Rainwater Runoff –



Introduction

When rain falls, it must go somewhere! Learn about how water travels after a rainfall and what it means for us.

Think About This

- Where does rain go after it falls to the ground?
- How does trash from cities end up in the Great Lakes?

Materials

Rainwater Runoff

- Two rectangular food storage containers (Tupperware style)
 - □ Small rocks to put in the container
 - □ Sponge or washcloth
 - □ Handful of dry dirt
 - Pitcher/Bottle of water (for pouring water)
 - □ Food coloring (optional, but it allows you to see the runoff better)

Do Ahead of Time

- Gather some rocks and some dirt
- If possible, complete this activity outside as it may get messy

Directions

Runoff is the often-overlooked part of the water cycle that occurs when water flows over land. This activity shows how runoff over different surfaces affects the Great Lakes.

On a flat surface, tilt two food storage containers at a slight angle. To create an angle, the container lid can be used by placing it under one side of the container.



Place some small rocks on the higher, elevated side of one container and a sponge on the elevated side of the other container.





Sprinkle a small amount of dirt over the rocks and on the sponge.

3





Rainwater Runoff Continued



Pour water into the lower end of each container to make a small body of water.





- Put a few drops of food coloring into the pitcher/bottle of water (optional).
- Pour some water over the dirt on the rocks and observe what happens.
- Pour the same amount of water over the dirt on the sponge and observe what happens.

Questions to Ponder

- What differences and similarities do you notice between the two bodies of water?
- Which one has more dirt in it? Why?

What's Happening?

When it rains, water that isn't absorbed into the ground will flow downward because of gravity. Water continues moving until it reaches a big body of water. In this experiment, the end of the container where the water accumulated represents the Great Lakes.

The container with rocks in it represents an urban setting, such as Milwaukee. In Milwaukee, most of the ground is paved with asphalt and concrete, which is made of rocks. Water can't be absorbed by the ground when it is covered by an impervious (a solid or watertight surface) like concrete, and this causes water to flow and runoff.

The container with the sponge represents a more natural environment, such as a prairie, forest, or wetland. Glasslike grounds can absorb more water, which means we don't have runoff like we do on impervious surfaces. However, the ground can only hold so much water. When the ground is holding all of the water possible and can't hold any more, we call it saturated. When a ground is saturated, higher amounts of surface runoff occur, and can possibly lead to flooding. If you keep adding water to the sponge, you will eventually see this occur.

As the water flows over land, particularly in urban environments, the water picks up debris and takes the debris with it. That debris could be natural objects, like leaves and dirt, but it can also be man-made objects, like motor oil, fertilizers, or trash. When runoff flows over natural ground, with grass, bushes, and trees, some of that debris gets stopped before it reaches its final destination, much like the sponge did. The sponge stopped most dirt from reaching the Great Lakes. However, the rocks, representing pavement, did nothing to stop the dirt from reaching the Great Lakes. This is why it is so important to not litter, because no matter where the litter is in our city of Milwaukee, it can end up in Lake Michigan after it rains due to surface runoff.