




# Kids!

THE CHILDREN'S NEWSLETTER OF HERITAGE CONSERVANCY

Winter 2019

## How can you tell if a body of water is healthy?

### Examine what lives in it!



Studying the aquatic macroinvertebrates that are present in a stream, pond, lake, or river can tell you a lot about how clean the water is. What is a "macroinvertebrate"? Break the word into two parts to find out: "Macro" means large enough to see without having to use a microscope, and "invertebrate" means that the creature does not have a backbone. Macroinvertebrates are "bioindicators," or organisms that can help reveal an ecosystem's health! They are easily affected by changes in water quality caused by **pollution** and other environmental changes. Pollutants like pesticides, herbicides, fertilizer, road salt, trash and increased sediment in the water can cause sensitive species to die off, while other species may thrive.

## What is a Watershed?

Imagine an area of land that drains all rainfall into bodies of water like lakes, reservoirs, streams, and wetlands. That area is called a **watershed**! Watersheds can also include water that is held in the soil. Bucks County and Montgomery County are part of the Delaware River watershed, which covers parts of New York, New Jersey, Pennsylvania, and Delaware. This **large region supplies drinking water to over 15 million people!** Heritage Conservancy works to protect the quality of this drinking water by preserving land within the Delaware River watershed.

### The Making of a River



**Did you know?** Southern Pennsylvania saves nearly \$61 million annually from protected land's ability to naturally filter pollutants and replenish water supply.

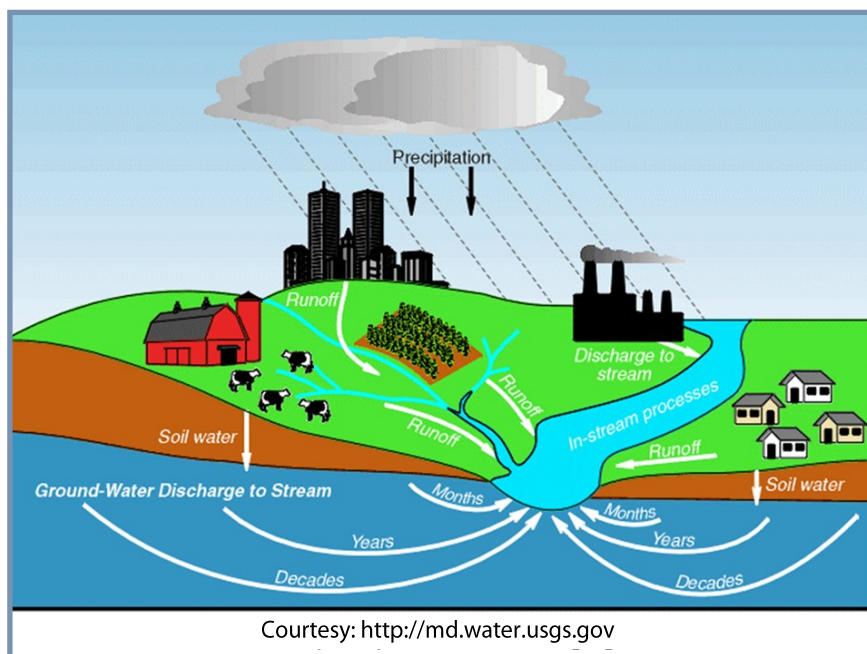
## Pollutants

Pollutants come from a variety of places, such as farms and yards that use chemicals and fertilizers. These chemicals can travel long distances because of a process called runoff.

**Runoff** occurs when water does not drain into the ground but rolls over the ground's surface, often due to flooding or rain falling too quickly and heavily for the soil to absorb.

As the water forms into puddles and flows across surfaces (roofs,

sidewalks, roads) that can't absorb it, it collects all sorts of nasty pollutants that eventually end up in streams, lakes, and oceans. That is why it's important that we balance land protection with development—we need to have land to absorb water runoff.



## Water Treatment

Water is such an important resource—all living things need it to survive! Humans have created ways to treat dirty water so it can be used again for drinking. Many of these man-made ways mimic the natural water



treatment that wetlands and streamside forests provide.

How do the wetlands do it? Soil and vegetation in these natural areas play a big part in water treatment. They help to break down and remove different kinds of pollutants, such as metals, chemicals, sediment, and runoff. Trees and plants in streamside forests trap sediment and pollutants and prevent them from even reaching the water. Wetlands also help to prevent flooding since they serve as a basin.

