

Roots & Shoots Storm Drain Stenciling EcoTeam Lesson 1: River Basins



Time needed

In-class preparation: 30-60 minutes

Activity:

30 minutes per drain

Cost

Less than \$10.00

Weather consideration

Dry and not windy conditions are ideal

Advance preparation

Obtain permission to stencil and collect materials

Overview

The EcoTeam River Basins lesson gives students an opportunity to learn how water connects them to other places. The Roots & Shoots activity for this lesson is a storm drain stenciling project that shows care and concern for animals, the environment and people. Students will learn that storm drains in their neighborhood connect them to their local river because whatever is washed down drains flows directly into a local waterway. Students will stencil a message near local storm drains that reminds community members that nothing but water should enter a storm drain.

Background Information for Facilitator

Storm drains are located throughout your watershed in neighborhoods, towns and cities. In most areas, water that flows down a storm drain does not go to a waste treatment plant, so any substance that goes into a storm drain flows directly to a local stream, river, lake or wetland. People who mistakenly think storm drains flow to a treatment plant may dump harmful products or materials into or near drains.

One way to educate the community and raise awareness about this type of pollution is through storm drain stenciling. A simple stenciled message such as “Dump No Waste, Drains to River,” placed next to a drain alerts the community to the fact that storm drains connect to local waters and that dumping pollutes those waters. A message can also link community members to their local river and reminds them that their actions impact areas downstream. Below are some products or items typically dumped and their effects.

Product or item	Effect on water quality
Motor oil	Can damage or kill underwater grasses and aquatic life. One quart of oil can contaminate up to 250,000 gallons of water.
Antifreeze	A highly toxic chemical that makes water poisonous to people, birds, fish and pets.
Plastics	Spoil the beauty of lakes, rivers and bays and can be harmful to wildlife that become entangled in them or mistake them for food.
Paint	Many paint products are harmful to people, animals and the environment.
Yard waste	Decomposing leaves and grass add excessive nutrients to water and cause algae to grow. This depletes oxygen levels in the water, harming fish and other aquatic life.

Materials

- Stencils
- Paint that meets any standards set by the agency that gives you permission to stencil
- Masking/duct tape
- Wire brush, whiskbroom and dustpan
- Trash bag for dirt and debris cleaned from the storm drain area; paper towels or rags

Green or white traffic zone latex spray paint can be purchased at a local paint store in most areas.

- Orange traffic cones or safety vests, if available



Procedures

Prior to stenciling:

1. Do you know of any storm drains around your school or in your neighborhood that you could stencil safely with a group of students? You will need to get permission to stencil the storm drains so **try to get in touch with your local government several weeks prior to stencil day.**
2. Do the storm drains empty into a stream, river, lake or wetlands? The Environmental Protection Agency's "Surf Your Watershed" website can help you determine this: <http://www.epa.gov/surf>. This website also provides links to local watershed groups, which could help you contact the proper government agency. You can obtain a map of your city's storm drain system from your local Department of Planning.
3. Collect materials. Below are two options for obtaining stencils.
Option 1: Many cities and organizations make it easy for groups to stencil by providing all of the materials needed. Contact the Ocean Conservancy's Office of Pollution Prevention and Monitoring at 757-496-0920 or through email at stormdrain@oceanconservancy.org to see if there is a state agency, municipality or organization in your area that can lend you the stencils.
Option 2: You can make your own stencils following these directions:
 - Template paper, or any poster board that is roughly 1/16th of an inch thick, can be used to make the stencils and can be obtained at an art supply store. Each stencil should measure roughly 18" by 36" and can be used for several storm drains. Cut template paper/poster board to desired size.
 - Transfer your stencil design to a transparency. You can make your design on the computer using a stencil font. Use an overhead projector to transfer design to stencil. Trace design onto stencil material; students may be able to assist with this on the day of the activity.
 - Use an Exacto knife or a pointed knife to cut out design. This should be done **carefully** by the facilitator only.

On stencil day:

1. Complete journal activity with students in classroom prior to leaving for sites. If you can, look at <http://www.protectingwater.com/storm-drains.html> which has an excellent computer animation of storm water drainage that will help students visualize the path storm water takes.
2. Use a flat paper bag to do a practice run with the stencil and paint. Proceed to your stenciling site(s).
3. Use wire brush and whiskbroom to sweep dirt away from drain so paint will stay on pavement.
4. Position stencil next to (not over) the storm drain, where message will be most visible. Avoid areas where dirt and leaves might collect and cover the message. Place tape around the edges of the stencil.
5. Spray paint the message, taking care the paint does not go down the drain. Spray one line at a time with sweeping side-to-side motions. Two light coats are better than a single thick coat that puddles around the letters.
6. Keep accurate records of where each group paints. Stenciled messages last for approximately two years on a paved surface. Take pictures and try to get an article in the local paper to help educate people. Students will be empowered if their good work is made known to the community.

