

MILWAUKEE WATERS INVESTIGATION

Activity #2 – Water Flow: MKE's Waterways & Watersheds

Classroom and Outside Activity

Purpose: This activity will introduce students to watersheds, stormwater and actions to protect water quality. Making the connection that stormwater is the major source of pollution and trash in and on the banks and shores of our rivers and Lake Michigan is important in helping students understand how if we keep the land clean, we can help keep our waters clean and protect wildlife.

Overview:

- To connect students to their schoolyard and watershed.
- To make students aware of the trash and debris found in our neighborhoods.
- To define stormwater runoff and demonstrate how stormwater moves trash and other pollutants into our waterways.
- To provide solutions for protecting their local waters.

Topics Reviewed: Stormwater runoff, watersheds, trash in our environment, data collection and recording, and solutions to improve water quality.

Grade Levels: 4th – 12th grades

Supplies needed: [Milwaukee Waters map](#), [video on stormwater](#) (2:57) from Clean Water Education Partnership, video on [watersheds](#) (1:19 min video), stormwater graphic (see below - optional), Simple Solutions Guides (for each student) and camera.

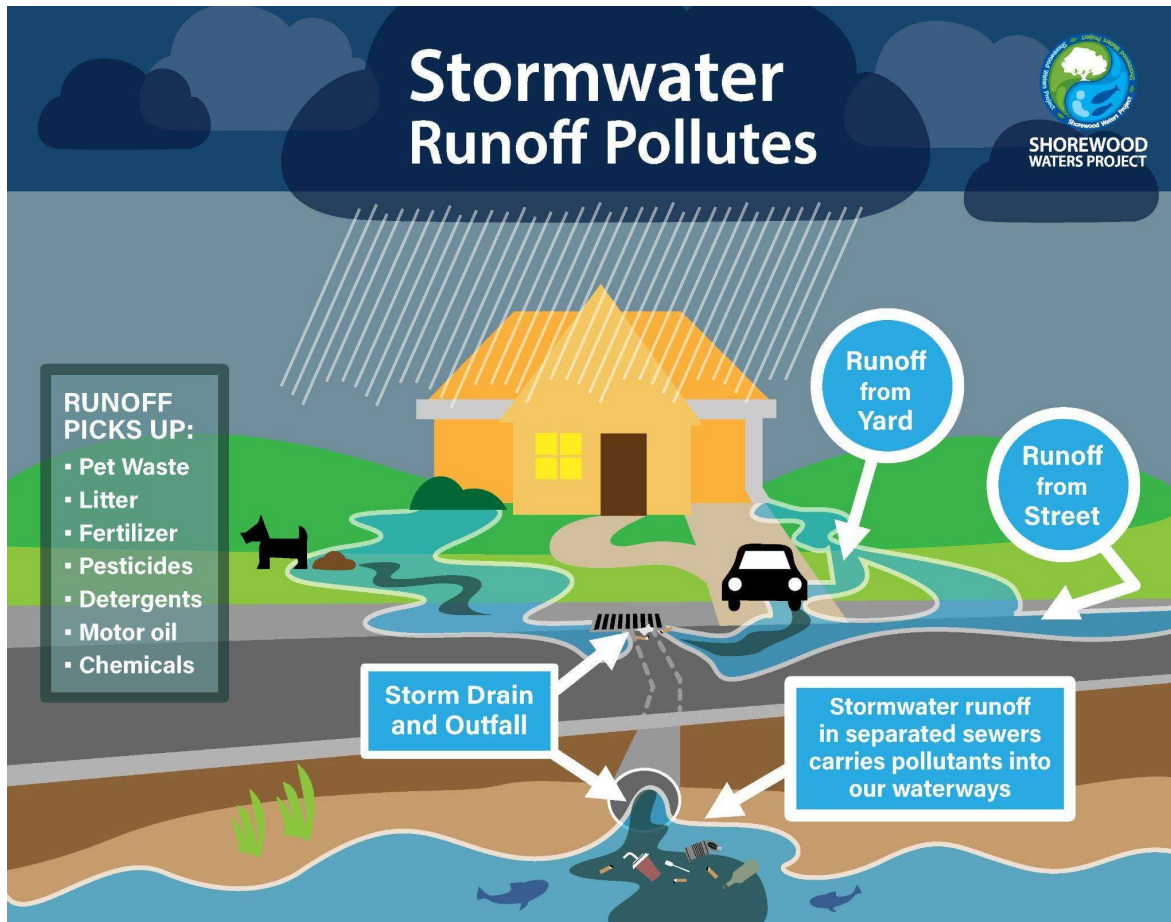
ACTIVITIES

1. Where Does Water Flow and Trash Go?

Discussion: Rainwater and snow melt flows over the land carrying with it whatever is on the land. This dirty mix of water contains trash, soil, dog poo, leaves, yard waste and chemicals from fertilizers (plant and grass food), pesticides (kills pests) and vehicles is called **stormwater runoff**. Where does this dirty stormwater runoff go?

