

What is Your Watershed Address?

We understand that looking for stay-at-home activities for your children can be a challenge while we all band together to combat COVID-19. DEQ has put together some fun and educational exercises that will encourage you and the family to get outdoors and learn about the environment at the same time. All you have to do is follow these instructions and enjoy!

Create a Watershed Model

A watershed, also called a drainage basin, is a geographic area where water drains into a common body of water. Water traveling over land can carry soil sediments, dissolved minerals, livestock and pet waste, fertilizers, pesticides and other pollutants, including trash and litter. Each watershed has unique features and potential sources of pollution.

You may not realize this, but we all live in a watershed, even though many of us don't know it. In this exercise, you'll be constructing a simple model to show how water flows through your neighborhood and identify your watershed address at the end.

Background

Water traveling over land can carry soil sediments, dissolved minerals, livestock and pet waste, fertilizers, pesticides, and other pollutants, including trash and litter. Each watershed has unique features and potential sources of pollution.

Table Top Model Demonstration

The simplest way to demonstrate how water flows through a watershed is to create a mini watershed model using a 12 inch long piece of foil by following the below steps. You'll also need a spray bottle or a paper cup with holes to simulate rain falling on the landscape.

1. Shape a piece of foil into a mountain or mold it over some crumpled newspaper placed in an aluminum pan or on a tray.
2. The highest points on the foil represent the mountain tops and the lowest wrinkles, the valleys.
3. Ask your kid(s) to identify the highest points – i.e., the mountain tops and ridge lines – and predict where the creeks, rivers and lakes are, or where the water would flow from the mountain.
4. Mark the mountain tops and ridges with a blue highlighter or water soluble marker.
5. Sprinkle soil, salt or powdered drink mix on the model to demonstrate how pollutants flow through the watershed.
6. Use a spray bottle filled with water to lightly spray the model.

Place sponges that help absorb and filter the water at the bottom of the watershed to represent wetlands – like a swamp or marsh. To show how wetlands help hold and clean water, you could conduct a test (either using two trays or one tray with two different test runs) to see which watershed drains more quickly and how much water reaches the end of the tray. In either case, measure the water before you spray it into the watershed and again, afterwards. You could also time the runoff and make it a contest!

Variation:

For a larger scale model, use a white vinyl shower curtain or plastic tarp as the base. Place some objects such as crumpled newspaper, boxes, or even a chair (lying on its side), under the shower curtain or tarp to represent the mountains and follow the steps listed above. This scenario is best done outdoors! You can also add some small toys to represent land uses (cows and tractors to represent farms, cars and people or houses for residential areas, a bulldozer for development, etc.). Let your kid(s) name settlements and waterways on the model. Use your imagination! You can also work together to write a story about what happens.

Discussion ideas

Discuss the concept of a watershed and how water travels over and through the land.

- Have you ever wondered where water goes after it flows down the street during a heavy rainstorm?
- Challenge your kid(s) to think of some examples of how individuals (including pet owners) and businesses use water and how their actions might affect water running off the land. Don't forget to include sewage treatment plants, homes, commercial developments, farms and factories.
- Help make the connection between people living in the watershed and the impacts that they have on water quality – especially, non-point source pollution. Non-point source pollutants are those that can't be traced to a singular source, such as a discharge from a factory pipe, which is regulated in Virginia by DEQ.

Discuss the speed at which water flows and how moving water changes the land. You can refer to the branches on a tree, or the veins in a leaf, or the human nervous system to describe how bodies of water “branch out,” with smaller branches mirroring streams branching into larger ones, such as rivers. In Virginia, water eventually flows into rivers and travels to the Chesapeake Bay or Albemarle-Pamlico Sound and to the Atlantic Ocean, or it flows to the Mississippi River and the Gulf of Mexico.

Questions to investigate:

