

CHF  
*Water Works!*





## Lesson 3: Water Works!

Almost 1 billion people across the globe lack access to safe water and over 2.5 billion don't have access to proper sanitation. Each year 1.8 million children die of water and sanitation-related diseases.

### Description

*2x40 minute lessons*

Students will learn about what life is like for rural families in developing countries who have limited access to clean drinking water through a Water Works story. Students will learn about some basic uses of water. They will discover that water is a resource that does not come easily for everyone around the world. Students will learn about how families carry and conserve their water.

### Subjects

Drama and Dance (Grades 1, 2 & 3), Mathematics (Grades 1, 2 & 3), Health and Physical Education (Grades 1, 2 & 3), Social Studies (Grades 1, 2 & 3), Science and Technology (Grades 1 & 2)

*See the Curriculum Connections section for detailed links to subjects and expectations.*

### Materials Needed

Student Handout ([BLM 3.1](#)) is an Introductory Sheet to water use in Ghana. This can be projected or photocopied and distributed.

Print Student Handout ([BLM 3.2](#)) for students.

Student Photographs ([BLM 3.3](#)) visual aids that show water realities in Ghana. This is best shown as a slideshow but can be printed and distributed.

Student Photographs ([BLM 3.4](#)) visual aids for perspective on water volume.

1 Tea towel or other linen item per group

1 Cup or small container per group for resource tickets

Materials for graphing exercise, i.e. rulers, graph paper and pencil crayons

Volunteer to help, if needed

Note: French BLMs/Student Sheets can be found [here](#).

### Lesson Preparation

1. Prepare to show ([BLM 3.1](#)) and the folder ([BLM 3.3](#)) with the projector or print and cut out the photos. These can be enlarged and mounted on poster board to be shown to the students with the introductory sheet.

2. Photocopy and cut out the task cards ([BLM 3.2](#)– all pages) to provide one set per group. Mount on poster board and laminate if interested.

3. This activity is best done outside or in a gym because there will be running around and noise. If necessary, pick a time that won't disturb other classes or warn your neighbours! If available, invite a parent or helper to assist. Decide where the activity will take place and set up the space.

4. Separate all of the items for the tasks (see Materials Needed above) so that each group has their materials together. Place the materials for the Canadian group(s) directly by the water source. Place the materials for the Ghanaian group(s) a distance away from the water source so that they will have to walk to get their water (simulating access to water in a rural community).

5. The graphing materials can be put aside to be distributed once activity is finished.

6. Review the Activity Instructions and Teacher Background Notes for this lesson for more information on water use in Ghana. Review the Teacher Background Notes and the [Teacher Resource folder](#) for [Interesting Facts](#), [Country Information](#), [Country Maps](#), and [Resource Section](#). The resources found under the Country Information can be used to give students further information about the Caribbean, Ghana and Vietnam (such as maps, statistics, flags, histories, etc.).

## **Teaching/Learning**

### Before Activity

1. Introduce the activity using the information sheet on water use in Ghana ([BLM 3.1](#)). Show the students the slideshow ([BLM 3.3](#)) and discuss what they see in the pictures and how they relate to what they heard in the story about water in Ghana. Discuss how this is similar or different from their own water use at home, at school and in their community. (I.e. people use water for similar activities, however Canadians use larger quantities).

2. Divide the class into groups of 7 students each. One group represents Canadians and the other group(s) represents Ghanaians. The number of groups will be determined by the number of students participating. If your numbers don't divide evenly, extra students can join a group and repeat any of the tasks. The Canadian group(s) will be lined up beside the water source (represented by the teacher). The Ghanaian group(s) will be lined up some distance away from the same water source, depending on the space available.

3. Randomly assign each group of students their roles ([BLM 3.2](#)) and give them their task cards.

Person 1: is the group timekeeper

Person 2: fills in the Recorder Card

Person 3: follow directions on the Water for Drinking card

Person 4: follow directions on the Water for Cooking card  
Person 5: follow directions on the Water for the Crops card  
Person 6: follow directions on the Water for the Animals card  
Person 7: follow directions on the Water for Washing Clothes card

4. When all the students are sitting down at their stations, the teacher can demonstrate the activity. Explain to the students that they will not be using “real” water for this activity. Ask the students if they can think of reasons why they would not use real water for this activity. Since water is a precious resource and because so many people on the planet do not have enough clean water, it is a responsible choice to not waste drinking water for this activity.

Demonstration: The teacher will represent the water source and the water will be represented by water resource tickets. Students will need to leave their group and go to the teacher to collect their water. In order to get their water, they will need to perform an action. Each time students visit their teacher to receive their water resource ticket,

- A) Ghanaians touch their toes ten times to simulate pumping the arm of the wells
- B) Canadians spin around in circle twice to simulate turning the tap on and off

Once students collect their tickets from the teacher, they will then return to their group and the group will need to say or do some action. Give each group a container to put their collected resource tickets in.

