Freshwater Tool Kit

Watersheds 101: Enviroscape Model

Demo #1 – A Watershed: Where We Live   Grades: All Grades

SET-UP:

1. Fill spray bottles with water and set to mist. Have paper towels on hand.
2. Set-up the watershed model on a <u>sturdy table</u> on top of the model's clear base.
3. Hang the Milwaukee Waters Map if available.
4. Set-up all the props like the picture below. Use small dots of clay to help items stand up.
5. Place empty container under the lake. <u>GENTLY</u> place in the plug and add 1 cup water to lake.

Model Pieces
3-D Watershed map with clear container and plug
Wastewater Treatment Plant
Factory with clear tube – 1
Ranch Houses – 4
Farm House - 1
Barn – 1
Fencing – 2   Flags – 2
Cows – 3
Cars – 2
Tractor – 1   Bulldozer – 1
Bridges – 4   Trees – 4

Demo and Clean-up Tools:

- Spray bottles
- Pollution powder bottles:
  Soil (brown), pesticides (red) and chemicals (green), soy sauce (oil), choc. sprinkles (dog waste)
- Bucket & Sponges
- Paper towels

Pollution Prevention Pieces:

- Felt strips
- Felt kidney-shaped wetlands
- Clay

BACKGROUND – WHERE WE LIVE

Have you ever noticed… how everything looks clean and fresh after a good rain? That's because all the litter, dirt, dog poop, oils and other chemicals are washed off streets, parking lots, playgrounds, construction sites and our yards into storm sewers in the streets. These sewers often flow directly into rivers and lakes. This dirty flowing mix is called **stormwater runoff**.

Stormwater includes litter like cigarette butts, candy wrappers, plastic pieces, plastic bags, bottles and cans and animal and pet waste we don't pick up. It also contains chemicals, fertilizers and pesticides we use in our yards and in parks and from vehicles that leak oil and gas.

This is a problem! When it rains, most **dirty water** goes directly into Milwaukee's rivers and Lake Michigan. Some stormwater goes into sewers that are combined with sewers from our homes, businesses and schools. These combined sewers go to our treatment plant, the Milwaukee Metropolitan Sewerage District, that cleans the waste water and returns the treated water back to Lake Michigan. However, some chemicals and medications we take that end up in the waste water cannot be removed, so these are discharged back to Lake Michigan with the cleaned water.

Why Care? **Lake Michigan is home to fish and wildlife and is also the source of our drinking water. We need to do our best to keep stormwater cleaner so we can keep our waterways cleaner.**

DEMONSTRATION #1

What is this model? This is a watershed model that represents where we live. There are rivers, a lake, hills, fields, homes, farms home and businesses. We will show you how water flows over the land to a lower point and carries everything on the land with it as it flows.

What's a Watershed?
A watershed is an area of land that drains to a stream, river, lake or wetland. Milwaukee is in the Milwaukee River, Menomonee River and Kinnickinnic River and Lake Michigan watersheds. Each body of water has their own watershed. Watersheds drain rainfall and melting snow to the nearest body of water that lies at a lower point.

Watersheds can be large like the Great Lakes watershed, or smaller like the Milwaukee River watershed. Whatever is on the land in a watershed gets washed away when it rains. Keeping the

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land clear of litter, pet waste and chemicals can protect our waters by keeping common pollutants off the ground, out of stormwater and out of our waterways.

What's in a Watershed?

Everything outside. Structures such as houses, businesses, schools; areas like our yards, playgrounds, parks, farms, golf courses, streets, sidewalks and highways and streams, and rivers and lakes. You'll also find vehicles like cars, buses and trucks. Don't forget birds, bees, flowers and trees, and of course animals and us.

What's in stormwater runoff?

Here are some pollutants – add these to the model as you explain:

1. Litter: Sprinkle small bits of paper and plastic all over the model.
    Litter from us or garbage cans that spill include cigarette butts, paper wrappers, plastic bags and pieces, bottle caps, bottles, cans and clothing.
2. Animal and Pet Waste: Add a tablespoon of chocolate bits on the land.
    Squirrels, rabbits and pet waste not picked-up from our dogs will run off with stormwater. Dogs alone can leave an average of 1.5 lbs. of waste behind A DAY. After a week, that's a pile that can fill a bucket – and that's just 1 dog! Milwaukee has over 1,200 dogs, so that's 12,600 pounds of poo per week! That's a pile the size of an SUV!
3. Sediment: Add brown powder – no more than 2 tablespoons on the land.
    This includes soil, clay, sand, and gravel from yards, driveways, construction sites, streets and ditches. Sediment decreases water clarity, mucks up rivers and lakes, smothers habitat and carries chemicals that attach to them into waterways.
4. Pesticides: Add red powder to the land.
    These are toxic chemicals that kill weeds and bugs in gardens, lawns and on golf courses. These are also poison to animals, pets and humans.
5. Chemicals: Add green powder. These are the chemicals from our vehicles like oils and gas.

Make it Rain: **Create a rain storm by spraying/misting over the model and areas of powder and other pollution. Tell students to watch the water wash away the pollutants - stormwater runoff - that will eventually flow into the rivers (the Milwaukee, Menomonee or Kinnickinnic Rivers) and then the lake (Lake Michigan).**

ASK STUDENTS: **What's happening?** How can we prevent each type of pollution from getting into our waters? **Why is this important?** Lake Michigan is where we get our drinking water.

Proceed to Activity #1 that allows students to share their ideas in preventing pollution.