A Water Conservation Resource Kit for Teachers K – 1



Learn. Inspire. Act.

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PLEASE NOTE: Website addresses (URLs) are provided throughout this learning kit for reference and additional research. Every effort has been made to ensure these sites are up-to-date at the time of publication.

December 2013 Edition 2





Welcome to Our Water Matters!

The aim of these action-oriented resources is to provide children with an introduction to water in Abbotsford and Mission and to inspire water-smart practices in the community and beyond.

These B.C. curriculum aligned resources give students the opportunity to:

- Develop an awareness for water as one of Earth's most precious resources
- Gain an understanding for water as a precious and vital community resource
- Explore ways of incorporating water-smart actions in everyday life at home, at school and in the community

Organization

Resources are aligned to B.C's Prescribed Learning Outcomes (PLOs) and the Performance Standards for Social Responsibility. They are organized as follows:

- At a Glance An overview of activities, learning and action outcomes
- Tap Into Water Facts Key facts & information to deliver the lesson
- Ready-to-use classroom worksheets and activities
- A Waterfall of Ideas & Resources Links to more water education resources that include online conservation games, videos, and songs

Meet Mr. BLADE!

Who is he? Mr. Blade is the **Our Water Matters** mascot! He will be helping kids learn about water. He makes a splash on fact sheets, worksheets and coloring sheets.

Mr. BLADE can also make a splash into your class! Please see how to book Mr. Blade for a visit in the following pages.

Be sure to tap into his website at www.ourwatermatters.ca for community water initiatives, updates, and more educational materials.

Thank you for your interest in water and for inspiring your students to use it wisely. **Our Water Matters!**

Invite me to your class. I am busy so book me ahead.

Ö For the Teacher



K – Grade 1: At A Glance

	Activity # & Title	Key Inquiry Questions	Activity Learning Objectives
Overall Objectives:To gain an understanding of the importance of water for all living things	1.Our Water Matters!	What do all living things need to survive?Why is water precious?	 Understand that all humans, plants, and animals need water to survive Develop an awareness that water is precious Develop an understanding of how water is used for every day living
To develop an	2.Where Does My Water Come From?	Where does my tap water come from?How does water get to my tap?!	 Develop a basic understanding of where water in Abbotsford & Mission comes from
awareness for the importance of water in our daily life	3. Be Water Smart – Don't Waste Water!	 How is water used at home in our everyday lives? What can I do to help avoid wasting water? 	 Develop an understanding of how water is used at home and in the garden Explore ways in which water can be saved and not over-used
3 To think of ways in which water can be saved at home	4. Be a Water Detective in Your Classroom!	How much water is wasted per minute from a leaky faucet?	 Investigate any faucet leaks in the classroom Develop an awareness for how water can be saved at school
and at school	5.Using Water at Home	 Am I water smart at home and in my garden? How can I be even more water smart at home and in the garden? 	 Explore ways in which water is used at home and in the garden Think of ways in which water can be saved at home and in the garden
	Do somethin Action Outcom	ng about it! nes:	
	At Home		
Water Detective	• Turn off the tap pr	without the water running! operly after you wash your hands! rts at home and think of ways you can bec	come even more water smart!

Learn. Inspire. Act.

Our Water Matters

For the Teacher



B.C. Curriculum Links	Worksheets, Teaching Aids, Classroom Consumables from the AMWSC
 Science: Describe the basic needs of local plants and animals (e.g., food, water, light) Describe how the basic needs of plants and animals are met in their environment Social Studies: Identify individual human needs 	Teaching Aids: Mr. Blade (mascot) can come into your classroom to launch the Our Water Matters learning kits Student Worksheets: 1. Our Water Matters – Page 6 2. We All Need Water! – Page 7 Classroom Consumables: Refer to the the list of materials at the end of the kit.
 Science: Demonstrate the ability to observe surroundings Describe features of their immediate environment Social Studies: Use picture maps to identify familiar locations in the school or community Identify characteristics of different local environments 	Teaching Aids: Our Water System poster Student Worksheets: Where Does My Water Come From? – Page 9 Classroom Consumables: Refer to the the list of materials at the end of the kit.
 Science: Describe ways to rethink, refuse, reduce, reuse, and recycle Social Responsibility- Exercising Democratic Rights and Responsibilities: Demonstrate an emerging sense of responsibility, generally following classroom rules; able to identify simple ways to improve the school, community, or world 	Teaching Aids: Animated video-The Animals Save the Planet- The Elephant Shower http://www.youtube.com/watch?v=h8Ek3v1RBEU Student Worksheets: 1. Be Water Smart – Don't Waste Water! – Page 12 2. Keep Track of Your Water Smarts – Page 13 3. Design Your Own Water-Smart Door Knob Hanger – Page 14 Classroom Consumables: Refer to the the list of materials at the end of the kit.
 Science: Describe ways to rethink, refuse, reduce, reuse, and recycle Social Studies: Demonstrate responsible behaviour in caring for their immediate and school environments Social Responsibility- Exercising Democratic Rights and Responsibilities: Demonstrate an emerging sense of responsibility, generally following classroom rules; able to identify simple ways to improve the school, community, or world 	Teaching Aids: Leaky faucet, magnifying glasses, plastic cups Student Worksheets: Be a Water Detective in your Classroom! – Good Detective Work Kids! – Page 21 Classroom Consumables: Refer to the order form for a list of consumable items available for your classroom
 Science: Describe ways to rethink, refuse, reduce, reuse, and recycle Social Studies: Demonstrate responsible behaviour in caring for their immediate and school environments Social Responsibility- Exercising Democratic Rights and Responsibilities: Demonstrate an emerging sense of responsibility, generally following classroom rules; able to identify simple ways to improve the school, community, or world 	Teaching Aids: Video Suggestion: Heroes of Water Saving: Water Project H2Ooooh! http://www.youtube.com/watch?v=kp_nyVPK4XQ&feature=related Student Worksheets: 1. Water at Home – Pages 19 & 20 2. Water Drop Pledge (blank) – Page 21 3. Water Drop Pledge (lined) – Page 22 Classroom Consumables: Refer to the the list of materials at the end of the kit.