Note: The Ghanaian group(s) will have a longer way to walk to fill up their jug than the Canadian group(s).

### Begin Activity

5. Have the students who are involved in the activity stand up. Ask time-keepers to begin counting and have students begin the activity. Remind recorders to write down how long it took to do the activity and then repeat this (including demonstration) for all of the activities. For each round, students will need to do a specific action for the teacher (mentioned above) in order to collect their water resource ticket. Give students these specific instructions before beginning to time the activity as per the Activity Instructions on the next page. Stop after each task to provide the next set of instructions and demonstration if necessary. The timing for each activity will begin when the card holder leaves their group and ends when the entire task is complete.

### After Activity

6. Time-keepers and recorders then present the time it took to do the activities. The results are graphed as a class. Other team members present the ease or difficulty in getting water for their community during their role-playing activities (in relation to how far away or how close their water source was located).

7. Debrief this activity by reviewing the differences in collecting water on a daily basis and how the people in Northern Ghana (or other rural parts of the world)

collect their water. Also discuss why “real” water was not used for this activity if not mentioned before. Besides the fact that it could be messy, explain how important water is to people around the world and should not be wasted.

8. Explain to students that people around the world use different amounts of water. In Ghana, individuals use 20L – 30L of water per day. On average, individuals in Canadian households will use 250L – 350L of water per day! Show students the following pictures and discuss the chart below for perspective: [\(BLM 3.4\)](#)

<b>WATER USAGE FACTS</b>	
<b>ACTIVITY</b>	<b>LITRES OF WATER USED (L)</b>
Pre-rinsing dishes for five minutes	100
Normal dishwashing cycle	49
Five minute shower with standard showerhead	100
Five minute shower with low-flow showerhead	35
Running the water when brushing teeth	10
One load of laundry	100 – 170
Dripping faucet (24 hours)	50-75
One toilet flush	15
Garden hose running for five minutes	100

Source: Canadian Geographic May/June Environment Issue & [www.seedsfoundation.ca](http://www.seedsfoundation.ca) (2000)

### **Activity Instructions**

Teacher notes: Students need to do a specific action for the teacher in order to collect their water resource ticket and then another activity once they go back to their group. Give students these specific instructions before beginning to time the activity. Stop after each task to provide the next set of instructions and demonstration if necessary. The timing for each activity will begin when the card holder leaves their group and ends when the entire task is complete.

Each time students visit their teacher to receive their water resource ticket,

- A) Ghanaians touch their toes ten times to simulate pumping the arm of the wells
- B) Canadians spin around in circle twice to simulate turning the tap on and off

1. **Water for Drinking** The people holding the “Water for Drinking” card approach the teacher. Ghanaians touch their toes ten times to simulate pumping the arm of the wells. Canadians spin around in circle twice to simulate turning on and turning off the tap. Each player gets a water (resource) ticket after completing the task and returns to their respective group. The groups say “Cheers!” then “Glug, glug, glug” to simulate drinking the water. The resource ticket goes in the cup or container.

2. **Water for Cooking** The people holding the “Water for Cooking” card approach the teacher. After the actions, each player gets a water (resource) ticket after completing the task and returns to their respective group. Each group simulates stirring the pot of soup for 30 seconds. (Hula hoop activity could be used instead of stirring a big cauldron.) The resource ticket goes in the cup or container.

3. **Water for Crops** Teacher ensures all students are in their respective groups. All students are crouching in a straight line on the ground, except person holding “Water for Crops” card. Once lines are formed, timing begins. The people holding the “Water for Crops” card approach the teacher. Each player gets a water (resource) ticket after completing the task and returns to their respective group. When the player returns to their group, they leapfrog over the team lined up crouching on the ground. Timing finishes after leapfrog is complete. The resource ticket goes in the cup or container.

4. **Water for Animals** Teacher ensures all students are in their respective groups. All students are seated in a circle on the ground, except person holding “Water for Animals” card. Once circles are formed, timing begins. The people holding the “Water for Animals” card approach the teacher. They return to their group and go around the outside of the circle, touching each member’s head to provide water. Group can be making animal sounds at this time. Timing ends when the last student’s head is touched. The resource ticket goes in the cup or container.

5. **Water for Washing Clothes** Teacher ensures all students are in their respective groups. All students are standing in a line, facing the teacher, except people holding “Water for Washing” card. Once lines are formed, timing begins. The people holding the “Water for Washing” card approach the teacher. At this point, the teacher gives students a resource card and a tea towel (or other linen). The students return to their groups and pass the tea towel to the person at the front. The towel then gets passed either over their head or under their legs, in an alternating fashion. (Simulating washing cycle.) Group can be making washing sounds at this time. Timing ends when the tea towel arrives at the last person. The resource ticket goes in the cup or container.

