A Water Conservation Resource Kit for Teachers Grades 2 – 3

our water matters

Learn. Inspire. Act.

www.ourwatermatters.ca

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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
- Field Trip Ideas - promoting real water connections outside the classroom
- A Waterfall of Ideas & Resources – Links to more water education resources to 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 in the following pages.

Be sure to tap intohis 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!**

our water matters

Grades 2–3 At A Glance

For the Teacher

Overall Objectives:

1. To gain an understanding of the importance of water for all living things
2. To develop an awareness for the importance of water in our daily life
3. To think of ways in which water can be saved at home and at school

Activity # & Title	Key Inquiry Questions	Activity Learning Objectives
1. Our Water Matters!	• What do all living things need to survive? • Why is water precious and limited?	• Understand that all humans, plants, and animals need water to survive • Develop an awareness that water is a precious and limited community resource on Earth • Develop an understanding of how water is used for everyday living
2. Where Does my Water Come From?	• Where does my tap water come from? • How does water get to my tap?!	• Develop an awareness of where water in Abbotsford & Mission comes from • Recognize and locate landmarks such as Dickson Lake, Cannell Lake and Norrish Creek on a poster
3. Be Water Smart – Don't Waste Water!	• Why is water important in my community? • What is Conservation? • How can I conserve water at school, at home and in the garden?	• Develop an understanding of how water is used at home and in the garden • Develop an understanding of why water conservation is important in Abbotsford & Mission • Explore ways in which water can be saved and not over-used
4. Be a Water Detective in Your Classroom!	• How much water is wasted from a leaky faucet in one minute? • Where and how can we avoid wasting water at school?	• Investigate faucet leaks in the classroom • Develop an awareness for how water can be conserved at school
5. Using Water at Home	• Am I water-smart at home? • How can I improve my water conservation habits at home?	• Develop an understanding of how water is used at home • Explore ways in which water can be saved and not over-used at home • Demonstrate an awareness and interest in conserving water at home

Activity # & Title	Key Inquiry Questions	Activity Learning Objectives
6. Welcoming Rain in My World	• How much rain do we get in Abbotsford & Mission? • How is rainwater used as a water conservation strategy? • How can rainwater benefit my community?	• Develop an appreciation for rain • Develop an initial understanding of water as a renewable resource • Gain an understanding of how rainwater was used to create the ice-hockey rink at the Abbotsford Entertainment & Sport Centre (AESC)

Do something about it!

Desired Action Outcomes:

At Home

- Check for leaks at home with your Mom & Dad!
- Brush your teeth without the water on.
- Check to see the dishwasher is full before starting it.
- Collect rainwater in a bucket. Use the water to wash your driveway or water plants.

A Summary of Activities, Objectives, Curriculum Links and Action Outcomes

For the Teacher

B.C. Curriculum Links	Worksheets, Teaching Aids, Classroom Consumables from the AMWSC
Science: • Explain why air, water, and soil are important for living things	**Teaching Aids:** Information re: Mind Mapping Suggestion: Invite Mr. Blade to visit your classroom Measurement materials- 4L container, measuring cup and spoon Water Video- Loreena McKennitt- La Serinissima *http://www.youtube.com/watch?v=m54SmVsQqgc&feature=related* **Worksheets:** • Our Water Matters – Pages 9 • Water on the Brain – Page 10 **Classroom Consumables:** • Refer to the list of materials at the end of the kit
Social Studies: • Locate on a map landforms and bodies of water of local and national significance • Use simple maps to interpret and present information • Locate major landforms and bodies of water in BC and Canada	**Teaching Aids:** Our Water System poster **Worksheets:** • Where Does My Water Come From? – Page 12 **Classroom Consumables:** Refer to the list of materials at the end of the kit.
Social Studies: • Describe ways individuals contribute to a community • Describe responsibility to the local environment • Demonstrate a sense of responsibility for the local environment	**Teaching Aids:** Copies of the Water Smart game, player pieces (e.g. bingo chips or pennies), one die per game. Our Water System poster Animated video-The Animals Save the Planet- The Elephant Shower- *http://www.youtube.com/watch?v=h8Ek3v1RBEU* **Worksheets:** • Protect the Future of your H_2O! – Page 17 • Be Water Smart- Don't Waste Water! – Pages 18 & 19 • Door Knob Hanger outline – Page 20 **Classroom Consumables:** Suggestions: dish squeegee & Moisture Meter Refer to the list of materials at the end of the kit.
Social Studies: • Describe responsibility to the local environment • Demonstrate a sense of responsibility for the local environment • Formulate a response to a relevant classroom, school, or community problem or issue **Social Responsibility**- Exercising Democratic Rights and Responsibilities: • The student shows an emerging sense of responsibility, generally following classroom rules; able to identify simple ways to improve the school, community, or world.	**Teaching Aids:** Find or stage a leaky faucet for a short duration of the activity, magnifying glasses, plastic cups (one for each set of partners) Video- Energy Conservation for Kids- Water Usage Tips http://www.youtube.com/watch?v=Xz8sVG6GVWw&feature=related **Worksheets:** • Be a Water Detective in Your Classroom – Page 23 • Water Conservation at School – Page 24 **Classroom Consumables:** Refer to the list of materials at the end of the kit.
Social Studies: • Demonstrate a sense of responsibility for the local environment • Formulate a response to a relevant classroom, school, or community problem or issue **Social Responsibility**- Exercising Democratic Rights and Responsibilities: • The student shows an emerging sense of responsibility, generally following classroom rules; able to identify simple ways to improve the school, community, or world.	**Teaching Aids:** 1L container **Video** Heroes of Water Saving: Water Project H2Ooooh! http://www.youtube.com/watch?v=kp_nyVPK4XQ&feature=related **Worksheets:** • Water at Home – Pages 26 & 27 • Water Drop Pledge – Page 28 **Classroom Consumables:** Refer to the list of materials at the end of the kit.

B.C. Curriculum Links	Worksheets, Teaching Aids, Classroom Consumables from the AMWSC
Social Studies: • Describe their responsibility to the local environment • Demonstrate a sense of responsibility for the local environment **Social Responsibility**- Exercising Democratic Rights and Responsibilities: • The student shows an emerging sense of responsibility, generally following classroom rules; able to identify simple ways to improve the school, community, or world.	**Teaching Aids** • 1L container **Worksheets:** • Welcoming Rain in My World – Page 30 • Turning Rain Drops into Puck Drops – Page 32 **Classroom Consumables:** • Refer to the list of materials at the end of the kit.

At School	In the Community
• Check for leaks in your classroom with your teacher. • When washing your hands do not let the water run, turn it on just for rinsing.	• Participate in Drinking Water Week. • Display your Water Drop Pledge during Drinking Water Week.

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 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!

Activity 1:
Our Water Matters!
(suggested time 1 hour)

Learning Objectives:

1. Understand that all humans, plants, and animals need water to survive
2. Develop an awareness that water is a precious and limited community resource
3. Develop an understanding of how water is used for everyday living

Materials:

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher Background knowledge on creating mind maps; refer to the following links *http://www.ndstudies.org/images/mind-map.gif* Suggestion: Invite Mr. Blade into your classroom Measurement materials – 4L container, 250ml measuring cup, measuring spoon. Video Suggestion- Loreena McKennitt- La Serinissima *http://www.youtube.com/watch?v=m54SmVsQqgc&feature=related*	• Water on the Brain • Our Water Matters (colouring sheet)	Refer to the list of materials at the end of the kit.

Suggestion: Share a video to introduce the activity.

This video is a slideshow of water photos set to the music of Loreena McKennitt La Serenissima
http://www.youtube.com/watch?v=m54SmVsQqgc&feature=related

Water Talk

Mr. Blade – the Our Water Matters mascot – can be introduced at this time.

Use a mind mapping strategy to lead the discussion (Please connect to the provided link to learn more: *http://www.ndstudies.org/images/mind-map.gif*).

