What Can I Do? – Environmental Concerns

Activity Information

Grade Appropriate Level: 2 & 3
Duration: two-40-minute periods and an overnight homework activity
Materials: reading & resource books, newspapers, magazines
Brainstorming activities – chart paper & markers, beach volleyball with globe markings, chalk
Water demonstration – 5-gallon pail, eye dropper, worksheet, crayons (green, yellow, blue)
Extension activity – 10-12 2L milk cartons, potting soil, grass seed, water & scissors

Objectives

To teach the students what our environment is, how important it is to us and how we can help to keep it clean and safe. Since water is one of the most important parts of our environment, we will be discussing what they can do to make sure we have safe water in the future.

Prescribed Learning Outcomes

Social Studies, Language Arts, Mathematics
Students will be able to:

- demonstrate an understanding of their responsibility to local and global environments
- understand that they can make a difference in their own environment
- be able to generate ideas that they can use to improve their environment
- display and analyze data through graphing

Skills

Think critically, creatively and reflectively, communicate, hypothesize, ananlyze, interpret

Introductory Activity

- In order to gain their attention and introduce the topic of the lesson, the teacher should engage the students in a simple game of beach volleyball.

The ball should have the markings of a basic globe on it. The purpose is to get a quick prediction of how much of the world is water.

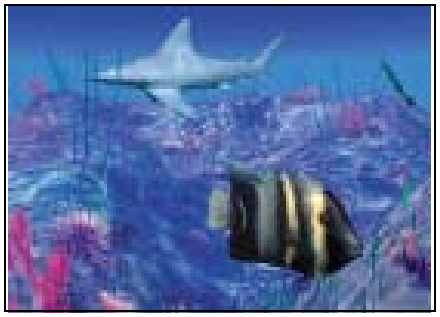
- The students toss the ball from one person to the next. Each person catches the ball and reports to the teacher whether their right pinky finger is on water or land.
- The teacher keeps a running tally on the chalkboard for everyone to see. This is a fun activity, but the results will show that the majority of the earth's surface is actually water.

Suggested Instructional Strategies

- Assess previous knowledge. Have the students brainstorm what they feel is included in their environment. Discuss the differences and similarities of their personal environments. The similarities should be guided toward their physical environments that would include all three aspects of water, land and air, but for the next few lessons we will be focusing on water.

- A visual learning activity for the students.
  Prepare a quick demonstration of the quantity of drinkable water in the world. Fill a 5-gallon pail with water and have the students predict the percentage of each type of water found on the Earth. They will use the worksheet, "Were you Aware?" (adapted from Isherwood, 1996) to record their predictions. They will record the amount of salt water on the graph in green, yellow for the fresh water in glaciers and polar icecaps and blue for the fresh surface and ground water.

Discuss the results. Have the students fill in the graph on the right-hand side of the page. Salt water makes up 97% of the Earth's water (green), 2% is fresh-frozen in glaciers and the polar icecaps (yellow) and only 1% is drinkable fresh, surface and ground water (blue). In order to emphasize how small 1% really is, fill an eyedropper with water from the 5-gallon pail and squeeze 5 drops onto your hand as the students count.



5 drops from a 5-gallon pail is proportionate to the 1% of the world's water that we can drink.

- Overnight homework. In order to have students make the connection between what they are learning at school and how this is important to them at home, the students will be required to complete a homework activity involving water usage. When they brush their teeth before bed, they are to collect and measure the amount of water used if the tap is left running. (A large pot may be necessary.) The next morning, they are to again collect and measure the water, but they are to turn the tap off between rinses. Try using the same pot to see the actual difference. The water from both experiments can then be poured into a measuring container with litres marked on it to show the numerical amounts. At the beginning of the next class, they will compare the data individually and collectively. As an extension, they could multiply the students' results by the population of the school or even the population of the whole town; a great math assisgnment.

- Reinforce understanding. Now that the students know the actual quantity of usable water in the world and they have experimented to see how much water they waste, focus them back to the brainstorming that was conducted at the beginning of yesterday's lesson. Ask the students to develop any questions they have about the environment under the heading of *water*. (For example, Are we wasting too much water? How can we reduce the water we are using?) Divide the students into small groups and have them develop more questions and then problem-solve possible solutions to their questions. After 10-12 minutes, have the students get back together to share and discuss their solutions. Record all of the group's suggestions together on chart paper and put on display.