Classroom:

- **Stormwater:** Show students this [video on stormwater](#) (2:57) from Clean Water Education Partnership, and/or the diagram below explain stormwater.



What is Stormwater Runoff? Rain or melting snow flows across the land and washes soil, litter, pet waste, chemicals from cars, fertilizer and pesticides and lawn clippings and leaves off of streets, playgrounds, parking lots, lawns, and parks into a storm drain. Some of these drains lead directly to a local river or Lake Michigan and are not treated. Some of the drains lead to “**combined sewers**” that send the stormwater flow to be treated with wastewater from our homes, schools and businesses. When this toxic mix is not treated it can kill fish and frogs, close beaches, and increase weed and algae growth in rivers and lakes. If time allows, visit the MMSD’s webpage to see how our [separated and combined sewers and deep tunnel](#) function.

- **Watersheds:** Your school is part of a Lake Michigan [watershed](#) (1:19 min video) that flows into Lake Michigan. When rain falls or snow melts in your area where does it go? Ask students if they know the name of the closest river to their school. Find out which watershed your school is in by checking out the [Milwaukee Waters map](#). You

can also check if your school is in the combined or separated sewer system on the [Milwaukee Community Map](#). Try the [River Runner website](#) to drop a water drop anywhere in the world and watch where it goes.

- **Drinking Water Source:** Ask students if they know where we get our drinking water. In the Milwaukee area it's Lake Michigan. Remind students that keeping our land clean will keep our waters and drinking water clean.
- **Flow Map** (optional) - Have students map water flow around your schoolyard. The next time it rains or there is excessive snow melt, have students watch where the rain or snow melt goes as it flows across the schoolyard, and which drains it flows into. They can observe the rain from inside or go outside after a rain. Students can map the location of storm drains and use arrows to show the water flow. Students can draw on top of a Google satellite image of your school, draw on a copy of a school map or draw their own map.
- **Solutions to Protect Water Quality:** Provide solutions for students to keep stormwater clean and help protect water quality. The MWI project will provide you with a copy of the [Simple Solutions Guide](#) for each student that has a fold out poster of solutions.

Outside:

- Check out the storm drains around your school. Take pictures or a video of your schoolyard and storm drains.
- **After a rainstorm: When it's safe (no excessive stormwater flow or lightning):** take pictures of stormwater flowing to the drain. Do students see anything around the drain or in the water?

2. Cleanup: Trash Collection and Documentation

Students will collect and document trash on their schoolyard to analyze everyday trash in our neighborhoods and think of ways the trash got on there and discuss where the trash will end up. Let students know that there has been a fall [International Ocean and Great Lakes Cleanup](#) for over 40 years that compares trash data over time. The Ocean Conservancy works to find sources of pollution to help reduce the amount and impact on the world's waters.

Supplies Needed: [Cleanup data cards](#), gloves (enough for each student), garbage bags (1 for each group of about 5), clipboards and pencils (1 for each group of 4).

ACTIVITY STEPS:

Before Going Outside:

- Review the data card with students.
- Break students up into groups of 4 or 5 students to work simultaneously on the cleanup in different areas. Assign a data recorder for each group that gets a clipboard, [data card](#), and pencil. They should fill-out the top and document trash on the data card. Assign a media pro to take pictures and videos of the activity.
- Collect the supplies you need for the number of students in your class.
- Give a quick **safety talk** about being very careful with the trash they collect and to **let a teacher or aid know when they find glass, needles/syringes or other sharp or dangerous items.**

Outside:

- Distribute gloves to all students. Remind them that gloves will go in the trash when they are done, and that they need to keep the schoolyard cleaner than before.
- Assign groups to specific and different areas to sweep back and forth while they pick up trash. The groups need to stay in their area as a unit for safety purposes, to keep out of each other's area, and to be able to document the trash.
- Students can conduct the cleanup for as little as 20 minutes or as long as you'd like.
- After a discussion with students about their thoughts, collect the data sheets for the project evaluation.

Other Resources and Activities:

1. Clean Water Education Partnership - [Stormwater video](#)
2. Caring for Our Watersheds - [Watershed video](#) (1:19 min video)
3. [River Runner](#) - This website follows a water drop you drop anywhere in the world.
4. [Freshwater Tool Kit.org](#) - Free activities on Milwaukee's Waters
5. [Reflo's Milwaukee Community Map](#) - [Maps for Education](#), [Watershed Lesson Plan](#)
6. MMSD - Video [Protect Your Home & Our Water](#)
7. [Respect Our Waters](#) - Milwaukee's [Adopt Your Drain Project](#)
8. [Green Schools Consortium of Milwaukee](#) - Join the Consortium to network with others interested in supporting Green & Healthy School initiatives.