- Write **WATER** inside the water drop.
- Ask students to share everything they know about water. Begin to make a web of the ideas.
- Add additional branches and categories to enlarge the map.
- Assist students in understanding the value of water for themselves, their families, their school and the greater community.

Use the mind map to help students recognize:

- **Water is fun!**
  What do we do with water? We can play in it, swim in it, skate on frozen water, etc…
- **All Living Things Need Water to Survive!**
  What do all living things need to survive? (water, food, health, shelter, safety, family, etc…)
- **How Water is used at Home, at School and in the Community**
  How do you use water at home, at school and in the community?
- **Water is a limited and precious resource therefore we need to care for it and protect it.**
  Do you think we have lots water on Earth? Do you think we have enough water to last us forever?

Ask:

What would happen if you turned on the tap and water didn't come out?

Use the following demonstration to show the students that water is a limited resource. 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!

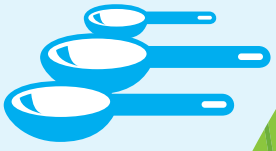
Let's pretend we can put all the Earth's water in this 4L bucket. But most of this is ocean water and is too salty.

Why can't we use all of this water?

Take out 125 mL (1/2 cup) of water from the bucket. This represents all of the fresh water on Earth. But most of this water is found in glaciers and frozen lakes

Why can't we use all of this water?

Now take out 30 mL (2½ tbsp.) of water from the fresh water. This represents the water that is available for human use for the WHOLE Earth.

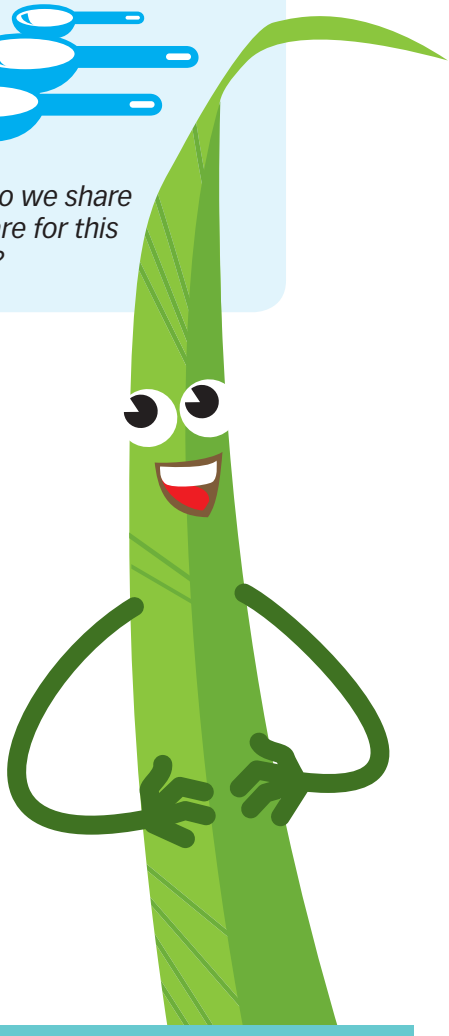


How do we share and care for this water?

Use the worksheet called Water on the Brain to reinforce the concepts from the Water Talk to help the students understand the idea that it's important to care about their water.

Suggestion:

Students complete the colouring sheet Our Water Matters!



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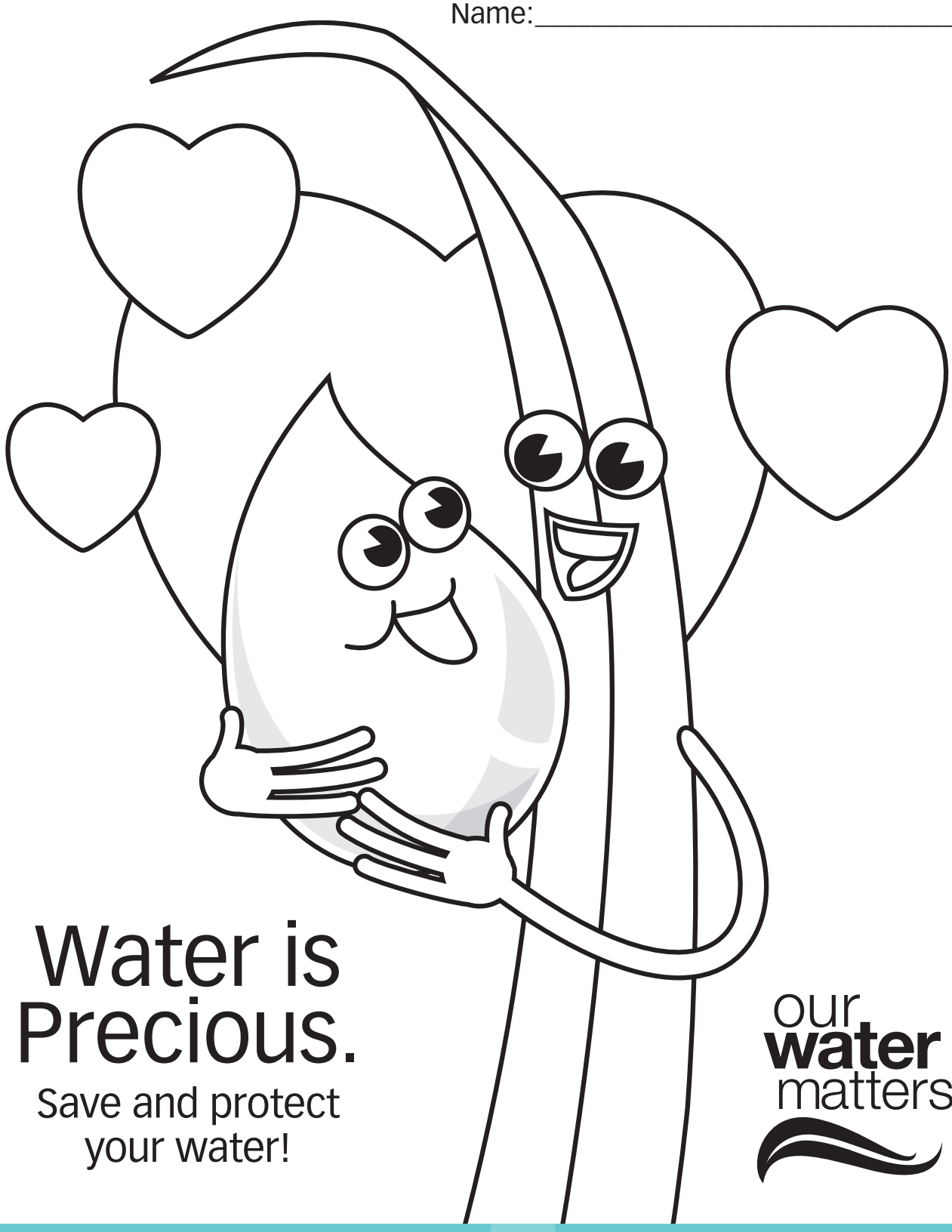


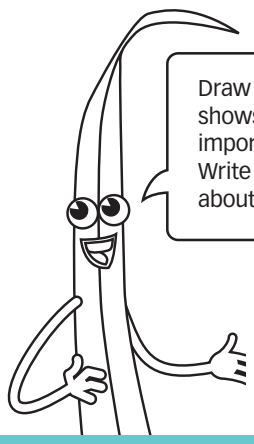
Water is Precious.

Save and protect your water!

our water matters

Did you know?

- All living things need water to survive
- Your brain is mostly water
- You can live without food for a month, but can live only a few days without water
- All insects need water to survive; even a ladybug drinks water
- Most of the Earth (70%) is water but only a small amount can be used by humans



Draw a picture that shows why water is important to you. Write a sentence to tell about the picture.