- Modeling the assignment. Display pictures depicting proper and improper uses of water. Sources could include library resource books, magazines, newspapers, personal drawings, as well as age and reading level appropriate books and brochures or corporate material from industry, government and conservation groups. Have students explain what they see in the pictures and discuss the different ways water is being properly

or improperly used. Using available resources, they can find pictures that could be added to the sample set and condensed into a collage.

- Application of learning. Once it is clear that the students understand the assignment, divide the class into small groups and give them 20 minutes to complete their collages. After the allotted time, display the collages and allow students a few minutes for viewing and discussion amongst themselves.

- Closure. Bring the students back together for a group discussion of the proper and improper uses they discovered when completing their collages. Determine if there are ways in which we could improve our use of water at school or in our homes. Discuss what differences there would be in our environment, if everyone in his or her town tried saving water in only one way. How does a lack of water affect towns or villages in places like Africa or India? What happens to the population and the animals if there is no available water for drinking or to grow crops? Why do North Americans waste so much water?

- Application. In order to apply what they have learned, students will write in their Journal five things that they could do in their personal environment to help conserve water. They should not only list what they could do, but explain how they will perform the tasks and how they will motivate their families, friends, and neighbours into joining their plan. Encourage students to contact by phone or e-mail world groups such as Unicef or Doctors without Borders to find out how important fresh drinking water is to a village in Africa. Invite someonefrom this group to speak to the students about how people cope without regular access to water and how far they must walk to the nearest water supply.

Suggested Instructional Strategies

- During the small group brainstorming session look for evidence that they are able to identify environmental issues and suggest appropriate and feasible solutions to the problems. They should also display the proper behaviour when involved in group activities (for example - listening and accepting others' opinions and presenting/sharing their opinions).
- Criteria for assessment of water collage: All pictures should be presented under the appropriate heading (for example, Proper/Improper uses of water). There are to be very few repetitive pictures. The collage is to be completed neatly and in an organized fashion. During the discussion of the collages, listen for recognition of different ideas and discussion of validity of others' work.
- In their Journal writing activity, (which can be completed on the computer as well) the teacher should look for five feasible activities a student could do to improve water usage in their own homes. They should also have a logical strategy in place for fulfilling each activity. A couple of weeks later, the students can again write a journal entry outlining their progress, or lack thereof, in conserving water. If they do not show significant progress, ask them to explain what kinds of barriers and challenges they faced. Ask students to help by suggesting solutions.

For additional extension activities, teachers may want to order FORED BC's Water: Sharing our Precious Resource from the BCTF lesson aids catalogue, Primary/Primaire
BCTF catalogue #8568

Water: Sharing our Precious Resource
Author: Produced by FORED BC, published: 2001, Price: $14
Description: This resource kit, produced by FORED BC in cooperation with government agencies, business, environmental groups and others, contains lesson plans, activity and colouring posters, a workbook, stickers and fact sheets. Students are introduced to concepts including stream or pond ecology, watersheds, energy, water quality and water conservation. If students have access to a pond or stream, they can test the cleanliness of water and investigate the various forms that energy takes. The curriculum links are in the package. Audience: K-3

Cross-Curricular Interests

Science-Technology-Society
Environment & Sustainability
Information Technology
Multiculturalism

Suggested Links

http://www.gvrd.bc.ca/water/residential-conservation-initiatives.htm
http://www.gov.bc.ca/bvprd/bc/channel.do?action=ministry&channelID=8395&navId=NAV_ID_province
http://www.watercan.com/kids/index.shtml
http://www3.gov.ab.ca/env/water/index.cfm
http://www.ec.gc.ca/water/en/manage/e_manag.htm
http://www.glacier.rice.edu/land/5_tableofcontents.html
http://www.galenfrysinger.com/blue_nile_ethiopia.htm

