



# Build a Watershed

*A hands-on lesson to learn about source water and nonpoint source pollution*

## Supplies

- Plastic tub or wash basin                      One per group
- Wax paper    One sheet about 1.5 ft long per group
- Spray bottle filled with water              One per group
- Food coloring                                        One per group
- Sponge cut into small chunks              A few 1-3 inch chunks per group

## Activity

**Review the water cycle.** Talk about how the same amount of water exists on the Earth now as it did when the Earth began. Water is constantly cycling from salty ocean to clouds, into fresh water as rain, maybe into our bodies, and then back in to rivers which flows back to the oceans. The water cycle has five parts: evaporation & transpiration, condensation, precipitation, infiltration and surface run-off.

**Where does our drinking water come from?** To understand where your drinking water comes from, we first have to learn about watersheds. A watershed is an area of land that drains water towards a downhill point. The smallest watershed is your bathtub. When your shower “rains” down on the tub where does all the water flow? Outside your house water does the same thing, it travels downhill to the low point. The point can be a stream segment, river, lake or pond. Movement of water is directed by gravity, so a watershed is separated from other watersheds by land with higher points of elevation.

## Let’s build a watershed.

1. Have one student in each group crumple up a sheet of wax paper. (Make sure the crumple ball isn’t too tight, a loose ball works best.)
2. Unfold the wax paper a bit and place into the tub.
3. Point out that this is like a topographic map of an imaginary state. It has peaks, valleys, mountains, plains, ridges, etc.
  - ✓ Before the “rain” comes, have students predict how many watersheds they have. Have them predict where rivers, lakes and oceans may form.
4. Have another student spray (rain) over the paper. How is the water running off? Were their predictions correct?
5. Can they identify the watersheds? Small ones. Large ones.

**What is your watershed address?** Sometimes a watershed is also called a river basin. Kansas is part of the Mississippi River Basin, the largest watershed in the US. (Showing maps is good here.) The water that flows across the southern half of the state ends up in the Arkansas River. Water that falls on the northern part of the state flows in to the Missouri River. Eventually, both rivers flow in to the Mississippi River and then in to the Gulf of Mexico.

- ✓ Which watershed path does the water that falls at your house take?

There are 12 smaller watersheds inside the state of Kansas. (Show a map.)

- ✓ Which one do you live in?

**The trouble with watersheds** is that as water flows across the surface of the land it picks up things and carries them along. Where does the runoff eventually get to? Right. Streams, lakes, ponds, ocean. We call this type of pollution nonpoint source pollution because we can't just "point" to the source, it comes from all of us over a wide area.

- ✓ Think about the types of things that could get picked up and carried along during a rain storm in your neighborhood and carried along to the nearest stream.  
(soil, gravel, oil, road salt, pesticides, dog poop (bacteria), etc)

### **Nonpoint Source Pollution in Watersheds**

6. Have students place a drop of food coloring representing a type of nonpoint source pollution of their choice.
7. "Rain" again on the watershed. What happens to the pollution? How many smaller watersheds are impacted by the pollution? What determines who is impacted?
8. How could they have stopped the pollution?
9. What do they do now if the lake or river that now has the pollutant in it is where they get their drinking water?
10. Give students pieces of sponge and have them see if that stops some of the pollution. Natural buffers like grass swales, etc make good pollution sponges.