Water is important to me because _____

_____

_____

_____

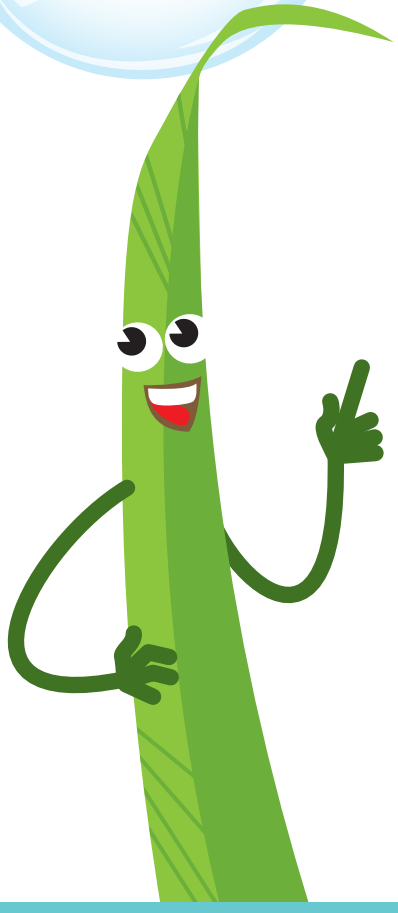
_____

Name:_____

Activity 2:
Where Does My Water Come From?
(suggested time 30 minutes)

Learning Objectives:

1. Develop an understanding of where water in Abbotsford & Mission comes from
2. Recognize and locate landmarks such as Dickson Lake, Cannell Lake and Norrish Creek on a poster



Materials:

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher Our Water System poster	• Where does my water come from?	Refer to the list of materials at the end of the kit.

Vocabulary: system, source

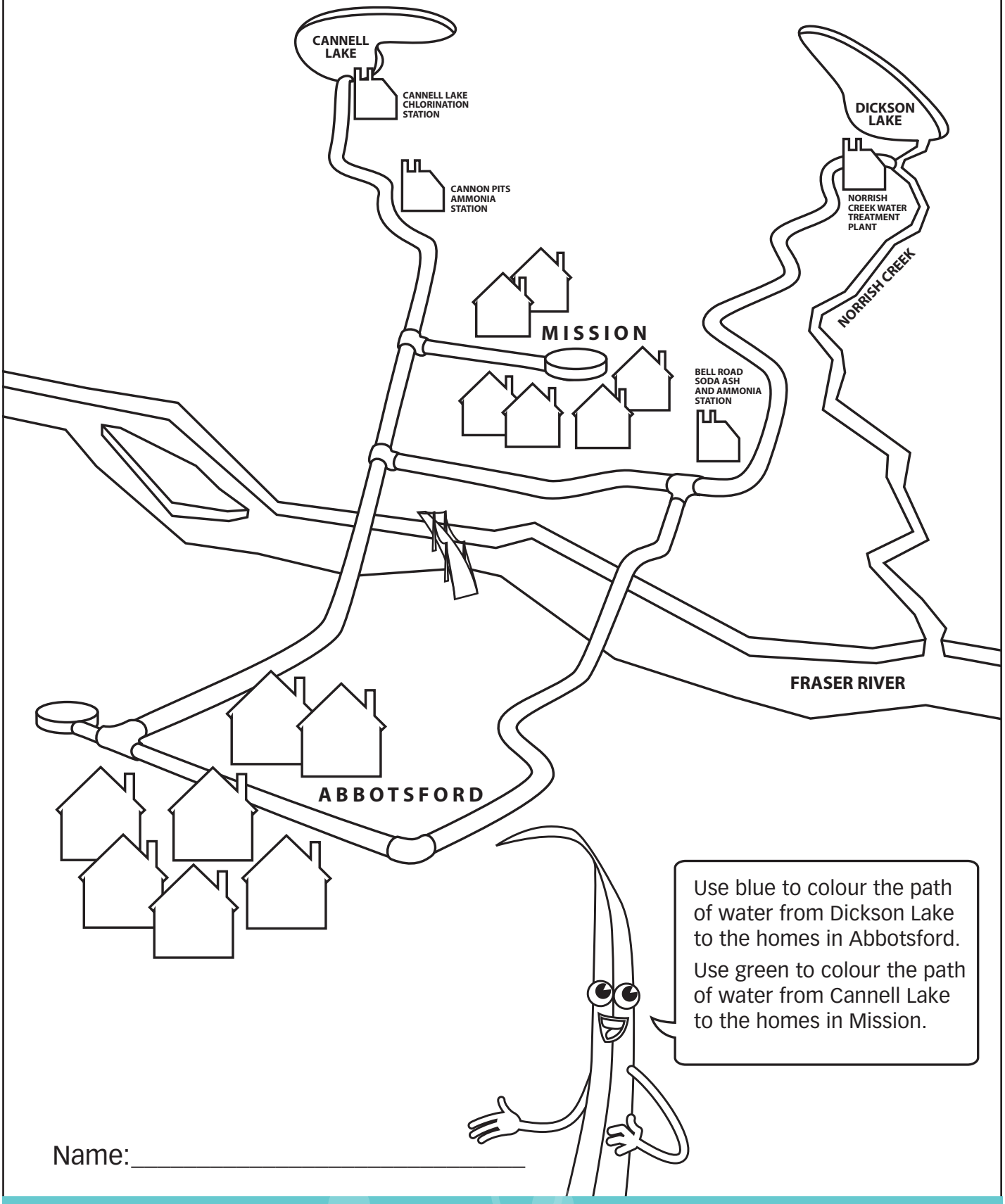
Water Talk:

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. 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?*

Use the poster Our Water System to show the children how water travels from Cannell Lake and Dickson Lake 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). Also assist the students in understanding that the water is flowing downhill from a mountain which is how all water flows in a watershed.

Students complete Where Does My Water Come From?
Students colour both paths of water for homes in Abbotsford and Mission.



Use blue to colour the path of water from Dickson Lake to the homes in Abbotsford.

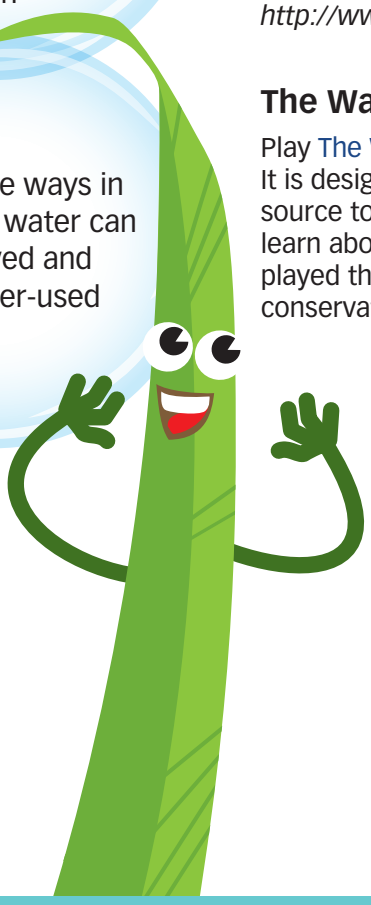
Use green to colour the path of water from Cannell Lake to the homes in Mission.

Name:_____

Activity 3:
Be Water-Smart – Don't Waste Water!
(suggested time 2x40 minutes each)

Learning Objectives:

1. Develop an understanding of how water is used at home and in the garden
2. Develop an understanding of why water conservation is important in Abbotsford & Mission
3. Explore ways in which water can be saved and not over-used



Materials:

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher Copies of the Water Smart game, player pieces (e.g. bingo chips or pennies), one die per game. Our Water System- poster Animated video-The Animals Save the Planet- The Elephant Shower- *http://www.youtube.com/watch?v=h8Ek3v1RBEU*	• Protect the Future of your H_2O! • Be Water Smart- Don't Waste Water! • Door Knob Hanger	Suggestions: dish squeegee & Moisture Meter Refer to the list of materials at the end of the kit.

Vocabulary: conservation

Suggestion: Share a video that highlights the importance of sharing water.

