

Greener Cleaners

5th Grade

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References:

<http://www.geocities.com/Heartland/Prairie/8088/clngrn.html>

Dirty Downstream (GK-12) Jonathan and Nicole Clark

Recycled Paper (GK-12) Austin Carter

Benchmarks:

- **ES6-** Investigate ways Earth's renewable resources can be conserved
- **ST1-** Investigate positive and negative impacts of human activity and technology on the environment.

Materials:

- Spray bottles (1 per group of 3-5)
- Baking Soda
- Salt
- Vinegar
- Lemons
- Grapefruit
- Extracts or lemon peel
- Soda & Tap Water

Target Concept:

The kids will learn how pollution from things such as cleaning products travels into our water (ground water, lakes, and streams). We will make greener cleaners and the kids will learn about biodegradable products versus toxic ones. We will make our labels from paper that we make from old newspaper, or recycle our old homework to make labels. Bottles will be spray bottles that have already been used for cleaning products.

- We will **reduce** the amount of pollution we use when we clean our homes.
- We will **reuse** old spray bottles to hold our new cleaners.
- We will **recycle** paper to make new labels for our products.

Initial Discussion:

Ask kids- What are some of the cleaning supplies they use in their homes?

Where do they end up? We will talk about the 'Dirty Downstream' exercise they did before and the kids will remember that the pollution traveled into the stream. We will talk about how toxins make their way into the environment (ground and water).

Procedure:

- 1) Give the kids a list of ingredients and tell them that they are going to make greener cleaners. Why are the materials listed better for the environment? (Introduce some vocabulary- biodegradable, nonrenewable, natural resources, conservation)
- 2) Tell them that they should invent a biodegradable cleaning product.
- 3) Let the kids know that they may use any of the ingredients they would like (but not to mix the vinegar and baking soda).
- 4) The kids should hypothesize which ingredients (combination and amount) will create the best cleaner.
- 5) The kids should experiment with different combinations and test their product ideas on a dusty surface.
- 6) Once the kids are comfortable with the cleaner they have created they should make a label for their product out of recycled paper (That they have made) or a piece of paper that they have used previously in another assignment.
- 7) The label should have: a name, directions, cautions (how do these compare to non-biodegradable cleaning products?), and a weight in ounces
- 8) Kids should make a commercial and sell their product. We will ask them about how their product compares to the non-biodegradable product it replaces?

Target Observations:

- Biodegradable products are better for the environment than toxic substances.
- Pollution from humans travels into the ground, water, and air.
- We are the solution to pollution – we can choose to reduce, reuse and recycle.
- Conservation of our planet is good for all of its inhabitants

Summary & Discussion:

Students may discuss other concerns they have about the environment. What sources of pollution do they notice the most? What is the solution?

OR

They may want to show their commercial to another classroom or their parents and explain why biodegradable products are good for the environment. They could do this in person or by writing a letter (on recycled paper).