Building Your Watershed
25min session

Supplies: Photos, Blue vinyl strip taped to table for lake and river,
Small mesh strainer, Coffee filters, Cheesecloth cover each cup individually. Small clear plastic cups =4, Large Clear plastic cups =4.
Confetti paper to represent **trash**, **leaves, floatables,** etc.
Potting soil to represent **soil, dirt**.
Vinegar to represent **pollutants such as fertilizers, pesticides, and herbicides**.
Vegetable Oil to represent **motor oil**.

- Put stack of photos laid out on tables with 'stream' taped down in the center. Have small cups ready with one of each possible types of pollution. Have one large cup ¼ full of clean water. One large cup with a piece of cheese cloth rubber banded on top, another one put a coffee filter on it. As the activity continues have assistant, teacher, or chaperone continue to replenish all cups with either very small bits of pollutants or filters so one is always available.
- Pose question: How many have ever swum in lake or river? Have students name some of the rivers or lakes that they have visited. After students have discussed and identified some of water bodies tell them they have just inherited $1 million dollars and river or lakefront property. Some of the property has been developed (5 min.)
- Tell students that we will revisit their pictures later but first let's define the word "Watershed" Ask for volunteers to give their definitions. Before clarifying or helping them state definitions hand tell the students again that the pictures are representing land. Ask them if the Ozarks looks like this piece of paper?? How can we make it look more like the hills and valleys? Usually someone will suggest to crumple the paper. So tell everyone to crumple their piece of paper. Now it looks more like the Ozarks.
- Take a minute to look at pictures and point out that a lot of changes in the land were made where there once was a Riparian Corridor. Explain that a Riparian Corridor is grasses and trees that line the banks of a river stabilizing the bank and helping to clean pollutants out of the rivers. Explain that there are two kinds of pollution point and non-point. If they have attended several sessions already, they might be able to tell you this information. Point source is much easier to tell where it is coming from – you can point right to it. Non-point source is much harder. i.e. you go to the river and see some trash laying there. Can you tell exactly where it came from? No, could have even been from several different people. It is a non point source. You can't point to the ONE place it came from, can be very hard to identify. Point out that there were some non-point types of pollution that came about due to the development of the land (you may occasionally want to point out that its not so much that the developing/farming/using of land is bad but its that we need all the right tools and info. so we can make the best choices possible to protect our water)
- Hand a big glass about ¼ of the way full water to first kid. Look at his/her photo and point out a non-point source of pollution. For instance, their photo is of construction, you can say when things are built they have a big pile of soil that wasn't held in place by vegetation or silt fence etc…then it rained and it washed down to the river. Have the child pour a little dirt in the cup. Pass the glass of water to the next kid and look

for a non-point source of pollution that has been occurred. Maybe they built a parking lot. Ask what kind of pollution could come from that. Guide them towards oil then have that kid pour a tiny bit or dropper full of oil in the cup. Maybe the next kid planted trees. You could place one of the 3 filters (strainer, cheesecloth, or coffee filter- these could represent pervious pavement, rain gardens, riparian corridor etc…) over another empty cup and have the kid pour the dirty water through the filter into a the clean cup. Talk about how that helped to remove some of the pollutants from the water. Go around the room pointing our something from each picture.

Do this all around the table finding ways to use the different "sources of pollution" and the different filters.

- When it comes back to you pour some through a coffee filter talking about how water when it soaks into the ground it will infiltrate through clay or bedrock and get cleaned as it does. In our area we have Karst topography; cracks, holes in the bedrock that can cause caves and sinkholes. Say you have a sinkhole on your property then as the water is filtering through coffee filter and looking cleaner, you then poke a hole in the filter and see the dirty water combine with the cleaner water. Karst is a direct connection to our aquifer.
- Occasionally when the water is looking pretty good. Have them smell it. They will notice that the vinegar smell remains. Some things, after they get in the water, are very very difficult to get out.
- Talk about how the water is only as healthy as the land around it and everything we do affects the big picture so it is very important to take the right steps to protect our water.
- Last bring their attention back to what a watershed is and how all their choices affected the big picture. Talk to the students about precipitation and the water cycle. Ask students for observation: should include-Water sheds/runs from hill tops to valleys to create lakes, river streams. Ask the students now to define "Watershed" students should be able to give more clear definition similar to "Area of land that sheds water to body of water" or "area of land where, when it rains all the water shed/runs to the same body of water." Ask what watershed they live in. (10 min)

<u>Some possible NPS scenarios:</u>

Cattle, animals: pour in vinegar representing bacteria
Lawns, farms: vinegar representing herbicides, pesticides, fertilizers
Buildings: soil, or vinegar (pointing out how they may have a leaky septic system)
Bare dirt: Soil
Lots of people: Confetti...maybe they didn't use the trash receptacles properly.
Cars, driveways, parking lots: oil

<u>BMP opportunities to use the filters:</u>

Silt fence, rain gardens, fencing cattle out of stream, riparian buffer protection or planting, vegetation, taking oil from car to recycle center instead of dumping down storm drain. Point out possible places a rain garden could help. Perhaps next to a parking lot then pour dirty water through the cheese cloth or strainer talking about how rain gardens can slow the water and help to filter out pollutants.