For example, *The Animals Save the Planet- The Elephant Shower* an animated short by Animal Planet TV that demonstrates how we 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.

The Animals Save the Planet- The Elephant Shower
http://www.youtube.com/watch?v=h8Ek3v1RBEU

The Water Smart Game

Play The Water Smart Game to introduce the concept of water conservation. It is designed for 2 or more players. Students follow a path of water from its source to a home. As the players move back and forth through the game they learn about water waste and conservation strategies. After students have played the game once or twice they may be able to share some knowledge on conservation practices.

Water Talk & Teacher Guided Worksheet called
Protect the Future of your H_2O!

Help students understand that water is an essential community resource. Remind students that we need water to survive, that we need to drink water to keep healthy, and that water is essential to everyday life. Review the mind map for ideas and understanding.

The chart below is for the teacher.

Population in Abbotsford & Mission = 170,000

2031 Estimated population of Abbotsford & Mission 250,000

An increase in population might create a deficit in the amount of water that is supplied versus the water demand.

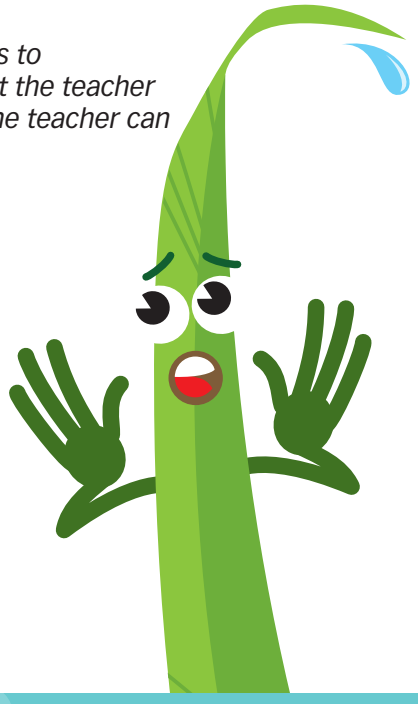
Water Supply vs. Water Demand

		Existing Water (2007 - 2011)		Future Water*	
Water Demand Scenario	Water Supply (MLD)	Demand (MLD)	Surplus/(deficit) (MLD)	Demand (MLD)	Surplus/(deficit) (MLD)
Average Day	150	60-80	70-90	160	(10)
Maximum Day	150	90-140	10-60	220	(70)

*MLD=Million Litres per Day

Numbers and measurements may be difficult for some students to comprehend. Instead of the students completing the worksheet the teacher may want to use the worksheet as an instructional tool only. The teacher can draw out the visuals on a board or chart and lead a discussion with the students instead.

**Future water demand numbers are hypothetical. Please contact the Abbotsford Mission Water And Sewer Commission for up-to-date numbers.*

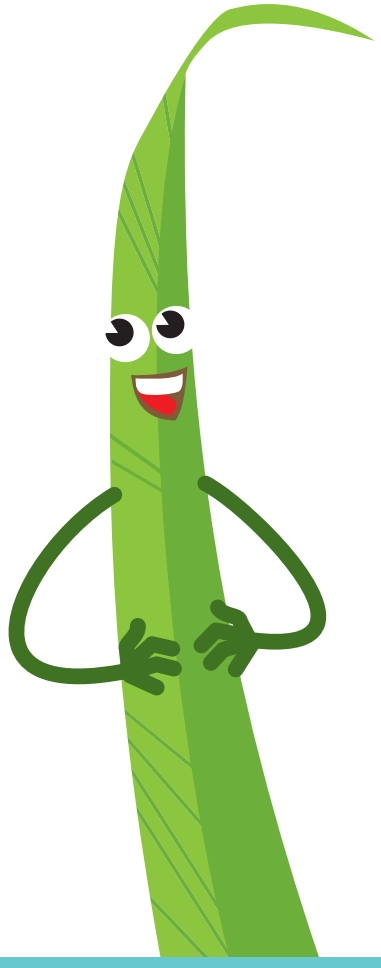


Protect the Future of your H_2O!

Hand out Protect the Future of your H_2O! worksheet. Use the following exercise to reinforce the understanding that water is limited and that sometimes, we use too much.

The bucket under the 'BEFORE' heading on the worksheet represents all of the water that is available to Abbotsford & Mission on a given day. The smiley faces represent the present population of Abbotsford & Mission who use the water. The bucket under the heading 'AFTER" represents the amount of water left over at the end of the day.

- Tell students that on a regular day we use some of the water in the bucket and at the end of the day we have some left over (surplus).
  Ask: *What does this information mean? Is it good we have water left over? Is it enough?* Allow the students to make any observations.
- Repeat the process for the Summer Day. Always show students that the bucket starts with the same amount of water.
  Ask: *What is different about the bucket in the summer? What does this information tell us?* (We used almost all of the available water/ summer days use a lot of water). *Why do we use more water in the summer?* [We water gardens and lawns, wash the car, we use pools and do other water activities, clean outdoors (windows, driveways, etc…)]



- Tell students that the population in Abbotsford and Mission is expected to increase in the future. Remind students that we may have the same amount of water in the bucket but we have more people using the water.
  Ask: *Who can predict what will happen to our water bucket? Will we have some left over or will we use too much (deficit)?* The students can draw a bucket on the worksheet to represent how much water we will have in the future.
- It is predicted Abbotsford & Mission will have a deficit if we continue to over use and misuse our water supply. Share with students the appropriate information that will allow them to understand the deficit.
- **Ask:**
  What does the information tell us?
  (We will be using more water than we have available)

  How will our overuse of water affect us?
  (We won't have enough water for everyone)

  What can we do to make sure we don't use more water than we need?
  (We can share and save water/we can conserve water to make sure there is enough for everyone)

Students complete the last question on the worksheet.
What can we do in our community to make sure we don't use more water than we need?

Water Talk

Ask: *Have you ever seen water being wasted?*

Introduce the words **conservation**. Explain to students that conservation is reducing water use to protect the environment. Water conservation has to do with being water smart. This means thinking carefully about how we use water every day. An example of conservation is to turn off the tap while brushing our teeth. Explore other examples of water conservation with students. Refer to Other Conservation ideas.

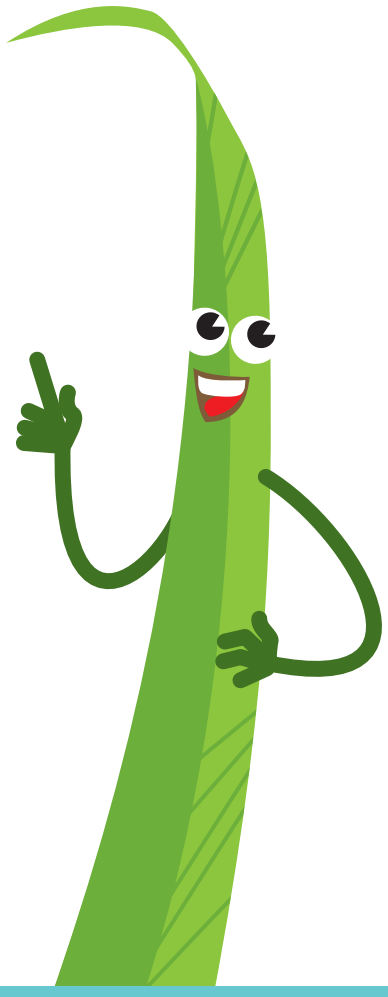
Students complete Be Water Smart- Don't Waste Water!

Answers & Possible Solutions:

Circle the following in the picture:	Possible Solutions:
• Brushing teeth while the water is running. • Filling a bathtub to the top. • Leaky kitchen faucet. • Turning on the dishwasher when it is half full. • Leaking hose outside.	• Run the water only when you're ready to rinse. • Use only a small amount of bath water or take a shower instead. • Fix the leaks. • Wait until the dishwasher is full before starting it. • Fix the leaks.

