



Environment
Canada

Environnement
Canada

Let's Not Take Water For Granted

A R E S O U R C E G U I D E

FRESHWATER SERIES

Canada

Produced by authority of
the Minister of the Environment

© Her Majesty the Queen in Right of Canada, 2006.

A resource guide targeted at educators (Grades 5, 6, and 7)

This material may be reproduced for educational purposes; a line crediting Environment Canada would be appreciated.

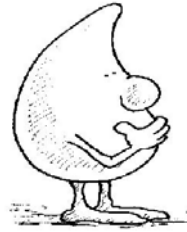
TABLE OF CONTENTS

	Page
FOREWORD	v
INTRODUCTION	1
TOPIC 1. WATER — NATURE'S MAGICIAN	
Chapter 1(A): Water — Visible and Invisible	5
• looks at the properties of water, the importance of water to life, and the significance of water being around for over four billion years.	
Chapter 1(B): The Hydrologic Cycle	17
• reviews the hydrologic cycle and emphasizes the endless and continuing motion of water molecules.	
TOPIC 2. WATER — HERE, THERE AND EVERYWHERE	
Chapter 2: Water — Here, There and Everywhere	29
• provides an appreciation of the quantity of water Canada has in its different regions and in relation to other countries of the world.	
TEST 1	43
TOPIC 3. CLEAN WATER — LIFE DEPENDS ON IT!	
Chapter 3(A): Are You Sure It's Good?	49
• provides information about the concept of water quality — how we measure water quality and why we need to maintain water quality.	
Chapter 3(B): Pollution	59
• provides an overview of the different ways we pollute our water resources and focuses on our role in actively cleaning up.	
Chapter 3(C): How Is Water Treated?	73
• reviews the water cycle created by humans to treat our water supply both before and after use.	
TEST 2	83
TOPIC 4. WATER WORKS!	
Chapter 4(A): One Resource — Many Users	89
• reviews the instream and withdrawal use of water and compares Canada's water use with that of other countries.	
Chapter 4(B): What Will This Cost Me?	103
• illustrates that Canadians get a bargain with their water and explores whether we would use and waste less if we paid a more realistic cost.	

	Page
TOPIC 5. GROUNDWATER — NATURE'S HIDDEN TREASURE	
Chapter 5(A): Groundwater — I Dig It!	115
• examines the extent and importance of groundwater in Canada.	
Chapter 5(B): Groundwater — Why We Should Be Concerned	129
• describes how we threaten our supply of groundwater and discusses how we can lessen the stress on this resource.	
TEST 3	137
TOPIC 6. WATER CONSERVATION — EVERY DROP COUNTS!	
Chapter 6: Water Conservation — Every Drop Counts!	143
• reinforces the notion that water is a resource that needs to be wisely used — and that wise use begins with each individual.	
TEST 4	159
TOPIC 7. WATER, ART, AND THE CANADIAN IDENTITY	
Chapter 7: At the Water's Edge	165
• looks at water's role in shaping the identity of Canadian society through art — painting, literature, poetry, and music.	
TOPIC 8. WATER — THE TRANSPORTER	
Chapter 8: Water — The Transporter	179
• describes water's role as a transporter of sediment and the impact of this role on the environment.	
TOPIC 9. WATER — VULNERABLE TO CLIMATE CHANGE	
Chapter 9: Water — Vulnerable to Climate Change	189
• explains the impact of climate change on water resources and the link between climate change and human activity.	
TEST 5	205
VOCABULARY	213

Let's Not Take Water For Granted

FOREWORD



Purpose

Let's Not Take Water For Granted has been written to help classroom teachers of grades 5, 6, and 7 use the information from the *Water Fact Sheets* and *A Primer on Fresh Water: Questions and Answers* produced by Environment Canada.

The teaching suggestions, reading material, and learning activities require little or no preparation time and are designed to be “teacher-ready.” A number of activities in cross-curricula areas have been developed to meet a variety of teaching and learning styles. Teachers are encouraged to copy or adapt any of these activities and incorporate them into the curriculum.

Philosophy

The guiding philosophy behind the development of these materials is to build an awareness of “good environmental citizenship.” The learning activities will provide the students with the basic knowledge to help them develop skills for positive action. Whenever possible, you are encouraged to promote this approach.

Format

The topics in the resource guide correspond to the order of the *Water Fact Sheets*. The materials are also cross-referenced with *A Primer on Fresh Water* and other Environment Canada publications.

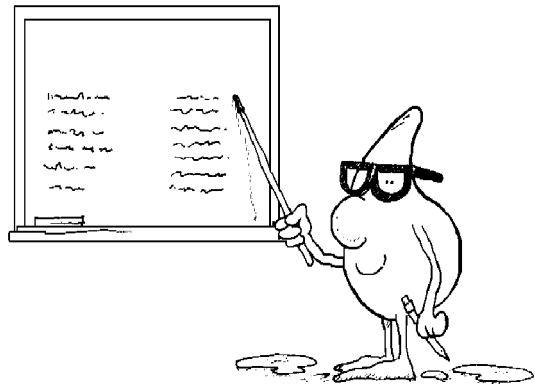
Within each topic, there are chapters consisting of teaching suggestions, Student Information, and Learning Activities. Tests are included to check the students’ knowledge after completing one or more of the topics.

Throughout the resource guide, certain words in the Student Information and Learning Activities sections have been highlighted. These words correspond to the vocabulary list for each chapter and to the words in the vocabulary section at the end of the guide.

