Haliburton-Muskoka-Kawartha children's water festival

Being clean on a clean conscience: WATER TECHNOLOGY

AREA BEST LINKED TO

City of Kawartha Lakes, County of Haliburton and the District of Muskoka

OBJECTIVES

- To enhance students' awareness of the environmental contamination, and more specifically the contamination of water resources, that is a result of regular household cleaning products.
- Facilitate student learning and the learning of the surrounding regions' residents through the students about household cleaners that are less harsh on our water sources

MATERIALS

- Small containers
- Newspapers
- Rubber gloves
- White vinegar, baking soda, water, borax, etc (these items will vary depending on recipes selected)
- Small spray bottles
- Sponges
- Markers
- Poster paper and board
- Fold up tables
- School gymnasium or an adequate space to hold your workshop and guests
- Label stickers the appropriate size for containers and spray bottles

CURRICULUM LINKS

GRADE FOUR:

Arts:

- D1.2 demonstrate an understanding of composition, using selected principles of design to create narrative art works or art works on a theme or topic
- D1.3 use elements of design in art works to communicate ideas, messages, and understandings

Science:

- 1.1: Analyse the positive and negative impacts of human interactions with natural habitats and communities
- 2.1: Follow established safety procedures for working with soils and natural materials (e.g., wear gloves when handling soils to set up a working terrarium)
- 2.6 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes
- 3.10 describe ways in which humans are dependent on natural habitats and communities (e.g., for water)

Mathematics:

- compare and order fractions (i.e., halves, thirds, fourths, fifths, tenths) by considering the size and the number of fractional parts (eg., 4/5 is greater than 3/5 because there is more parts in 4/5; 1/4 is greater than 1/5 because the size of the part is larger in 1/4)
- compare fractions to the benchmarks of 0, 1/2, and 1 (eg. 1/8 is closer to 0 than to 1/2; 3/5 is more than 1/2)

GRADE SIX:

Arts:

- D1.2 demonstrate an understanding of composition, using selected principles of design to create narrative art works or art works on a theme or topic
- D1.3 use elements of design in art works to communicate ideas, messages, and understandings

Science:

- 2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes

BACKGROUND INFORMATION

BACKGROUND INFORMATION:

Throughout the City of Kawartha Lakes, the County of Haliburton and the District of Muskoka a disconnection and lack of understanding regarding the treatment and distribution process that wastewater and drinking water undergoes is prevalent. Some individuals of these regions are unaware of what it takes to maintain good quality water and therefore do not recognize how some activities they take part in might be damaging to the environment.

Many common household products used for cleaning our homes and bodies have the opposite effect on our water. Whether we put it in our hair or in our toilet, items like dyes and detergents for example, regularly contaminate aquatic ecosystems placing a burden on our aquatic plants, fish and wildlife. Many household cleaning materials are of the most toxic substances found in the average home! They can also be difficult to remove during wastewater treatment processes and can even be detrimental to the health of beneficial bacteria that live and are used at wastewater treatment facilities and in septic tanks to help digest pathogens. To make matters worse, disposable "convenient" counter, stove, toilet etc. wipes are becoming increasingly popular to use and... You guessed it, flush. This is not only wasteful; all of these products need to be removed from wastewater.

This activity is meant to introduce students to recipes for homemade alternatives to harsh household products that we commonly use for everyday hygiene and cleaning. They will then share their new knowledge and recipes with their school and broader community through a fun and informative workshop.

INSTRUCTIONS

This activity is centered around two major components; that of making environmentally friendly products from scratch and organizing a work shop to engage and educate the broader community about the benefits of these alternatives and how to make them. Discussion with the students regarding the workshop guests, advertising, location, etc is fundamental and possibly a lengthy process and should be the first step.

OPENING DISCUSSION

- Describe the impact of household products on aquatic ecosystems and overall water quality. Introduce the option of making alternative products from common household items and the environmental advantages of doing such. See the table provided.
- Discuss with class the idea of educating the rest of the community through an open information workshop. Begin to brainstorm where the workshop could be held, how it should be advertised, what audience they wish to target (fellow students, parents and the general public, all ages, etc.), how they will delegate responsibilities and so forth.

ORGANIZE WORKSHOP

- Decide the nature of the workshop. This decision will be influenced by the desire of the teacher and students. There may be separate workshop stations where a different product can be featured at each table or the class may decide to do a demonstrative presentation for example. Tailor the workshop style to the class' strengths and the desired audience.
- Determine and finalize who, where, when and how everything that was discussed in step 2 above will be addressed. For more information on making the right choice regarding guests, how to appeal to your desired audience, selecting the right location, etc. see the "Additional Resources" section below.
- Advertise. Create workshop flyers and start informing the rest of the school and community of this event.
- Select which alternative cleaners would be most feasible to distribute. Prepare cleaner samples and kits using the recipes below, spray bottles, containers, sponges and appropriate labels.
- Develop an educational handout for workshop participants. This document would outline information that the class deems most important for workshop participants to take home with them.

ENVIRONMENTALLY SOUND PRODUCTS

Product	Recipe	Use
All Purpose Cleaner	• ½ cup vinegar • ¼ cup baking soda (or 2 tsp borax) • 2 litres water	Can be stored and kept. Use on shower door windows, mirrors, windows, facets, etc.
Deodorizer	• 1 tsp baking soda • 2tbsp lemon juice • ½ cup vinegar • Enough water to fill the rest of bowl	Put small bowls of mixed deodorizer around the house to absorb unwanted odours.
Drain cleaner	• ½ cup salt • 4 litres hot water • Or for tougher to clean Metal drains: • ½ cup baking soda • ½ cup vinegar	Mix and pour down drain For second recipe, pour vinegar and baking soda directly down drain. Wait for 15 minutes and pour boiling water into drain.
Furniture Polish	• 1 cup olive oil • ½ cup lemon juice	Pour ingredients into a spray bottle and shake. Spray onto rag and wipe evenly over wooden furniture.
Oven cleaner	Baking soda and vinegar	Generously sprinkle baking soda over area. Apply vinegar from spray bottle (enough to moisten baking soda). Let set and scrub with a scrub pad
Spot remover for linens	Club soda	Apply directly to spots on linens, clothes and carpets. Dab to dry.
Glass and window cleaner	Vinegar and newspaper	Crumple up newspapers into ball and spray vinegar from a spray bottle onto windows and mirrors. Wipe in circular motions.

RESOURCES/REFERENCES

- Frugal Homemade Household Products Guide: **http://www.frugalicity.com/home-made.html**
- Non-toxic Home Cleaning: **http://eartheasy.com/live_nontoxic_solutions.htm**
- Home Made and Eco Friendly Cleaning Solutions: **http://mommyfootprint.com/home-made-eco-friendly-cleaning-solutions/**
- Planning a Workshop: **http://www.mindtools.com/pages/article/PlanningAWorkshop.htm**

FEEDBACK

We appreciate your feedback! Please let us know…

- Did this activity continue the learning your students engaged in at the Water Festival?
- What curriculum requirements did this activity satisfy?
- Was the activity easy to facilitate to your class?
- Did students have fun and learn something new about water?
- Please send photos of your class using these activities!

Please send comments and photos to: **iheaven@outtolearn.ca**

Above activities researched and organized byTamara Tucker and Lauretta Dunford, Trent University.