Other Conservation Ideas:

- Use a bowl or put a plug in a sink to wash vegetables.
- Use a dish squeegee to scrape dishes rather than rinsing.
- Only use a full washing machine when doing laundry.
- Take a shower instead of a bath.
- Fix any leaky faucets.
- Use a rain barrel to collect rain water.
- Water the garden in the cool of the evening.
- Follow water restrictions.
- Irrigate lawn with only 1 inch of water a week.
- Use a bucket and sponge to wash your car.
- Use a broom to clean the driveway instead of a hose.
- Use a Moisture Meter for gardens.



Hand out Door Knob Hanger design. Students design a door knob hanger for their bathroom door. Encourage them to include a message -"Don't Forget: Brush my teeth with the water turned off!" They can take it home and hang it on their bathroom door.

Are we using too much water?

Look at the buckets to see how much water we use in Abbotsford & Mission.

Regular Day

Before

After

Summer Day

Before

After

Are we using too much water?

What did you learn about water use in Abbotsford and Mission?

_____

_____

The population of Abbotsford and Mission will continue to grow but we might still have the same amount of water available - Can you draw a bucket to show how much water our community might use on an average day in the future?

Regular Day in Future

Before

After

What can we do in our community to make sure we don't use more water than we need?

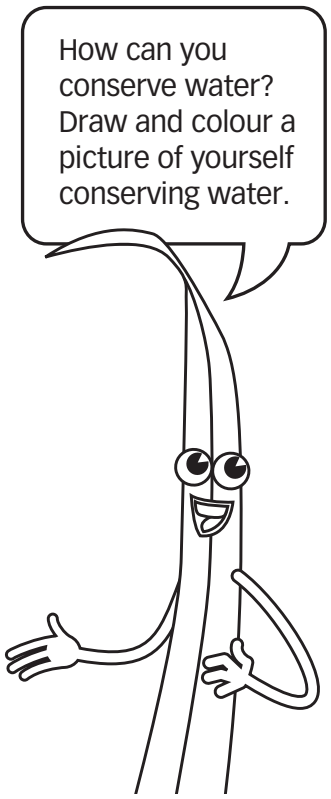
_____

_____

Name:_____

Circle the places in the picture where water is being wasted. Can you find all 5?

Name:_____



Water Smart Action!

Keep track of your water smarts for one week! Brush your teeth with the water turned off. Only turn the water on to rinse. With your parents' help check to see that the dishwasher is full before it gets turned on. Put a check ✓ for every day you remember to conserve water.

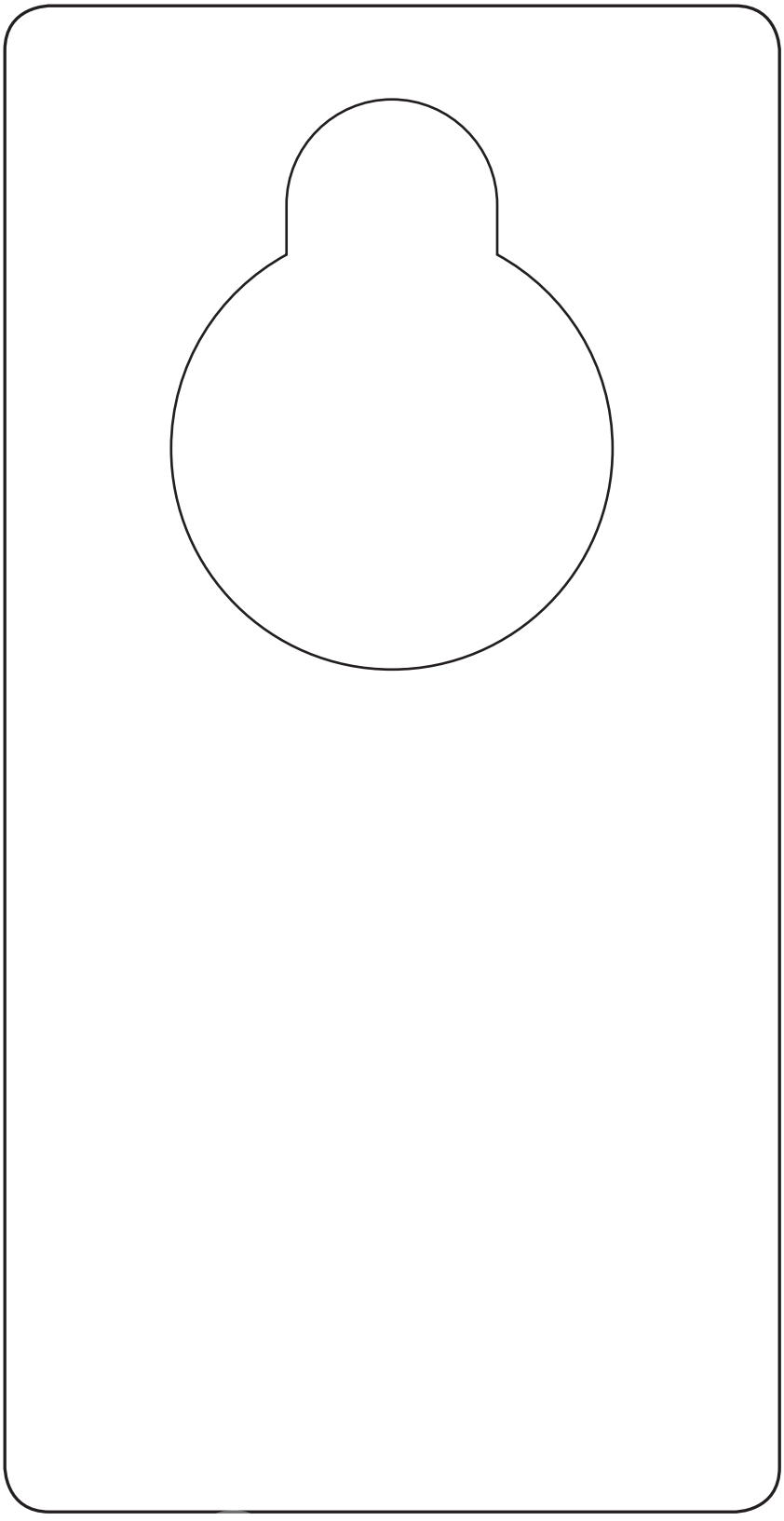
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
I brushed my teeth with the water turned off!							
I checked to see that the dishwasher was full before starting it!							

Can you think of other water saving ideas you could try?

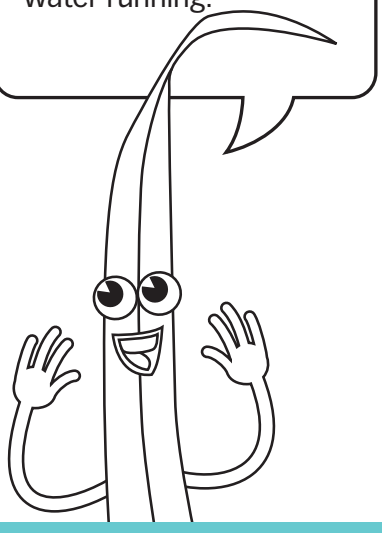
Name:_____

Name:

_____



Hi kids!
Draw a message to remind yourself to brush your teeth without the water running.



Activity 4:
Be a Water Detective in your Classroom!
(suggested time 2 x 40 minutes)

Grades 2–3
For the Teacher

Learning Objectives:

1. To investigate faucet leaks in the classroom
2. To develop an awareness for how water can be conserved at school

Materials:

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher Find or stage a leaky faucet for a short duration of the activity, magnifying glasses, plastic cups (one for each set of partners) Video- Energy Conservation for Kids- Water Usage Tips http://www.youtube.com/watch?v=Xz8sVG6GVWw&feature=related	• Be a Water Detective in Your Classroom • Water Conservation at School	Refer to the list of materials at the end of the kit.