At School	In the Community
Turn off the tap properly after you wash your hands!Report any leaks to your teacher!	 Inspire other children and adults to conserve water by displaying one of your colouring sheets, water drawings, or pledges.



Water on Earth

- About 70% of the Earth's surface is covered in water. However, 97% of the planet's water is too salty for humans, animals and plants. Another 2% of the water is held as glacial ice at the north and south poles. Only 1% of the Earth's water is available for human use!
- There is no new water. The water that is on the Earth now is the same water that dinosaurs drank.

Water Supply in Abbotsford and Mission

- The Abbotsford Mission Water & Sewer Commission (AMWSC) supplies bulk water to the City of Abbotsford and the District of Mission, who then distribute water to residents and businesses.
- The water supply systems consists of two surface water sources: Norrish Creek and Cannell Lake, 19 groundwater wells, two water storage reservoirs and 86 km of high pressure, steel water transmission mains.
- This system can supply and deliver approximately 150 million litres per day (150 MLD).

Water Use in Abbotsford and Mission

- The population in Abbotsford and Mission is approximately 170,000 (2011).
- The average person in Abbotsford consumes approximately 200 litres of water per day and in Mission the average person consumes about 400 to 450 litres of water per day.
- On an average day, Abbotsford and Mission use approximately 60 to 80 million litres per day (MLD) (based on 2007 to 2011 data). That's enough to fill an Olympic sized swimming pool approximately 25 times!
- The summer consumption can almost double!

Water Use at Home and in the Garden

- Dripping taps are one of the the biggest water wasters. A running tap pours out seven to twelve litres of water a minute!
- Fixing a dripping tap can save up to 300 litres of drinking water per week.
- A leaky toilet can waste up to 2,500 litres of water a day.
- Less than 3% of municipal water is used for drinking, the rest goes down the drain, down the toilet and onto our gardens.
- An average garden hose pours out 38 litres of water per minute! A lot of water can be wasted when gardening or washing the car if you don't turn the hose off.

Sources: Environment Canada, Living Water Smart BC and Abbotsford Mission Water & Sewer Commission

Fun Water Facts!

- All living things need water to survive
- You can live without food for a month, but you can live only a few days without water
- Your brain is 70% water
- A chicken is about 90% water
- A tomato is about 95% water
- A tree is 70% water
- In the summer, one mature pine tree needs about 20-40 litres of water per day!
- More than half of the world's animal and plant species live in water
- All insects need water to survive; even a ladybug drinks water!
- Ducks drink plenty of water so they can swallow their food!

Want to know more about water in Abbotsford and Mission? Visit www.ourwatermatters.ca



Materials:

Learning Objectives:

Understand that all humans, plants, and animals need water to survive

Develop an awareness that water is precious

Develop an understanding of how water is used for every day living

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher • Mr. Blade mascot	1. Our Water Matters (Colouring Sheet) 2. We all Need Water! (Colouring/Drawing Sheet)	Refer to the list of materials at the end of the kit.

Water Talk:

Engage students in Water Talk with the aim of introducing the theme of water. Mr. Blade – the Our Water Matters mascot – can be introduced at this time. Mr. Blade can be invited into the classroom. (Mr. Blade is on a first come, first serve basis and must be booked at least 2 weeks in advance. Contact the City of Abbotsford Engineering Department at 604-864-5514, for more information on Mr. Blade.

Guide the conversation to introduce the following concepts and provide a foundation for:

• Water is Fun!

What do we do with water? We can drink it, play in it, splash in puddles, splash our friends, fill water balloons, swim in it, skate on frozen water, etc.

• All Living Things Need Water to Survive!

What do all living things need to survive? Water! How do plants and animals use water? How do people/you use water? We need water to drink to stay healthy, to wash our hands, to grow food, etc. What would our lives be like without water? Can you imagine that?!

• Water at School and Home!