Lesson plan submitted by: Paula Barchard
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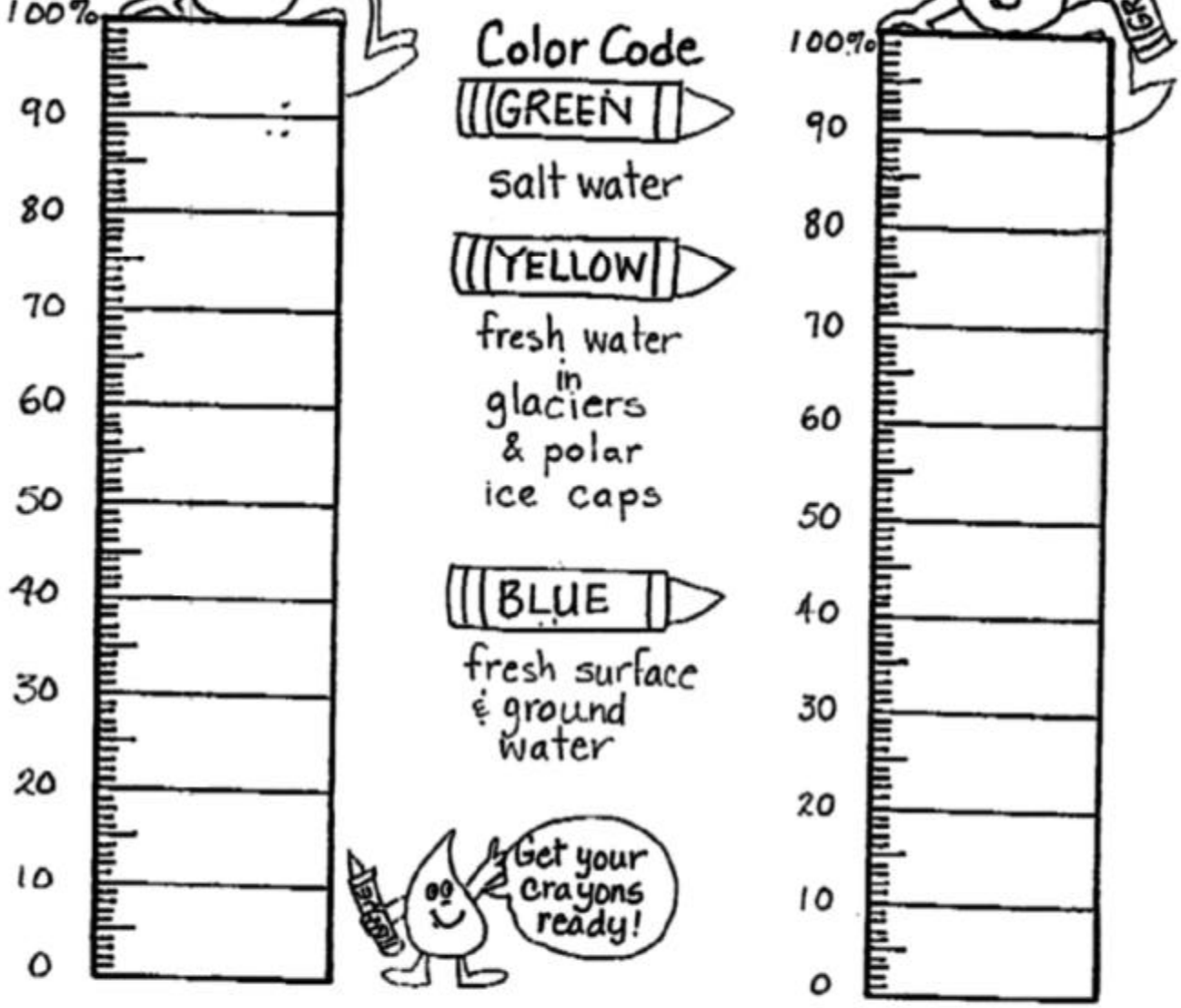
Were You Aware?

There are 3 different types of water available on Earth: salt water, fresh water in glaciers and polar ice caps, and surface & ground water.

Predict the % of each type of H_2O found on Earth.

Actual Data: Color in the actual % of each type of water found on Earth.



Color Code

GREEN — salt water

YELLOW — fresh water in glaciers & polar ice caps

BLUE — fresh surface & ground water

How much of our world is water?

land

water