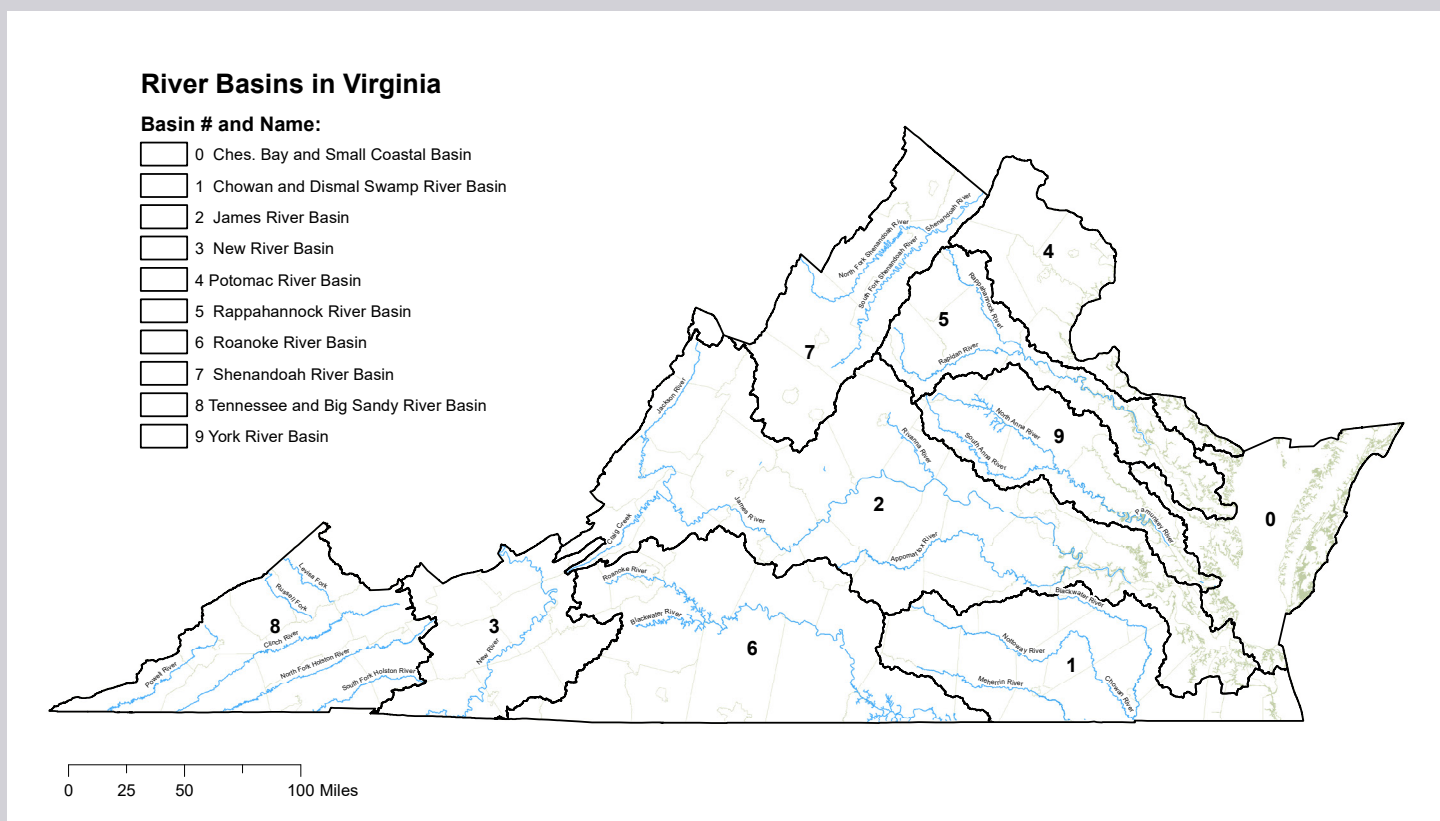
- How does water travel over the landscape? What changes do you observe in the “foil” watershed maps?
- What happens to human settlements – are any buildings in the way of a raging river or a crumbling hillside?
- Where are good building sites?
- Where does erosion occur?
- What happens to the “pollutants” – where do they end up?

- What factors may lead to increased pollutants running off and carrying sediments?
- What are some ways to reduce or prevent these non-point source pollutants? How could you slow down water so it will filter the runoff?
- How might conserving water help water quality?

For more informative visit www.DEQ.Virginia.gov, the Virginia Association of Soil and Water Conservation Districts, Project WET, or the Bay Backpack.

What's Your Watershed Address?

There are nine major watersheds in Virginia. The James River is the largest and includes all or parts of 39 counties and 18 cities, and drains one-fourth of the state's land area into the Chesapeake Bay. Using the map below, discover your own watershed address.



There are nine major watersheds or river basins that lie within the state of Virginia. They are from south-west to north-east: The Tennessee-Big Sandy, the New, the Roanoke, the Chowan, the James, the Potomac-Shenandoah, the Rappahannock and the York. The James River is the largest watershed. It includes all or parts of 39 counties and 18 cities and drains one-fourth of the state's land area into the Chesapeake Bay. Some watersheds drain into others. Most of Virginia is in the Chesapeake Bay watershed. However, water in the Tennessee, New, and Big Sandy River watersheds travels to the Mississippi River all the way to the Gulf of Mexico!