Stenciling works best when pavement is dry and warm. Avoid stenciling on a rainy day as storm water will carry your paint down the drain. Avoid windy days as spray paint can drift onto nearby cars.

Sources

Chesapeake Bay Foundation. *Get Involved Outdoors: Storm Drain Stenciling*.
<http://www.cbf.org/action/outdoors/stencil.htm> (8 July 2002).

Earthwater Stencils, Ltd. *How to Stencil Stormdrains*. <http://earthwater-stencils.com/howto.html> (2 July 2002).

Texas Natural Resources Conservation Commission. *Storm-Drain Stenciling: A Manual for Communities*.
http://www.tnrcc.state.tx.us/exec/oppr/cc2000/storm_drain.html (8 July 2002).

Name _____



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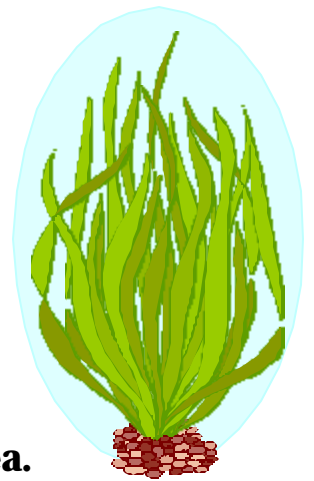
the Jane Goodall Institute

EcoTeam Lesson 1: Storm Drain Stenciling

You learned that if you were a raindrop and fell onto the roof of your school, you would end up in the French Broad River because that is the river basin in which your school is located. Raindrops that fall on the streets by your house and school run down the street and “disappear” into openings called **storm drains**. Have you ever stopped to wonder where that water goes?

Water that runs down storm drains flows through sewers and tunnels and finally right into a stream, river or lake. It does not go to a water treatment center like water that goes down drains in your school. Anything that is washed down storm drains goes right into a river with the plants, fish and other animals that live in or near the water.

In the space below, draw and label a picture of some animals you think might use the streams and rivers in your area.



Some people do not realize that storm drains, located in their river basins, lead right to the river. They may put substances that are harmful to plants and animals into the streets or down the storm drains because they think the drains lead to a water treatment center. People may put motor oil, antifreeze (a blue liquid used in cars), leaves from their yard, paint or plastics into the storm drains.

Remember that you made a **MAP** of water in your region. The word **MAP** can also help you remember what items are harmful to the plants and animals in rivers:

Motor oil

Antifreeze

Plastics and paint

You can help let people know that storm drains lead right to rivers by stenciling a message next to storm drains in your community. You will be doing this as part of learning about river basins. The water that flows through storm drains connects us to our river. You are helping the fish and animals in your river live in clean water!



Members of the Badger High School Environmental Class Roots & Shoots group stenciling a storm drain in Lake Geneva, Wisconsin.

Some stencils say “Dump No Waste, Drains to River.” Using what you know about your river basin, make up a message for a stencil that is brief and clear.



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Dear Parent or Guardian,

As part of the EcoTeam lesson on river basins, your child is learning about storm drains. These drains were designed to get water quickly off of streets and parking lots, and most empty directly into a river or stream. Any waste or hazardous material that is washed down a storm drain will also flow straight into a local waterway.

Our class is completing a Roots & Shoots activity that shows care and concern for the environment, animals and the human community by raising awareness about storm drains and their link to water quality. We will be helping to inform the community that storm drains flow directly into local waters through a storm drain stenciling project. A message stenciled near drain openings can prevent waste and pollutants from entering our waterways. You can ask your child if she/he remembers how the word “map” helps us think of what items should not be placed in or near storm drains.

ITEMS TYPICALLY PLACED IN STORM DRAINS

Motor oil-Motor oil can damage or kill underwater vegetation and aquatic life. One quart of oil can contaminate up to 250,000 gallons of water.

Alternative: Put oil in a sturdy container, such as a plastic milk jug, and take it to a collection center. You can call 1-800-CLEANUP (or visit www.cleanup.org) to locate the nearest used oil recycling center.

Antifreeze-Antifreeze is a highly toxic chemical that is poisonous to people, pets and wildlife.

Alternative: Put used antifreeze in a sturdy container, such as a plastic milk jug, and take it to a collection center. You can call 1-800-CLEANUP (or visit www.cleanup.org) to locate the nearest used antifreeze collection center.

Plastics-Plastics and foam can be harmful to wildlife, which can become entangled in them or mistake them for food. Plastics also spoil the beauty of lakes, rivers and bays.

Alternative: If you see litter, pick it up so it is not washed into a storm drain.

We will be completing our storm drain stenciling project on the day of _____ from _____ to _____. We invite you to join us! Please fill out and return the form below if you will be able to participate in this fun event. We will be outside and will be working with paint.

Sincerely,

**Roots & Shoots
Storm Drain Stenciling Project**

I will be able to join my child _____ as his/her class completes their storm drain stenciling project on _____.

Your name: _____