

Discovery Watershed Walk

A Fun Family Activity to do in the Neighborhood

In this activity, your children can create a map of your neighborhood, predict where water will flow, make observations about rain runoff and draw conclusions about nonpoint source pollution. Just follow the below instructions and get ready for some outdoor educational fun for the whole family.

You'll discover how to:

- Use maps to identify the watershed of your neighborhood.
- Draw a “water features” map showing places with water and where water goes after a rain to understand sources of runoff.
- Gather evidence and draw conclusions about impacts on the local watershed that originates where you live.

What you'll need:

- Access to Google maps to print out maps of your neighborhood, the surrounding topography, streams and water features
- Paper, pencil, clipboards (or pieces of cardboard and clips), plastic wrap
- Rain gear
- A compass app on your smartphone

Preparation:

1. Find your house and neighborhood on a map (e.g. Google maps) and discuss the kinds of information that can be seen on the street and satellite views..
2. For this activity you'll want each young person to have a map of an area. Use the map to find distances of important landmarks of the area you want to survey (e.g., from your house to the neighborhood playground) and divide the area into sections.
3. Draw a base map of each section on a piece of paper (alternately, sections of the area to be surveyed can be printed from an online map). Assign one person (mom, dad or kid!) to each map section to research and study.
4. Discuss different kinds of ground covers (grass, trees, unmown areas, bare earth, flower beds, etc.), buildings, paved areas, gardens, playgrounds, playing fields and all types of water features, such as ponds, streams and wetlands.
5. Make predictions about where water will flow from your yard or neighborhood to these water features.
6. Discuss the structures that should be included – anything that affects water flow or conveys water and how they should be represented. Create a legend for your map.

Activity

Part 1: Fair Weather Hike (do this walk on a dry day)

1. **Use** your smartphone compass app to find direction and indicate North on the paper base map.
2. **Look** in all directions for landmarks, like tall buildings and parking lots, or features in the landscape, such as hills, swales and valleys. These will give you clues as to where the water will run when it rains.
3. **Label** all of the porous and nonporous features on the map, such as different kinds of ground covers, plants and trees, buildings, structures, paved areas, gardens, playgrounds, fields, roads, grass ditches and all waterbodies.
4. **Predict** where the water that falls on roofs of other houses or buildings will flow. Use a pencil to **label** the location of water downspouts with a “W.”
5. **Label** your map with a “W” for all water features, including streams, ditches, ponds and fountains, etc.
6. **Predict** where you think water will flow and **draw an arrow** in blue to show the direction on the map.
7. **Predict** where water may form temporary puddles and **draw a circle** in another color on the map.
8. **Inspect** the area for possible sources of pollution (don’t forget to think about the roofs of the houses and buildings in your neighborhood) that could contaminate the water where you live. Hint: oil on parking lots, garbage dumpsters, soil particles, animal and bird waste. **Mark your map with a “P”** in orange or red all sources of pollution.

Back at home (reflection phase):

- Assemble the map sections and post them on the walls.
- Share information and predictions. ***What things influence the direction and speed of water?*** Discuss as a family how to verify predictions on a rainy day and prepare maps by covering with plastic wrap.

Part 2: Rainy Day Hike

1. **Monitor** the waterbodies on your map. Walk in the direction you predicted water will flow. Note any areas where water accumulated (puddles) and the direction of the water flow. Are any waterbodies flooded or overflowing?
2. **Observe** the slopes, erosion trails, cracks in sidewalks, areas where soil or debris was deposited, the speed of water over different surfaces, etc.
3. **Observe the down spouts on other houses or buildings.** What happens to water flowing off houses or buildings?
4. **Draw conclusions:** How does the water affect the surface of your neighborhood – for example, does it carry litter or debris? What causes erosion?

Back at home:

1. Summarize and compare your findings with your predictions as a family. How accurate were you?
2. Examining the local maps, what is the likely course of runoff from your neighborhood? What is the nearest stream or water body and into what body of water does it flow?
3. Does the water from the neighborhood contribute to the pollution load of the receiving stream? Is this important? Why?
4. List the location and the possible pollutant or contaminant in the table below.
5. Do activities on the land positively or negatively contribute to water quality? How?

Location	Contaminant (e.g. litter, oil, fertilizer, pet waste, soil)

Follow-up and Reflection:

1. Does your neighborhood incorporate any treatments for retaining and cleaning water surface water? You may want to email your local Soil and Water District agent to give you more information at www.vaswcd.org.
2. If the location is contributing to erosion or other forms of pollution, you may want to develop a plan to slow down, divert or capture the water. These improvements could be something like planting trees and flowers to slow runoff; installing rain “barrels” under down spouts to collect rainwater; building a drainage swale with wetland plants (also called a “rain garden”); or cleaning up litter to improve water quality.
3. You can learn how to measure the slope of different areas. Slopes can be classified as level, gentle, moderate or steep. How does steepness of a slope affect rates of water flow, erosion and sedimentation?