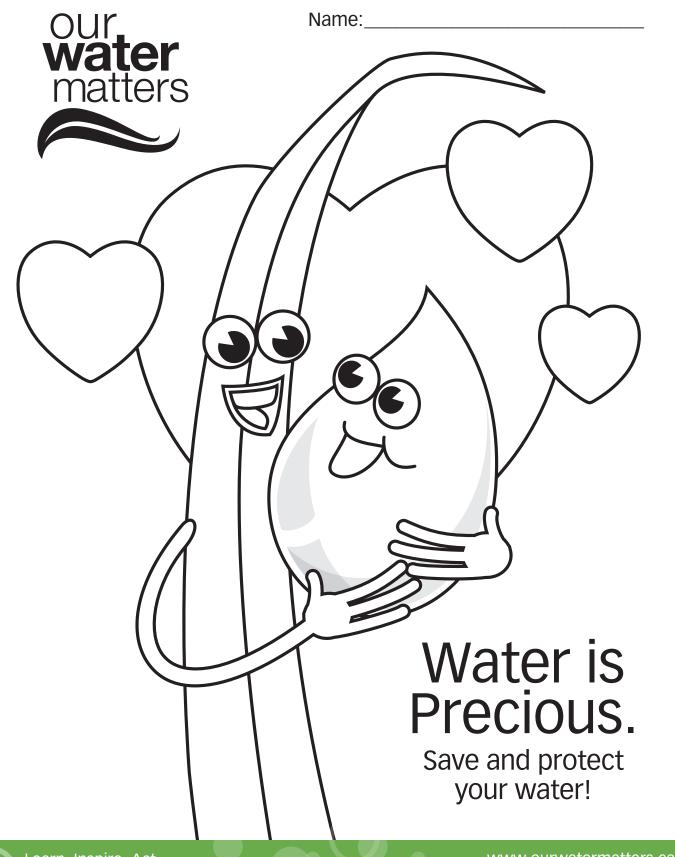
How do you use water at school, at home, and in your garden?

Ask: What would happen if one day you turned on the tap and water didn't come out?! Help!

Lead students to develop an initial understanding that our water matters. It is precious and each one of us needs to work towards caring and protecting our water.

Colouring sheet and/or Drawing: use the colouring sheet Our Water Matters and/or the drawing worksheet We all Need Water!









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Materials:

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher • Our Water System poster	1. Where Does My Water Come From?	Refer to the list of materials at the end of the kit.

Vocabulary: system, source, faucet

Water Talk:

Mr. Blade has a problem that he needs help with. He knows that our water matters because we need water to survive and for so many other things like brushing our teeth, etc. But lately he has been wondering about all the water that comes out of his tap. He is asking himself, "How does all this water get to my tap?!"... I was wondering if maybe we could help Mr. Blade answer his question.

Ask: Who can tell me where our water in Abbotsford/Mission comes from?

Teaching Aid:

Use the poster Our Water System to show the children how water travels from Cannell Lake and Norrish Creek to their homes in Abbotsford & Mission. Point out and discuss the features on the poster including physical features (lakes, rivers) as well as man-made features (Water Treatment Plant and pipes). Assist students in understanding that the water flows downhill from a mountain which is how water flows in a watershed.

Student Worksheet:

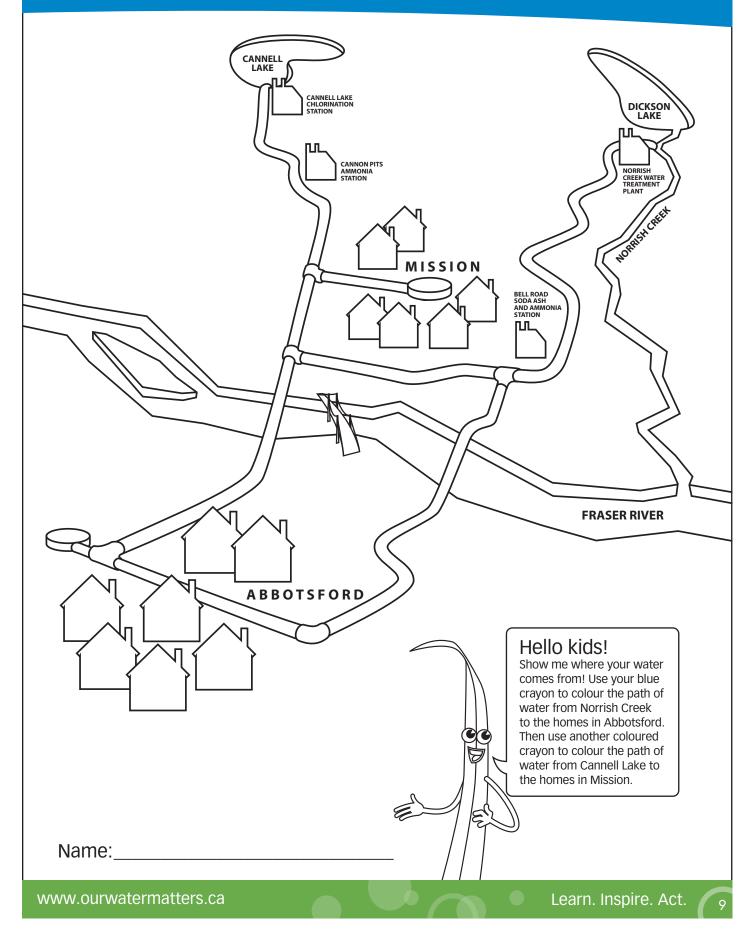
The students are invited to colour the sheet Where Does My Water Come From? showing both paths of water for homes in Abbotsford and Mission.

