

Enviroscape: Notes

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Supplies I always bring-just in case, or double check for the day before your lesson...

-roll of paper towels, this is a must since those brown paper towels really don't absorb well

-playdough (to stand the trees in and use to block the hole in the lake if the cork is missing)

-spray bottle to make the rain (or check that there is one *and* try it out beforehand to be sure it works)

-2 different flavors of Crystal Lite or Kool Aid, etc. I use the ones for a single bottle of water and find I have plenty for at least 2 classes. I try to avoid red-that tends to discolor the enviroscape and its pieces. I like tea or lemonade for one of the colors-not too bright, but easily seen as it dissolves.

-ground coffee for the soil (it's a little trickier to clean when you are done)

-sometimes I use a squirt bottle with some hot chocolate mixed with water for the factory sludge (not too thick, you want it to flow easily)

-cup that will fit under the bottom of the lake-often I use a Styrofoam coffee type cup that I tear the top off of to make it fit. The best I have found is a short clear plastic cup.

Lesson:

1. Set up the enviroscape before you are ready for the lesson. There are instructions with each one. Be sure to add water to the lake and the 2 holding tanks at the water treatment plant.
2. Start with some basic water information: Earth's water is the same water the dinosaurs walked in...we can't get new water, so we need to care for what we have. We can live longer without food than we can without water.
3. Get the kids involved: choose someone to be the *farmer*-what will you grow; *factory owner*-what will your factory produce; 3 *home owners*; *water treatment plant manager*-who do you work for-city, county, township; what lake could it be-is there one near your school or in your city-I often use Hawk Island since many Lansing kids have been there.
4. Sprinkle dry Crystal Lite "fertilizer" on the neighborhood grass-discuss why this is done. What happens if there is no rain/water-burns the grass. What happens if there is a big rain storm-washes the expensive fertilizer into the storm sewer. (Kids have seen these storm drains, they usually don't know what they are or why they are there-good opportunity for a quick discussion-keeps roads/land from flooding.) One of the homeowners changes the oil in his/her car and dumps the used oil down the storm drain (if you are using the hot chocolate water put some near the storm drain, but caution the kids that this model doesn't always

work correctly for the storm drain, it should flow under the road and into the river- is that a good idea, where does it go, why is that a problem?

5. Put some coffee grounds on the fields so symbolize the soil. Sprinkle dry Crystal Lite “fertilizer” on the farmland. If you are using hot chocolate water you can add a few “cow pies.” Most kids are surprised and disgusted that manure is usually used as fertilizer on a farm.
6. Add some Crystal Lite to the holding ponds at the water treatment plant to show that the water is not ready to be pumped back out for use. Kids don’t realize that most places with “city water” are connected with one set of pipes to carry dirty water to the treatment plant and another set to carry clean water back from the plant to the business, school or home.
7. Now it’s time to use the spray bottle and have a good soaking rain. Use as much as you need to get the colored water flowing. Talk about what is happening to the fertilizer, oil, cow pies, possibly the farmers seeds, the over flowing water holding tanks at the treatment plant.
8. Say that the factory owner wants a nice vacation so he is cutting his costs and doesn’t repair the machine that is supposed to clean up the water he uses for making his products. (The law says he must only let clean water and air out of the plant.) Add hot chocolate water to the top of the factory until it runs out the bottom. What will happen to the owner who is breaking the law-clean up costs, fines, shut down the plant, workers will lose their jobs. Will he get a vacation now, how will he pay his bills?
9. Time to have kids help find solutions: Have the student who lived/worked in each place come up with an idea to help solve the problem-get additional ideas from the class.
10. Home owner-watch the weather before fertilizing, use a sprinkler to get fertilizer to gently soak into the ground, recycle oil at a business that does oil changes.
11. Factory owner-clean up spillage, pay fine, fix “clean up machine.”
12. Water treatment manager-make deeper holding tanks, cover the tanks (they may need to have sunshine, I don’t know), have retractable covers to use during storms, don’t fill the tanks so full
13. Farmer-plow fields in opposite direction so the seeds and soil don’t wash toward the lake, build a wall around the farm, build up the soil into a hill between the farm and the river and the lake, check the weather before planting or fertilizing, plant trees or bushes around the edge of the farm to help hold the soil in place.
14. If you have time (or back at school if you have to leave the nature center early) have the kids draw a diagram of the enviroscape, using labels. Have them choose 1 area (homes, farm, factory, water treatment plant) and tell how they can help keep our water clean and why that is so important to everyone.

*****Clean up:**

-Take out the cork and drain the lake into the cup.

-Give each child a paper towel and have them take 1 piece off the enviroscape and dry it, putting it on the table when they are done. Have 1 person take the factory to a sink and run water through it to be sure the chocolate is all washed out. Or, they can dry a section of the board. Be sure you have all the pieces before the class leaves (yes, I have tracked down cows and cars that “accidentally” ended up in someone’s pocket.)

-After the last class be sure everything is dried well and let it sit out overnight. If things are put away with any moisture at all it can get moldy for the next group.