



## *What Happens to Rain After It Falls?*

Overview: Students will begin to understand the water cycle by exploring one stage of it, runoff/infiltration.

Subject Areas: Science

Grade Levels: PreK-2,

Topics: Earth Science/Geology, Water, Weather

Great Lakes Literacy Principles:

2. Natural forces formed the Great Lakes; the lakes continue to shape the features of their watershed.
4. Water makes Earth habitable; fresh water sustains life on land.
6. The Great Lakes and humans in their watersheds are inextricably interconnected.

Materials:

- Different Types of Soil [Sand, Clay (Play-Doh can be a good substitute), Silt, Loam (blend of soil types), etc]
- Cheese Cloth
- Large Tarp and Stakes
- 4 Sieves or Colanders
- 4 Buckets
- Pitcher or Watering Can
- Cups (one per student)
- Cardboard or Paper Arrow Cutouts (one per student)

Procedure:

1. Begin the activity by discussing rain and precipitation generally. Be sure to have the students share their knowledge about rain.
2. Following this discussion, ask the title question, "What Happens to Rain After it Falls?" Allow students to posit some of their own answers and respond accordingly to how close or far away from the truth they are. As their answers slow down, stop them and ask the students if they want to find out.
3. This set up can be done during the lesson or before.
  - a. Line the sieve with cheese cloth leaving extra drape over the side.
  - b. Fill the sieve with the first type of soil.
  - c. Position the sieve over the bucket or secure it over the bucket if possible.

- d. If equipment is available to have four different soil types set up at the same time this could prove much more efficient. If it is not, allow extra time for changing out soil types.
    - e. If change out is required, it is advised to simply lift off the cheese cloth using the extra draped over the side of the sieve. Then simply re-line the sieve and fill with new soil type.
4. Once the soil buckets/sieves are set up, give the students time to dig around in each type of soil. Ask them to make observations about how it feels (crumbly, dry, wet, sticky, gritty, grainy, etc.)
5. With each soil type, allow the students to pour their cups of water over/into the soil and have students observe what happens. If possible, simulate runoff by tilting the sieve so that some of the water runs straight off into the bucket. This also show that water runs downhill and not all of it soaks in (infiltrates).
6. Again, with the wet soil samples, allow the students time to dig through each of them. This will be a good comparison to the dry samples.
7. When you are finished with each soil type, ask the students some follow up questions:
  - a. What soil type let the most water through?
  - b. What soil type let the least amount of water through?
  - c. Is one better than the other for water?
  - d. What happens to the water that doesn't soak in?
8. This last question leads into the next portion of the activity. Find a high point of ground in your area (preferably a grassy area) and stake the tarp down over it. Position it such that most of the tarp is downhill. Explain to the students that the tarp will not let water through it and ask them what they think will happen if we pour water on the tarp. Ask the students to use their arrow cutouts to predict where the water will go.
9. Once they have made their predictions, have the students pour their cups full of water onto the tarp. For those students who predicted correctly, ask them to explain why they did so. Using their answers as a platform, explain the difference between infiltration and runoff (e.g. it soaks into the ground or it doesn't and moves somewhere else, no need for scientific terminology at this point). Additionally, point out the water moved or ran downhill and discuss this with the students.
10. Next, if available, move to a parking lot and ask the students to predict what will happen there; will water soak in or run off? If it runs off, which way will it go? Why? How fast will it move? These are all leading questions to get the kids thinking about where the water goes after it falls.
11. Wrap up the lesson by starting to expand their idea of water moving downhill to a larger piece of land, i.e. moving toward a watershed. This will likely be too complicated for them but they can always start thinking about it.

Teacher Reflection:

*Please find "comments" section on the curriculum page.*