Learning Objective:

Develop a basic understanding of where our water in Abbotsford & Mission comes from

K – Grade 1: Activity 2 – Where Does My Water Come From? Solution For the Student







Activity 3:

Be Water-Smart – Don't Waste Water!

(suggested time 2x30 minutes plus homework)

Materials:

Teaching Aids	Worksheets		Classroom
reaching Alus	Student Worksheets	Take It Home	Consumables
For the Teacher Video Suggestion- The Animals Save the Planet- The Elephant Shower- http://www. youtube.com/ watch?v=h8Ek3v1RBEU	1. Be Water Smart- Don't Waste Water! 2. Door Knob Hanger	Keep Track of your Water Smarts Students will also be taking home the door knob hanger designed in class	Suggestions: dish squeegee & Moisture Meter. Refer to the list of materials at the end of the kit.

Vocabulary: water smart, conservation

Water Talk:

Lead the students in a discussion to explore how water is used every day at home. Elicit places where water is used at home and in the garden. Lead students into reflecting when, where and how water is often misused, over-used, or wasted. Introduce that being Water Smart means not wasting water and using it carefully. Make a connection between wasting water and brushing our teeth with the water running. This will lead into the Water Smart Door Knob activity.

Assist the students in gaining an initial understanding that water is a precious community resource, it is limited, and we need to use it carefully. Community water needs to be shared. Introduce the word c-o-n-s-e-r-v-a-t-i-o-n.

Suggested Questions:

- How do you use water at home?
- What does it mean to be Water Smart?
- Why is it smart to use only the water you need?
- Can you think of situations in which you may be over-using water? Example: brushing your teeth. What can you do about it?

Video Clip Suggestion:

The Animals Save the Planet- The Elephant Shower. This video highlights the importance of sharing water. This video is an animated short film by the British organization Animal Planet demonstrating how we often over-use water without thinking of others. It highlights a likeable hippo that innocently uses all the water without considering the other animals in the group. *http://www.youtube.com/watch?v=h8Ek3v1RBEU*

Learning Objectives:

Develop an understanding of how water is used at home and in the garden

2 Explore ways in which water can be saved and not over-used

Desired Action Outcome:

Brushing teeth without the water running!



Student Worksheet:

Be Water Smart - Don't Waste Water. Show the worksheet and have students circle all 5 places on the picture where water is not being used wisely. Discuss water-smart actions as possible solutions.

Answers & Water Smart Actions

Circle the following in the picture:

- 1. Brushing teeth while the water is running.
- 2. Filling a bathtub to the top.
- 3. Leaky kitchen faucet.
- 4. Turning on the dishwasher when it is half full.
- 5. Leaking hose outside.

Water-smart actions:

- 1. Brushing teeth with the water off.
- 2. Filling a bathtub part way.
- 3. Fixing leaky kitchen faucet.
- 4. Turning on the dishwasher only when it is full.
- 5. Fixing leaking hose outside.

Other water smart actions to share with your students:

- 1. Use a bowl or put a plug in a sink to wash vegetables
- 2. Use a dish squeegee to scrape dishes rather than rinsing
- 3. Start your dishwasher only when it is full
- 4. Start your washing machine only when full
- 5. Take a short shower instead of a long one
- 6. Fix leaky faucets right away
- 7. Use a rain barrel or bucket to collect rain water and use it to water your plants
- 8. Water your garden only in the morning
- 9. Use a bucket and sponge to wash your car
- 10. Use a broom to clean the driveway instead of a hose

Action Outcome:

Brushing your teeth without the tap running!