### **Extension Activities**

- The teacher can lead a water footprint calculation with the class by going to this site:

<http://goblue.zerofootprint.net/?language=en>

This activity will be more appropriate for the older grades but teachers can explain some key ideas and guide the class through the activity.

- See this water quiz and perhaps do it as a class with teacher leading questioning:

<http://cyberschoolbus.un.org/waterquiz/waterquiz4/index.asp>

- Math – Graphing exercises comparing water use in countries, time to collect water. Liquid measurement/volume learning concepts can be explored using the water usage facts above

- Science – Water experiments for evaporation, water conservation and pollution.
- Learning Stations, as available, for background information: library books, pictures of water, wells, irrigation, jugs, pots, pictures from Ghana and internet sites for computer research.

## **Teacher Background Notes**

### ***Water Conservation***

The weight of water makes collecting water a labour intensive act. This, along with walking long distances, makes collecting water extremely time consuming. More time collecting water means less time can be spent working in the field to grow food, attend school, and do other activities. Families have learned to conserve as much water as possible. In Ghana, individuals use 20L – 30L of water per day. On average, individuals in Canadian households will use 250L – 350L of water per day!

### ***Access to Water***

In rural areas of developing countries families must walk long distances everyday to collect water in order to meet their water needs. Sources can include wells, boreholes (like a pump), creeks, rivers and lakes. Sometimes wells or boreholes dry up for a few months and then people must walk further to natural water sources.

### ***Water Collectors***

Women and children are mainly responsible for collecting water in Northern Ghana. Children carry 15-25lbs or 7-12kgs of water. Women carry 50lbs or 23kgs.

### ***Carrying Water***

In Ghana, a bucket of water is carried on the head often with a rolled piece of cloth. By placing a bucket of water on their head, the weight is evenly distributed on their body, so it will be easier to carry. This is a much stronger way of carrying than by using just one arm however, it is still heavy!

### ***Waterborne Diseases***

Waterborne diseases cause families to become extremely sick and unable to complete everyday activities. When families are sick they are not able to work on farms or grow food to eat so they can be healthy, and children are not able to go to school. These are some of the reasons why it is important to support water projects.

### ***Video on Rural Life in Northern Ghana***

To show your students what life is like in rural Ghana, order your ***Nalogu: Everyone***

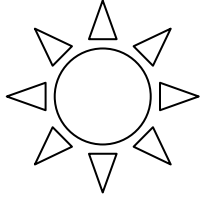


***Lends a Hand*** video. This video portrays a thriving rural African community where everyone works together to improve their quality of life. With the host, CHF's Global Education Manager Sandra Kiviaho, students are invited into the village where they will meet Baba, a local farmer, and his family, and get to know how they live. Students will see how families collect water and work with CHF and our local partners to improve their livelihoods and end their cycle of poverty.

To order, visit our website at [www.chf-partners.ca](http://www.chf-partners.ca) and click on **Teachers**. Print the order form along with a cheque or money order for \$10 and mail to CHF.

### ***General Information Regarding Water in Ghana***

For further information please see the Water Resources Commission of Ghana website at <http://www.wrc-gh.org>.



# Water Works!

Almost 1 billion people across the globe lack access to safe water and over 2.5 billion don't have access to proper sanitation. Each year 1.8 million children die of water and sanitation-related diseases.

In the farming areas of Ghana, it is often difficult to get enough water for the family. Sometimes the women and children have to walk very far to a river or a well to get water. Then they have to carry big buckets of water back to their home.

Did you know that water is very heavy? Try lifting a big bucket filled with water! Even young children carry buckets of heavy water in Ghana. Did you know they carry it on their heads?

Because it is so hot, sometimes even the rivers dry up and the wells become almost dry. People are really careful not to use too much water.

Think of all the times in one day that you use water. Can you imagine how you could use less? How many times in a day does your family use water for cooking, or to make a cup of tea or coffee? What about doing the laundry?

In Ghana, because water is so precious, the people might have to use the same water for many uses, like watering their garden with the same water that they used to bathe in. Do you think they would fill a big sink full of water to wash dishes? No way! If they used up all the water they carried in the morning, they might have to walk the long distance back to get more water. They take care to use just a little bit of water for cooking, drinking and cleaning.

Sometimes the water is polluted, and the people might still drink it because they are thirsty. Then they get sick. Having "potable" water means having clean water that they can use safely without getting sick.

Next time you turn on the tap to get a drink of water or to wash your hands, think of how hard it would be if you had to carry the water a long way before you could use it!

Organizations like CHF work with communities to make sure families can have access to clean ("potable") drinking water by building wells that are closer to their homes or by helping find ways to filter water to make it clean to drink.