Vocabulary: faucet, investigate

Locate a faucet that the students can easily access, and that has a leak or a slow drip. For the purpose of this activity stage a slow drip by turning on the faucet slightly.

Suggestion:

Share a video to help introduce the activity.

e.g. A video created by Horizon Utilities Corporation Ontario, Canada. Although the video discusses energy, it features water conservation strategies as well. A sink and other household appliances discuss specific examples of water conservation practices for the bathroom, kitchen and laundry room.

Energy Conservation for Kids- Water Usage tips
http://www.youtube.com/watch?v=Xz8sVG6GVWw&feature=related

Water Talk:

Lead students in a short discussion; review some ways water is often wasted.

Give students the worksheet Be A Water Detective in Your Classroom!
Go over the details of the activity with the students by providing instructions and details about the investigation. (Note: The teacher may want to run this activity with the whole class or in supervised small groups.)

Water Talk & Worksheet: Water Conservation at School

Have a follow-up discussion to review the exercise and to point out key strategies for conservation. Remind students of the best practices for conservation from the previous activity. Students should focus on the following concepts:

- Leaky/dripping faucets waste a lot of water.
- How we can stop the water from being wasted.
- What are other areas of the school where we might be able to conserve water?

Students complete Water Conservation at School.

Did You Know?

Dripping taps are the biggest water wasters! Fixing a dripping tap can save up to 300 litres drinking water per week.

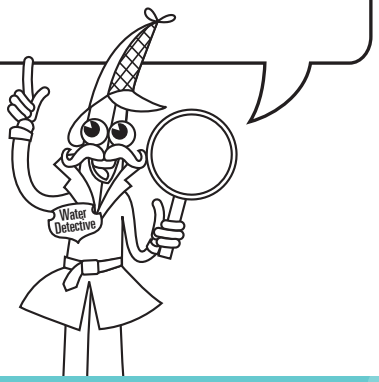
PART I

Objective: I want to investigate a school faucet for leaks and find out how much water is wasted in one minute.

Materials:

- I will need a partner
- a magnifying glass
- a cup
- a pencil
- a stopwatch or timer

and my **Be a Water Detective in Your Classroom** sheet

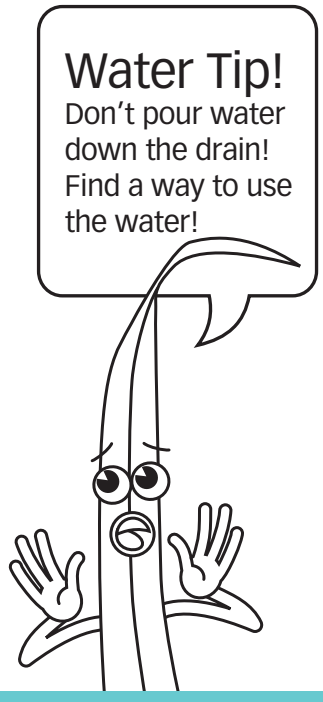


Will you find a leak?  Circle Yes or No	If you find a leak how many drips will you count?  _____ drips	Find a faucet in your school. 
Look for drips and leaks. 	Put your glass under the dripping water. 	One person watch the clock for 1 minute. 
How many times did your water drip?  _____ drips	Try it again! Now you keep time and your partner counts! 	Does this faucet need to be fixed?  Circle Yes or No

Name:_____

PART II

Draw a picture to show what you did at the faucet and write a sentence to explain what you learned.



I learned _____

_____

_____

_____

_____

_____

Name:_____

In the Water Detective activity how many times did your water faucet drip? _____

Draw your answer in water drops!
If it dripped 10 times then draw 10 water drops in the space provided.

If the faucet dripped water for 2 minutes how many more drops of water would be wasted?

e.g 10 + 10 = 20 drops

☐ + ☐ = ☐ drops

3 minutes?

☐ + ☐ + ☐ = ☐ drops

4 minutes?

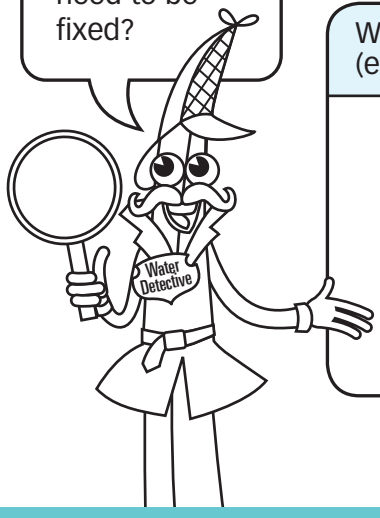
☐ + ☐ + ☐ + ☐ = ☐ drops

5 minutes?

☐ + ☐ + ☐ + ☐ + ☐ = ☐ drops

Draw the total number of water drops for 5 minutes.

Why does a dripping faucet need to be fixed?



A leaky faucet might be just one area of your school where water can be wasted. Can you list other areas in your school where you might find water being wasted? Can you suggest ways to conserve the water?

Water can be wasted here: (e.g. Leaky faucets)	Water can be conserved by: (e.g fixing the faucet)

Name:_____

Activity 5:
Using Water at Home
(suggested time 30-40 minutes in class plus 30 minutes at home)

Grades 2–3
For the Teacher

Learning Objectives:

1. Develop an understanding of how water is used at home
2. Explore ways in which water can be saved and not over-used at home
3. Demonstrate an awareness and interest in conserving water at home

Materials:

Teaching Aids	Worksheets		Classroom Consumables
	Student Worksheets	Take It Home	
For the Teacher 1L container Video Heroes of Water Saving: Water Project H2Ooooh! *http://www.youtube.com/watch?v=kp_nyVPK4XQ&feature=related*	• Water Drop Pledge	• Water at Home	Refer to the list of materials at the end of the kit.

Vocabulary: pledge

Suggestion:

Share a video to introduce the activity.

A video created by Gruppo Alcuni 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

Heroes of Water Saving: Water Project H_2Ooooh!
http://www.youtube.com/watch?v=kp_nyVPK4XQ&feature=related

Water at Home worksheet

Suggestion:

- Show students the 1L container
  This is what 1L looks like. **Ask:** What kind of things might you buy that come in a 1L container? (milk, juice, water, etc…). If you turned on the tap and kept it running how many litres would get wasted in 1 minute? (accept any answers and then provide them the fact- 12 litres runs down the drain in a minute).
- Discuss the other 2 facts on the sheet
- Have children take home, complete and return the worksheet Water at Home

Discuss the results of your family water audit:

- Would you like to improve your habits?
- What area can you make the biggest improvement?
- Are you already doing a great job at conserving?
- Explain where your family is the most successful with conservation.
- How can you help others understand the importance of conservation?

The Water Drop Pledge

Students can illustrate and colour the pledge their family discussed. Then they can complete the pledge statement on the water drop. Display water drop pledges in the classroom. Suggestion: Water Smart certificates can be handed out to students.

Did You Know?

- A running tap pours out 7 to 12 litres a minute!
- A water saving toilet (6 litres per flush) can save you up to 14 litres each time you flush! For the average family that's 25,000 litres per year. With that water you could fill 25 hot tubs!
- An average garden hose pours out 20 litres of water per minute! A lot of water can be wasted when gardening or washing the car if you don't turn the water off.

PART #1: Work with your family and find out how you use water at home.