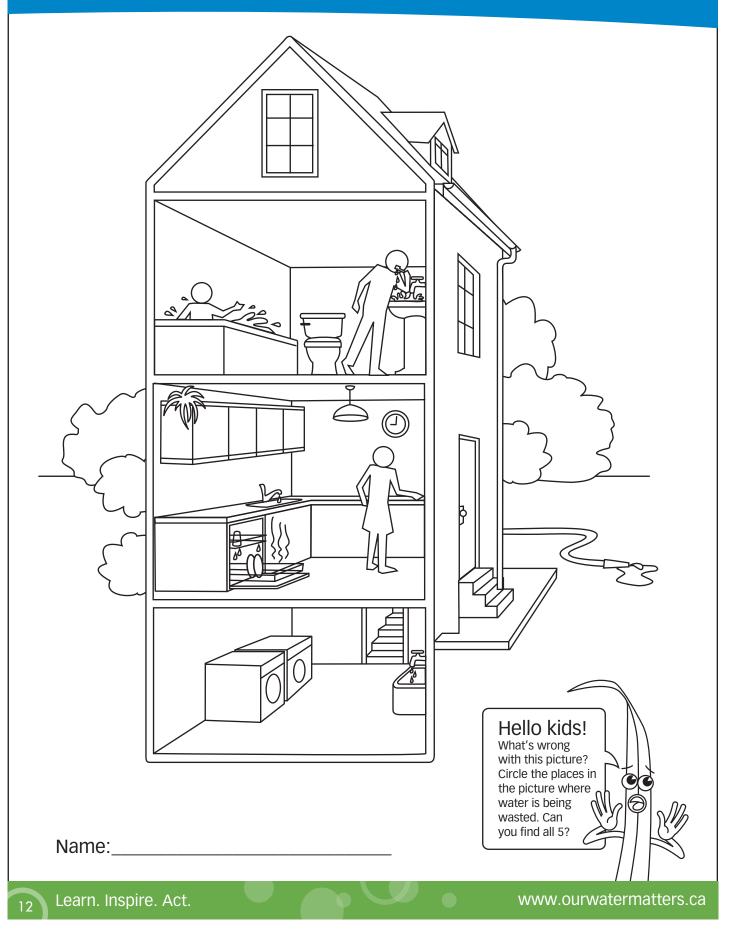
Encourage the students to turn their knowledge into action! Suggest that they commit to brushing their teeth without the water running (only using water to rinse) and that they keep track of the water smart action for a week. See the Student Worksheet: Keep Track of your Water Smarts for a Week.

Student Worksheet:

Design your own Door Knob Hanger Provide the students with the door knob hanger outline. Ask them to design a door knob hanger for their bathroom door to remind them to brush their teeth without the water running. Encourage students to include a drawing and/or brief message e.g. *Don't leave the water running.*

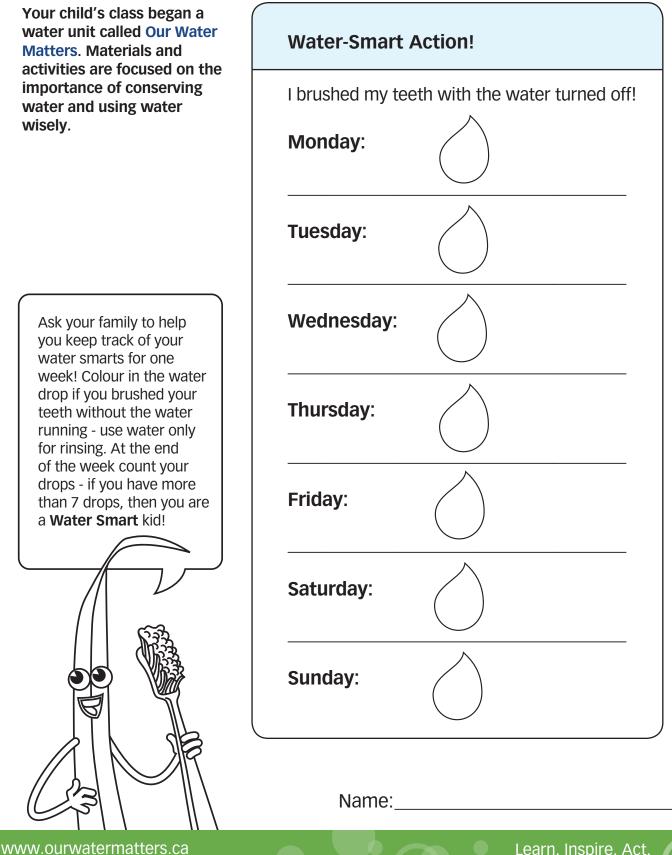
K – Grade 1: Activity 3 – Be Water Smart – Don't Waste Water! Source For the Student





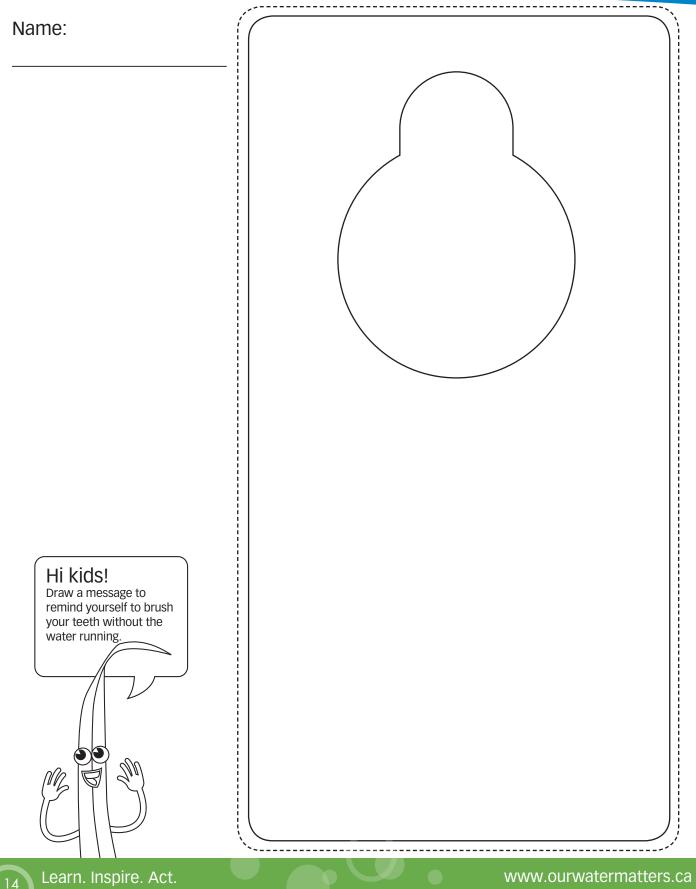
K – Grade 1: Activity 3 – Keep Track of Your Water Smarts! Take it Home





