

Watershed Wisdom: Day 2

This week, Weekday Wonders encourages young scientists to explore the movement of water through a watershed. They will learn about the different parts of a watershed, the water cycle, and how to protect and care for our most important natural resource and the plants and animals that depend on it.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the <u>Introduction to Weekday Wonders</u>.



Question of the Day Where does water go?



Daily Nature Journal

Ask your young scientist to spend some time outside watching and listening for information to add to a nature journal entry. Then have them complete an entry as described in the <u>Guide</u> ournaling.

to Nature Journaling.



One Outlet

In <u>Monday's</u> nature journal, your young scientist explored the different places in his or her home and community where water comes from. Now ask him or her where they think the water goes once it leaves the sink or toilet in your house. Have your scientist draw a picture or flowchart to show their ideas about where the water goes.

Share with your scientist that there are two possibilities for where water goes when it leaves a house. Ask him or her to read or listen to the following systems and consider how it relates to the idea s/he had.

Possibility 1: Sewer System. In cities, where houses are connected to a sewer system, all the water from sinks, showers, toilets, and washing machines leaves the house in pipes. These pipes connect to larger and larger pipes as they merge with the pipes from other houses and neighborhoods. Some of these pipes can be as big as buses. The pipes take all the water to wastewater treatment plants where any harmful materials are removed. The clean water is then released back into a river, such as the Tennessee River.

Possibility 2: Septic System. In areas that are not connected to a sewer system, water leaves the house in pipes to go to a septic tank. This is generally a large, underground container that is made from concrete. In a septic tank, bacteria work to break down waste. Heavier objects, such as solids and toilet paper, sink to the bottom of the tank. Bacteria will process them to sludge. Lighter items, such as oils and fats, float to the top to make a layer of scum. Anything that does not decompose will remain in the septic tank and will eventually need to be pumped out.

Once waste has passed through the septic tank, a waste product flows out through another pipe to a drain field. The drain field is many pierced pipes placed in long, shallow trenches. These trenches are filled with loose gravel, then buried below the surface of the yard. As wastewater flows through the drain field, it is spread over a wide area underground. It filters through the different layers of soil and organisms living the groups break down any solids and bacteria in the wastewater. It will remove any dangerous materials or organisms, serving the same purpose as a wastewater treatment plant. The water eventually reaches the groundwater beneath the surface of the Earth and then flows into lakes, streams, and wetlands.

Once your scientist has some ideas about what might happen to the water, discuss which system his or her house uses. Using a different color, have your scientist revise the picture or flowchart they created to represent what actually happens to the water when it leaves the toilet, sink, or shower.



Communication Connection

Scientists present and communicate data in many different ways. Encourage your young scientists explore a different means of presenting data by coloring the parts of the water cycle on the coloring sheet provided on page 4. Have your scientist choose a different color for each part of the water cycle. Then have your scientist use the different colors to make a key that explains each process in his or her own words.



Nature Journal

Now your young scientist has thought about and observed where the water around your home goes and has become more familiar with the water cycle. This activity will allow them to go on a creative journey of water and imagination. (Scientists benefit from a good imagination too!)

Have your young scientist sit or look outside. Have your scientist imagine that he or she is a drop of water, and they want to GET OUT OF HERE! How many ways of escape can your scientist draw or list? As a molecule of water, your scientist could be consumed by a bird and flown away or flushed down the toilet and rush out of a sewer pipe. Maybe s/he gets absorbed into the groundwater and begins the SLOW journey downhill. Your scientist could even evaporate into a cloud. Have your scientist circle his or her favorite means of escape and write or tell you a story about what happens next.



Water Walk #2

Retrace the steps of <u>yesterday's</u> water walk. This time your young scientist will be "waving goodbye" to the water leaving your home and the area around it. Have your scientist look for evidence of where water goes when it leaves your house by searching out sewer manhole covers, storm water drains (which also drain to the water treatment plant), or septic tank covers.

Now ask your young scientist to think about where the water from rain goes. Does it move away from the area around your home in the same way that wastewater moves? If you have the opportunity, consider taking a walk in the rain with your scientist to more closely and immediately observe where the water goes. *Note: Never go for a walk when you can see lightning or hear thunder, as these can put you in dangerous situations.*

Now that your young scientist is becoming an expert on how water moves, he or she can be alert to the places water travels on drives, walks, or bikes. Encourage your scientist to record observations and insights in the nature journal.