In the Kitchen:

We use our dishwasher only when it's full.
YES or NO

We use a bowl of water or a plugged sink to rinse vegetables.
YES or NO

We fix leaks.
YES or NO

In the Bathroom:

We turn off the tap when brushing our teeth.
YES or NO

We take a shower instead of having a bath.
YES or NO

We use a low flow toilet .
YES or NO

We fix leaks.
YES or NO

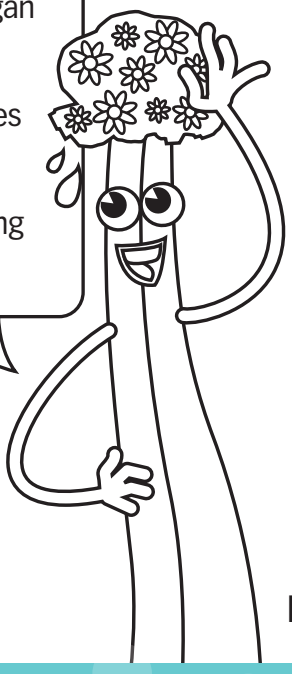
Outside:

We follow the water restrictions.
YES or NO

We use a bucket and sponge to wash our car instead of running the hose continuously.
YES or NO

We use a Rain Barrel to collect rain water.
YES or NO

Your child's class began a water unit called **Our Water Matters**. Materials and activities are focused on the importance of water conservation and using water wisely.



How many times did you circle yes?

10 You are water smart.

6-9 You are starting to tap into water conservation.

0-5 How can you help save water?

Name:_____

PART #2

Now with your family decide how you can become even more water smart. Read the additional suggestions for becoming water smart and decide to make a pledge to do at least one thing to conserve water.

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. Take a shower instead of a bath.
5. Fix any leaky faucets.
6. Use a rain barrel to collect rain water.
7. Water the garden in the cool of the evening.
8. Follow water restrictions.
9. Irrigate lawn with only 1 inch of water a week.
10. Use a bucket and sponge to wash your car.
11. Use a broom to clean the driveway instead of a hose.
12. Use a Moisture Meter for gardens.

My water pledge: _____

_____

_____

_____

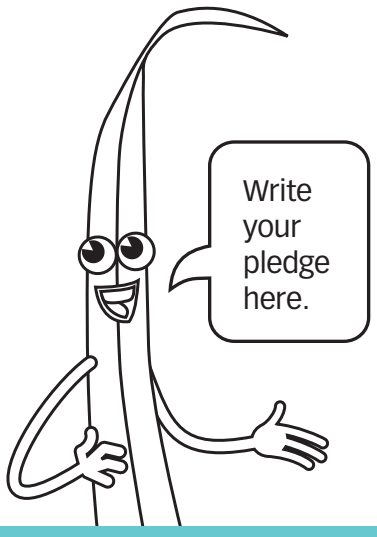
_____

_____

_____

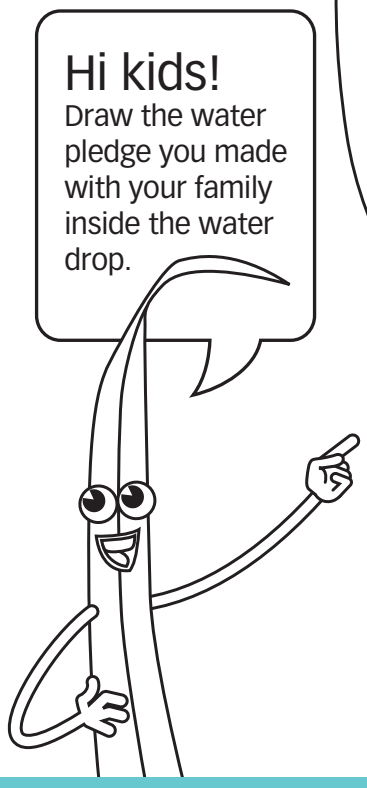
_____

_____



Name:_____

Water Drop Pledge



Name:_____

Activity 6: Welcoming Rain in my World!

(suggested time 30 minute)

Grades 2–3
For the Teacher

Learning Objectives:

1. Develop an appreciation for rain
2. Develop an initial understanding of water as a renewable resource
3. Gain an understanding of how rainwater was used to create the ice-rink at the Abbotsford Entertainment & Sports Centre (AESC)

Materials:

Teaching Aids	Student Worksheets	Classroom Consumables
For the Teacher 1L container filled with water (preferably rain water but for demonstration purposes tap water is appropriate)	• Welcoming Rain in My World! • Turning Raindrops into Puck Drops	Refer to the list of materials at the end of the kit.

Vocabulary: rainwater harvesting

Background Info:

Abbotsford & Mission receive an abundant amount of rain each year making rain a rich and readily available resource. With the average Abbotsford resident using 200L, and Mission resident using 400-450L of water per day collecting and using rainwater conserves municipal water and energy. For instance, 25mm of rainfall collected on a 93m^2 area can collect over 2,000L of water which can be used for non-potable water uses- garden/lawn irrigation, laundry, flushing toilets, and making arena ice. Harvested water contributes to water conservation and reduces water demands in urban area. (Source: AMWSC www.ourwatermatters.ca)

Water Talk

Review uses of water, water sources, conservation practices, and remind students of their water pledges.

- Introduce rain in Abbotsford and Mission and the term Rainwater Harvesting
- Highlight that rainwater harvesting can serve as a supplement to municipal water. In times of low water availability, water held in rain barrels and cisterns may be used for gardening or other non-potable needs.
- Hold up a 1L container of "rainwater" and tell the students that you collected this rainwater during the last rainfall and elicit different ways rainwater can be used instead of tap water.

Suggestions: watering gardens, irrigating the grass, flushing toilets, washing cars, household cleaning and laundry.

Hand out Welcoming Rain in My World! Students draw and colour one way in which rain water can be used at home or at school

A Field Trip Idea: Rainwater & Ice-Hockey in Abbotsford

Tell students that rainwater harvesting can be used to make ice rinks! Share the story behind the ice arena at the Abbotsford Entertainment and Sports Centre (AESC). See notes Abbotsford Entertainment & Sports Centre (AESC) Field Trip.

Hand out and complete the colouring sheet called Turning Rain Drops into Puck Drops.

A Field Trip Idea! Abbotsford Entertainment & Sports Centre (AESC)

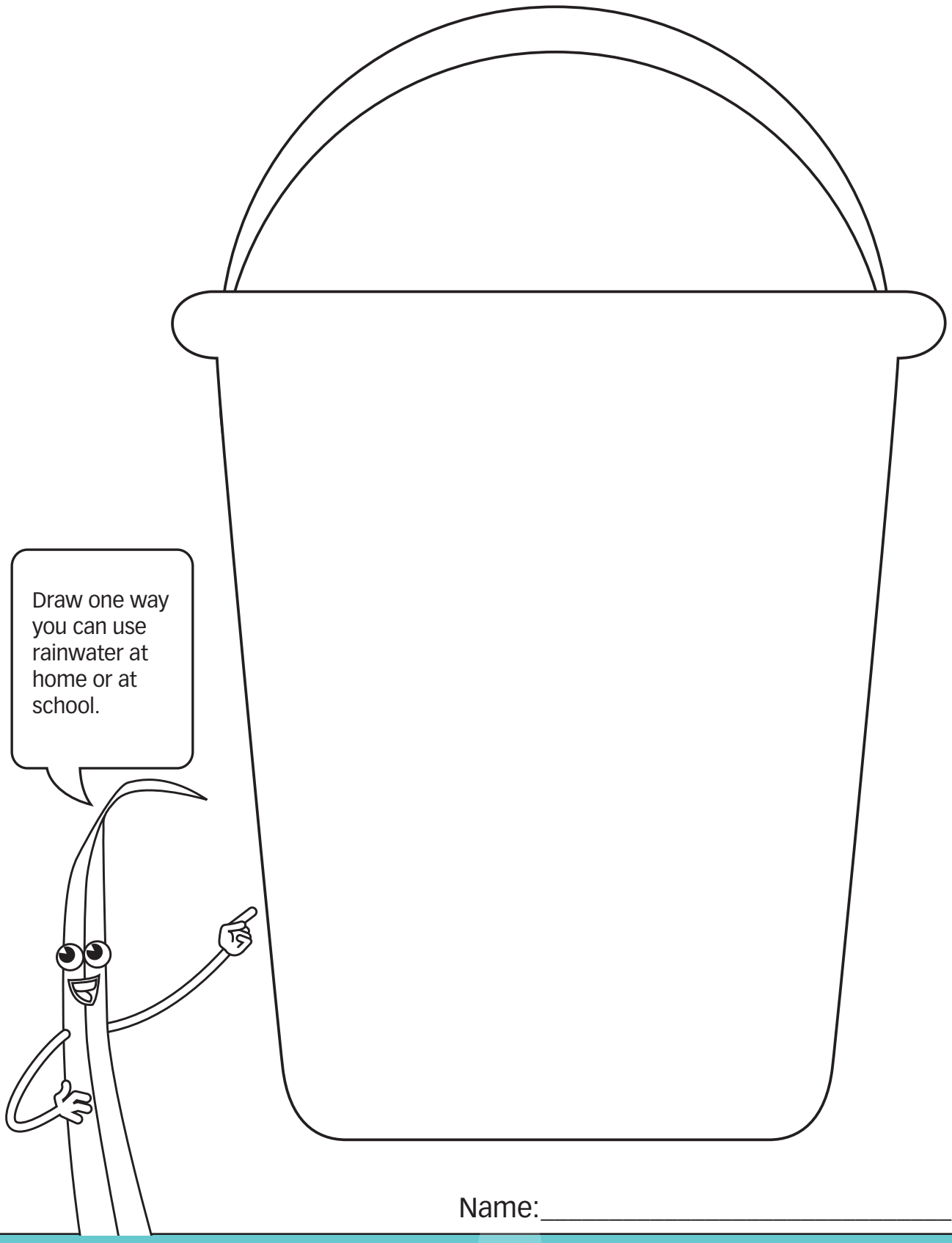
Consider taking your students to the AESC! The ASEC ice rink is made of rainwater. Yes, the Abbotsford Heat hockey team plays on rainwater ice!