K – Grade 1: Activity 3 – Door Knob Hanger **General Student**







Activity 4: Be a Water Detective in your Classroom!

(suggested time 40 minutes)

Learning Objectives:

To investigate any faucet leaks in the classroom

7	To develop an
	awareness of
	how water can be
	saved at school.

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher Find (or stage a fictional leaky faucet for the short duration of the activity), magnifying glass, plastic cups	1. Be a Water Detective! 2.Good Detective Work Kids!	Refer to the list of materials at the end of the kit.

Vocabulary: faucet, investigate

Water Talk:

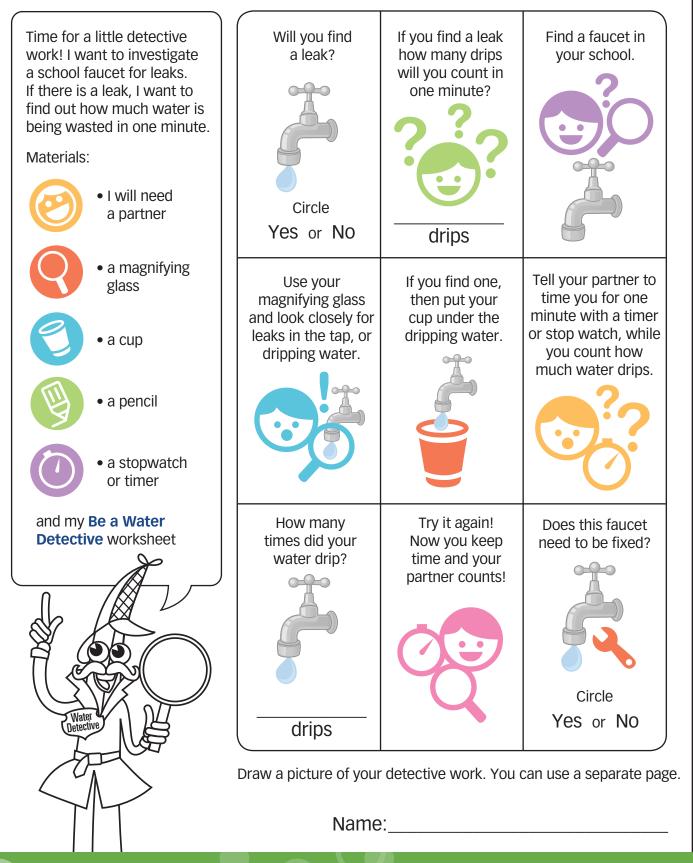
Materials:

This activity requires adult supervision and guidance. In this activity students are checking for possible faucet leaks and how much water is wasted in one minute. Prior to this activity the teacher will need to locate a faucet that the students can easily access, and that has a leak or a slow drip. For the purpose of this activity, the teacher may need to stage a slow drip by turning on the faucet slightly while student complete this short activity.

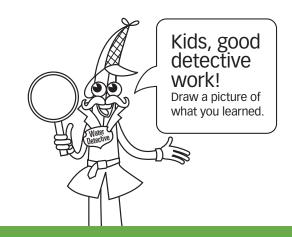
- Tell students that it is time for a little investigation! Provide students with the worksheet called Be a Water Detective! Go over the instructions, objective and details of the activity. Students will need an opportunity to check a faucet in the school or classroom for possible leaks and then complete the student worksheet.
 - 2. Have students follow up this activity by drawing a picture of what they have learned. Students may wish to illustrate the number of drops wasted by a leaky faucet.

K – Grade 1: Activity 4 – Be a Water Detective

Abbotsford Mission Water & Sewer Services







Name:___

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Activity 5: Using Water at Home (suggested time 2x30 minutes in class, a day or two to complete

(suggested time 2x30 minutes in class, a day or two to comple the worksheet *Water at Home* with their family -15 minutes at home)

Learning Objectives: Explore ways in which water is

which water is used at home and in the garden

2 Think of ways in which water can be saved at home and in the garden

Materials:

Teaching Aids	Worksheets		Classroom
Teaching Alus	Student Worksheets	Take It Home	Consumables
For the Teacher Video Suggestion: Heroes of Water Saving: Water Project H2Ooooh! http://www.youtube. com/watch?v=kp_nyVPK 4XQ&feature=relatednyV PK4XQ&feature=related	1.Water Drop Pledge (blank) 2. Water Drop Pledge (lined)	Water at Home	Refer to the list of materials at the end of the kit.