INTRODUCTION

To the teacher

This introductory section has been included to provide an overview for your students about the importance of water in their lives. As the students proceed through the topics you select, they will learn more about water in Canada, how we use it, and its important contributions to the lifestyle we enjoy in Canada.



Students can become interested in water because it is such an important part of their everyday lives. At the same time, they can also become concerned about pollution. The activities with each chapter will give them lots of opportunities to think about their own roles as good environmental citizens.

Before you begin, please become familiar with these materials and look for opportunities to integrate the subject matter into your curriculum.

Introductory activities

To help focus the students' thinking about water, try one or more of the following class activities and allow time for discussion and questions.

Activity 1 — Check Your Water Values

- Ask the students to take a few moments and list ten things that they really value, for example, family, friends, pets, etc.
- Ask them to rate their choices in order of importance. When they have finished, ask: Does water appear on the list? Where? Why did you place it where you did? If not, why not? (Give them an opportunity to write it in if they simply forgot to include it.)
- Discuss: Some people in the world would place water #1 on their list. Can you think of reasons why they would do this?
- Ask: Who would probably place a higher value on water, someone from Saskatchewan or Nova Scotia? From Canada or the Sahara Desert? Why?
- Ask the students to think about the following situations — even if none of these has happened to them personally, they should be able to imagine.
 - Have you ever been in a situation where your water supply has been contaminated? dried up? frozen? Have you ever had to carry buckets of water for a long distance? What did you learn from your experience? If this has not happened to you, imagine what it would be like.
 - You might point out that in certain parts of the world where water is very scarce, people their age spend a part of their day carrying water from a well to their homes sometimes the distances are quite long and often the water is not clean.
 - Summarize by asking them to volunteer endings for the following sentence: “Water is important because”

Activity 2 — Remembering Water

Here is a chance to get the students thinking about the importance of water in their lives and to have fun testing their memory. Before they begin, remind them that water comes in three main states:

1. liquid (rain)
 2. solid (snow, ice, etc.)
 3. gas (vapour, steam)
- Ask students to sit in a large circle.
 - Write the two following sentences on the board:
 - “ I like water because”
 - “ I use water to” (One use only.)
 - Tell the students they are to choose one of the sentences and when their turn comes in the circle, they will have to complete the sentence.
 - But, it’s not quite that easy. They have to repeat the sentence completions of those who have gone before them.
 - When it becomes too much to remember, start again and add variety by completing other sentences, for example, “Other people use water to”

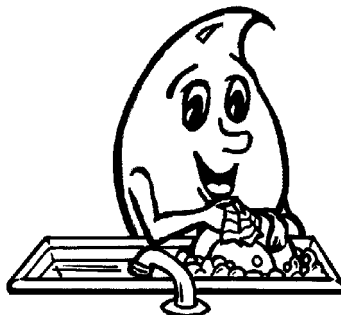
Activity 3 — What? Me Without a Dishwasher?

Point out to your students that 100 years ago life was different from today. Most of the conveniences we enjoy and take for granted simply did not exist then.

- Write the following list on the board:
 - ▶ hot water supply
 - ▶ bathing
 - ▶ dishwashing
 - ▶ clothes-washing
 - ▶ bathroom
 - ▶ lawn-watering
 - ▶ swimming
 - ▶ car-washing
- Ask the students to read the list and think about one sentence they could use to expand on one of the topics. If you need to, guide their thinking with some questions: How do you get hot water? Do you have a dishwasher or do you wash dishes in the sink? Do you swim in a pool or at a nearby lake, river . . . ?
- Get the students thinking about water supply 100 years ago with a few simple anecdotes. For example,
 - ◆ if a fire broke out today, a fire truck would likely be at the site in little time. A hundred years ago many fires were put out by a bucket brigade. Describe a bucket brigade to them.
 - ◆ Washing clothes was more than simply tossing the duds into the suds. Someone, usually the mother, had to heat the water on the stove,

scrub the dirty clothing on a washboard, and hang all pieces out on the clothesline. Then she would have the fun of ironing it. The students might be interested in knowing that today the washboard is used as a musical instrument in some offbeat bands.

- ◆ People 100 years ago did not have to wash the car — there was probably no car to wash. But, they might have had to scrub down old Dobbin.
- ◆ In many places the lawn-mowing was done by the sheep; and if the grass did not get water, too bad.
- ◆ Most people took a bath once a week - usually on Saturday night in a huge tin bathtub dragged into the middle of the kitchen. Water had to be heated on the stove.
- ◆ No one worried about cleaning the swimming pool. If the weather got too hot there was the local swimming spot.
- ◆ If people were really lucky (and rich), they had one indoor bathroom. Most people, however, had outdoor bathrooms (if you could call them that). No one lingered long in an outhouse, so family squabbles were at a minimum over that issue.



DISCUSSION

The importance of this introductory section is to get the students thinking about water and the part it plays in their lives. Water affects so much of what we do that we tend to take it for granted, and we tend to waste it. We all need to become better environmental citizens, and part of this process is knowing and understanding more about water so that we can take responsible action.

Point out to the students that apart from keeping us clean, we would not get very far without water. Simply put, we could not survive without water. As Canadians we are luckier than many people in other parts of the world in terms of our supply of water, but we are not without concerns. We do have more water than most nations, but it is not available to all of us in the same amounts. These amounts vary from region to region, and they vary by seasonal changes which bring us floods and droughts. Discuss with them the many ways that water is important to us, for example:

- our bodies are two-thirds water
- water helps in producing food and energy
- water is a source of recreation
- water keeps us clean