Learn more at: http://www.abbynews.com/news/128332033.html

Did You Know:

- Approximately 1 Million Litres (ML) of water is used per hockey season to make ice for the arena (38,160L to build the initial ice surface; 370,000L (10,000L per game day x 37 home games); 420,000L during community rentals & practice days throughout the season)
- 15,120L (4,000 gallons) of rainwater is collected from a 1,208 m^2 (13,000 ft^2) area
- The rainwater is then filtered before use with primary filtration and secondary 1 micron filters
- The rainwater storage tank is plumbed into existing hot water boilers to supply the Zamboni with hot water
- Waste energy from the heating boilers is used to preheat the stored rainwater in the tanks
- The estimated municipal water saved via the rainwater harvesting system is approximately 830,000L per hockey season!
- The AESC rainwater harvesting system provides approximately 30,000 L (8,000 gallons) per inch of rain
- Rainwater makes better quality ice
- Water and sewer cost savings: $1226.74/year
- Energy cost savings: $1960.17/year
- Total savings: $3186.91/year
- Cost of the system: $27,000 installed
- Payback period: 8 years

For more information or to book a field trip:
Amy Wakeford,
City of Abbotsford Engineering
604-864-5514



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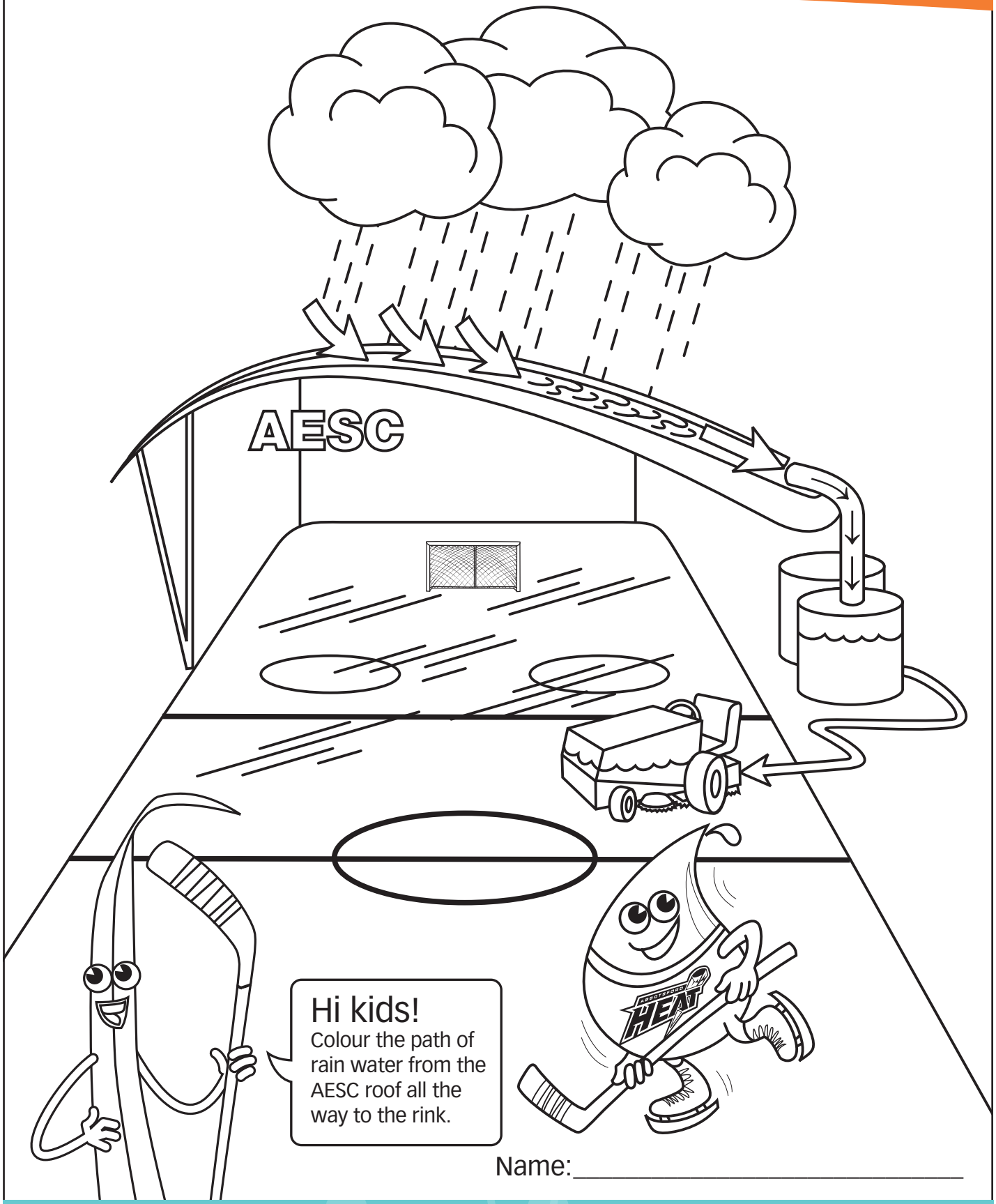
AESC
Hi kids!
Colour the path of rain water from the AESC roof all the way to the rink.

Name:_____

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
- Dish Squeegee

For more information contact:
Amy Wakeford,
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 th**e 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 H20 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

Teacher's Resources

The following resources provide additional support for teaching about water and water conservation:

Earthcare Canada – *http://www.earthcarecanada.com*

EcoKids! – *http://www.ecokids.ca/pub/games_activities/index.cfm*

Environment Canada – Water
http://www.ec.gc.ca/eau-water/default.asp?lang=En&n=65EAA3F5-1

Go Blue – *http://goblue.zerofootprint.net/*

Living Water Smart – *www.livingwatersmart.ca*

Project Wet: Worldwide Water Education – *http://projectwet.org/*

Our Water Matters – *www.ourwatermatters.ca*

Waterbucket – *http://www.waterbucket.ca*

Abbotsford Mission
Water & Sewer Services

our water matters

WATER SMART

is presented to

_____

for

_____

_____ SIGNATURE

_____ DATE

our water matters

www.ourwatermatters.ca