Vocabulary: pledge

Water Talk:

1. Review how water is used in every day life. Have the children take home the Water at Home worksheet

Suggestion- Share a video to introduce the activity.

e.g. Heroes of Water Saving Project H2Ooooo!

A video created in collaboration with the UNESCO Venice Office. It is an animated video that features a little yellow bird named Nameless. He quickly finds & shares water conservation ideas with his friends who all are misusing or wasting water. They respond with positive responses and promises to change their habits.

http://www.youtube.com/watch?v=kp_nyVPK4XQ&feature=related

2. **Water Drop Pledge**- Once the students have returned the Water at Home worksheet they can be given the worksheet Water Drop Pledge to create a visual for the classroom. Students can illustrate or write a short sentence to convey the pledge their family discussed. As an alternative, students may also illustrate their water drop at home with their families.



In the Kitchen: We use our dishwasher only when it's ful	We use a bowl of water or a plugged sink to rinse vegetables.
YES or NO	YES or NO
In the Bathroom:	
We take short 5 minute showers. YES or NO	We turn off taps properly. YES or NO
We brush our teeth without the water run	ning. We fix leaks right away.
YES or NO	YES or NO
Outside: We use a rain barrel or bucket to collect rain water. YES or NO	We use a broom and not a hose to clean walkways and driveways. YES or NO
Your child's class began a water unit called Dur Water Matters . Materials and activities are focused on the mportance of water conservation and using water wisely.	How many times did you circle yes? 8 You are super water smart! 4-7 You are becoming water smart
	0-3 How can you help save water?

K – Grade 1: Activity 5 – Water at Home Take it Home



PART #2

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With your family, decide how you can become even more water smart! Read these additional suggestions or think of some of your own. Decide on an additional water smart action to save water at home.

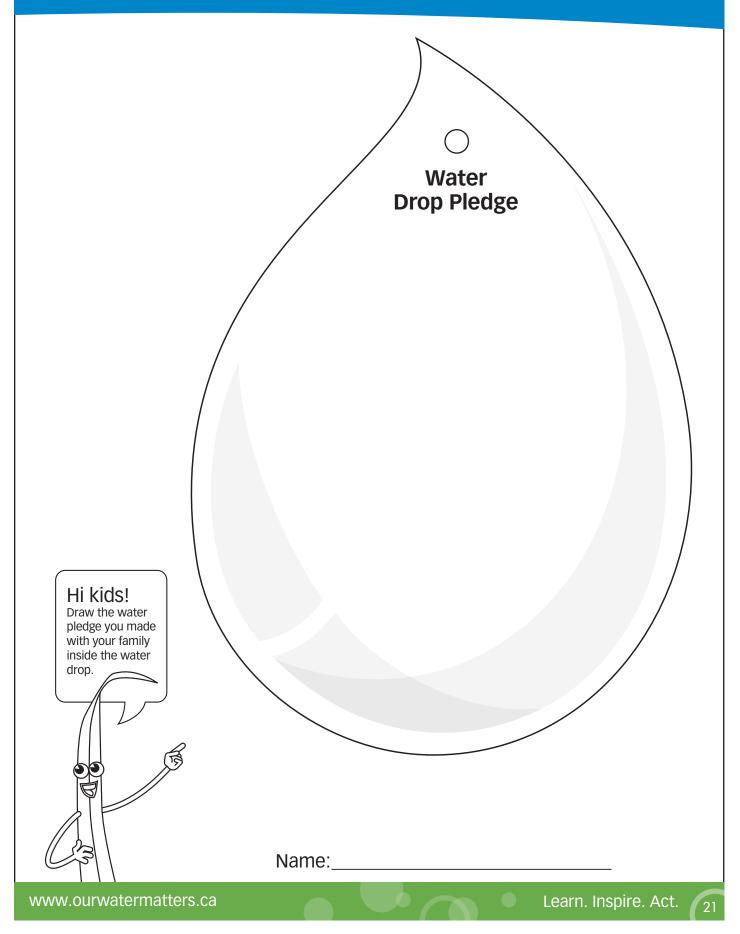
Other Ways to Conserve Water:

- 1. Use a bowl or put a plug in a sink to wash vegetables
- 2. Use a dish squeegee to scrape dishes rather than rinsing
- 3. Only use a full washing machine when doing laundry
- 4. Fix any leaky faucets
- 5. Use a rain barrel to collect rain water
- 6. Follow water restrictions
- 7. Leave your grass at least 3 inches long so that it retains more moisture
- 8. Use a watering gauge to help you water the right amount. Lawns only need 1 inch of water every 7 days
- 9. Use a bucket and sponge to wash your car
- 10. Use a Moisture Meter for gardens