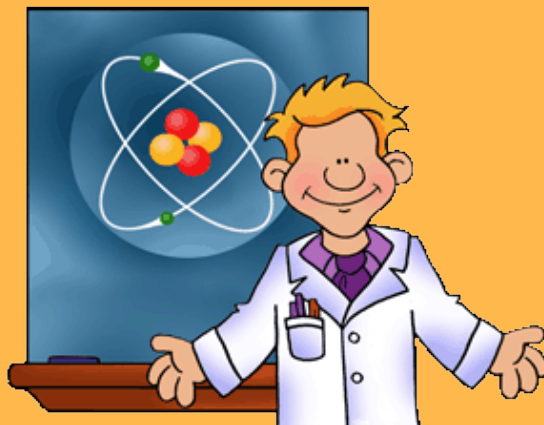
While we have water treatment companies to help us clean our water, we need these natural systems, too. Heritage Conservancy protects wetlands like the Bristol Marsh and Quakertown Swamp Nature Preserves so they can keep doing their part to keep our water clean!

# Get Involved

Would you like to get involved with making a difference for wildlife habitats in our area? Heritage Conservancy offers volunteer and outreach events throughout the year. Visit our website at [HeritageConservancy.org](http://HeritageConservancy.org) to learn about upcoming property cleanups, tree plantings, nature hikes, bird watching, educational presentations and more!

## Citizen Scientist Let's make a water filter

To better understand the water treatment and filtration process, try this experiment! Using items you can find around the house, make a filter to clean your water.



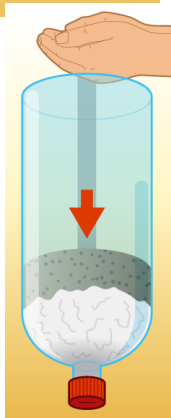
### What you'll need:

- ✓ Empty 2-liter soda bottle
- ✓ Scissors
- ✓ Napkins or paper towels
- ✓ Gravel, sand, and cotton balls
- ✓ Dirty water (You can make this by adding some vegetable oil, food coloring, and pieces of paper to the water.)

**Step 1:** With an adult's help, cut your 2-liter soda bottle in half. Remove the cap. Place the top half of the bottle upside-down (like a funnel) inside of the bottom half of the bottle. The top half of the bottle is where you will create your filter, and the bottom half will collect the filtered water.



**Step 2:** Layer filter materials inside the top half of the bottle by placing cotton balls at the bottom, sand in the middle, and gravel on top...or you can put them in a different order! This is your chance to experiment



with different filters to see how the layers remove dirt from the water.

**Step 3:** Create your dirty water mixture and pour it through the filter. Take this time to observe how your filter worked. How does the filtered water look? Is it clean? Dirty?



**Step 4:** Take your filter apart layer by layer. Can you tell what each layer removed from the water?

**Step 5:** Use paper towels to wipe the bottle clean and try again. Rearrange the filter materials or use different amounts, then observe your results and see which filter works best!

**Step 6:** After you are finished with your experiment, recycle your bottle.

# Here are three easy ways you can help improve water quality:

1. **Conserve water:** Turn off the tap when brushing your teeth, shorten your showers, and only run the dishwasher or washing machine when they are completely full!
2. **Use safe products:** Don't use pesticides or fertilizers in your garden—these products can seep into the groundwater supply. Inside the house, try using natural cleaners rather than chemicals that could end up in your water supply!



3. **Watch your waste:** Plastic is a major pollutant. Floating bags and bottles clog up waterways and are dangerous to wildlife. If you see litter lying around, place it in the trash or recycling before it can make it into our waterways! Use reusable bags at the grocery store.

## Word Scramble

Put the letters in order to complete the sentence!

All living things need \_\_\_\_\_ to survive.      atwre

It is important to \_\_\_\_\_ to prevent plastic from entering our water sources.      lcercye

A \_\_\_\_\_ is an area of land where all the water collects and drains in one lake or river.      terdshewa

Natural systems like \_\_\_\_\_ help to keep our water clean!      dslanewt

Plastic, paint, and fertilizers can cause \_\_\_\_\_.      llupontio

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