbage bags.

The game will go on for 5 minutes. If all of the “pollutants” are removed from the water way at the end of this time period, then the Clean-up Volunteers and the Stormwater groups win the game! If there is still pollution left, then the Polluters win (if this does occur, stress the importance of this not happening in real life). The game can be played for multiple rounds, with student’s jobs changing each round.

Assessment

Ask students:

- What is stormwater?
- What are different pollutants that can end up in our streams or rivers?
- How did the Clean-Up Volunteers feel when they constantly had to pick up after the same people over and over again?
- How could you convince someone to stop polluting?
- What can you do to help keep Athens-Clarke County streams clean?