Our Family Water Ple	edge:	
Write your		
family water		
pledge here.		
	Name:	
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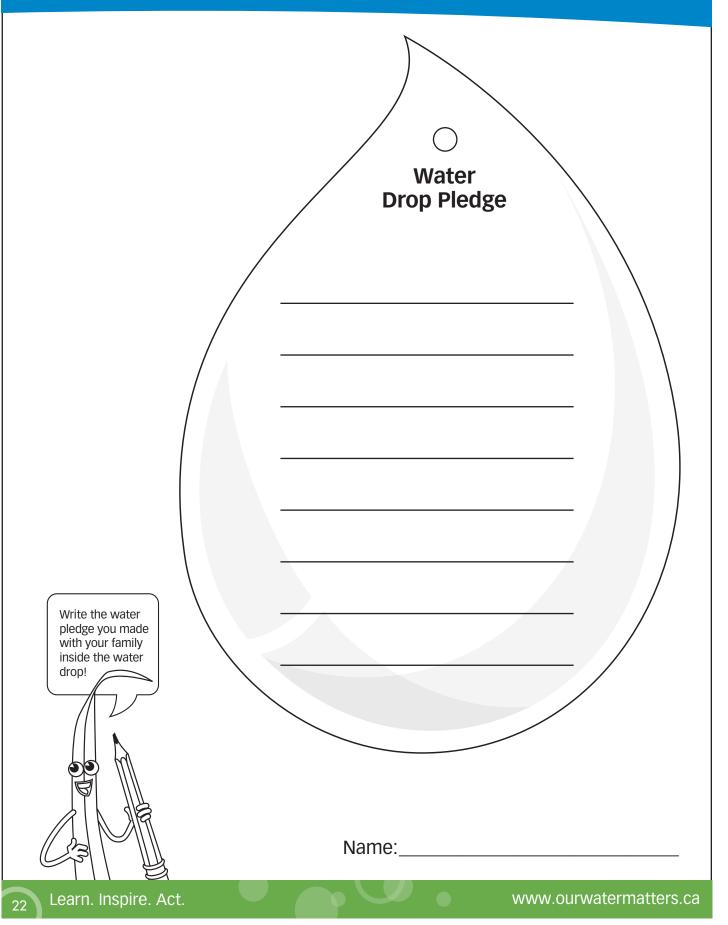
K – Grade 1: Activity 5 – Water Drop Pledge





K – Grade 1: Activity 5 – Water Drop Pledge





K – Grade 1: A Waterfall of Resources and Ideas For the Teacher



Classroom Consumables

The following are available to you to display and use in your classroom:

- Our Water System poster
- Mr. Blade & Toothbrush poster
- Tattoos & Buttons
- Moisture Meter

For more information contact: City of Abbotsford Engineering 604-864-5514 www.ourwatermatters.ca

Beyond the Classroom – Water in Canada and in the World!

- Canada Water Week: http://canadawaterweek.com/
- World Water Day: http://www. unwater.org/worldwaterday/
- Earth Day Canada: www.earthday.ca
- Earth Day in the World: *www.earthday.org*

Check out EcoKids!

Free, environmental education program offering curriculum-linked materials and activities for Canadian elementary schools promoting environmental stewardship: *http://www.ecokids.ca/pub/games_activities/index.cfm*

Splash Out with Water Conservation Games, Videos, Songs & Games

- Canada National Geographic Games and Quizzes
 http://kids.nationalgeographic.com/kids/games/puzzlesquizzes/water-wiz/
- Water Footprint Calculator http://environment.nationalgeographic.com/ environment/freshwater/water-footprint-calculator/
- The Water Wise Family
 http://www.thewaterfamily.co.uk/index2_content.html
- Water Use it Wisely http://wateruseitwisely.com/kids/index.php
- Water Detectives http://www.waterdetectives.com.au/en-au/games.aspx

Videos & Songs

Fun family water conservation games and songs addressing the importance of water conservation:

- Save Water (Go Green!)
 A catchy song and video that highlights some ideas concerning water conservation http://www.youtube.com/watch?v=a_nW4NT5KbA
- Energy & Water Conservation for Kids Water Usage is a video created by Horizon Utilities Corporation Ontario, Canada that highlights several conservation strategies used at home and in the garden. It features talking objects (clothes on a clothesline, a lawn, a driveway) that each speak about how you can help save water http://www.youtube.com/watch?v=LUXYjtHX8wA&feature=related
- Energy Conservation for Kids Water Usage tips http://www.youtube.com/watch?v=Xz8sVG6GVWw&feature=related

More Water Cool Ideas to Inspire your Students to Conserve Water

At School

- Award each water-smart student a Water Smart Certificate (provided in this kit)
- Have students share their water conservation knowledge through assemblies, daily announcements, art projects, poetry and posters
- Global Water! Tap into the Run for Water curriculum at www. runforwater.ca (under schools)
- Invite a Water Ambassador in your Community to come into your class
- Have your students attend a DreamRider Theatre performance on water conservation (During Drinking Water Week in May).

In Your Community & B.C.

- Celebrate your H₂O during B.C. Drinking Water Week! It happens in May every year! For more details visit www. drinkingwaterweek.org and www.ourwatermatters.ca
- Run for clean water in Ethiopia! An event in Abbotsford, visit www.runforwater.ca

For more information contact: City of Abbotsford Engineering 604-864-5514 www.ourwatermatters.ca

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