# Water Works!

Person #2 – Recorder's Name: \_\_\_\_\_

1. Water for drinking: \_\_\_\_\_

2. Water for cooking: \_\_\_\_\_

3. Water for the crops: \_\_\_\_\_

4. Water for the animals: \_\_\_\_\_

5. Water for washing clothes: \_\_\_\_\_

**Water Works!**

Group Timekeeper

**Person # 1**

**Water Works!**

Water For Crops

**Person # 5**

**Water Works!**

Group Recorder

**Person # 2**

**Water Works!**

Water For Animals

**Person # 6**

**Water Works!**

Water For Drinking

**Person # 3**

**Water Works!**

Water For Washing  
Clothes

**Person # 7**

**Water Works!**

Water For Cooking

**Person # 4**





Environ un milliard de personnes à travers la planète n'ont pas accès à l'eau potable et plus de 2,5 milliards n'ont aucun accès à des installations sanitaires. Chaque année, 1,8 milliard d'enfants meurent de maladies liées à l'insuffisance d'eau et d'installations sanitaires.

Dans les régions agricoles du Ghana, beaucoup de familles ont souvent un problème du manque d'eau. Les femmes et les enfants doivent souvent marcher très loin pour trouver une rivière ou un puits où il y a de l'eau. Ils doivent ensuite transporter de grosses cruches pleines d'eau pour les ramener à la maison.

Saviez-vous que l'eau pèse très lourd ? Essayez de soulever un seau d'eau! Au Ghana, même les jeunes enfants transportent des cruches remplies d'eau et lourdes. Saviez-vous qu'ils les transportent sur la tête ?

Parfois les rivières et les puits se dessèchent presque complètement parce qu'il fait très chaud. Les gens font très attention de ne pas utiliser trop d'eau.

Pensez au nombre de fois dans une journée que vous utilisez de l'eau. Pourriez-vous en utiliser moins ? Combien de fois dans une journée votre famille utilise-t-elle de l'eau pour faire à manger, préparer un thé ou un café ? Et pour le lavage ?

Parce que l'eau est très précieuse au Ghana, on utilise la même eau plusieurs fois, comme par exemple on prend l'eau du bain pour arroser le jardin. Pensez-vous qu'ils rempliraient un évier d'eau pour faire la vaisselle ? Jamais de la vie ! S'ils ont utilisé toute l'eau qui a été puisée le matin, il faut parfois marcher très loin pour aller en prendre d'autre. Ils utilisent donc juste un peu d'eau pour faire à manger, boire et se laver.

Même si l'eau est parfois polluée, il arrive que les gens la boivent quand même parce qu'ils ont très soif. Ils tombent ensuite malade. Avoir de l'eau potable signifie qu'elle est propre et peut se consommer en toute sécurité.

La prochaine fois que vous vous lavez les mains, pensez à l'effort qu'il vous faudrait pour la transporter sur une longue distance !

Des organismes comme CHF travaillent avec les communautés pour s'assurer que les familles ont accès à de l'eau potable et saine en construisant des puits plus près des habitations ou en trouvant des moyens de filtrer l'eau pour qu'elle soit potable.

# L'eau c'est précieux !

Personne #2 - rapporteur

1. Eau pour boire: \_\_\_\_\_
2. Eau pour la cuisine: \_\_\_\_\_
3. Eau pour les cultures: \_\_\_\_\_
4. Eau pour les animaux: \_\_\_\_\_
5. Eau pour la lessive: \_\_\_\_\_

**L'eau c'est précieux!**

Chronométréur

**Personne # 1**

**L'eau c'est précieux!**

Eau pour les cultures

**Personne # 5**

**L'eau c'est précieux!**

Rapporteur

**Personne # 2**

**L'eau c'est précieux!**

Eau pour les animaux

**Personne # 6**

**L'eau c'est précieux!**

Eau pour boire

**Personne # 3**

**L'eau c'est précieux!**

Eau pour la lessive

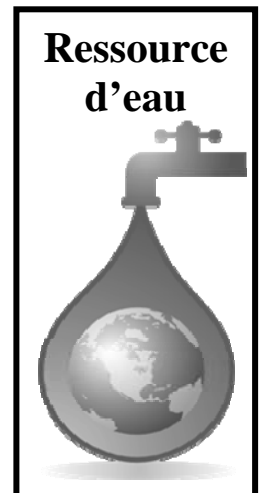
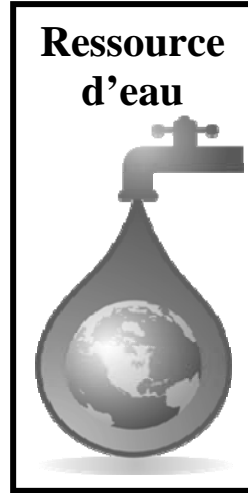
**Personne # 7**

**L'eau c'est précieux!**

Eau pour la cuisine

**Personne # 4**

















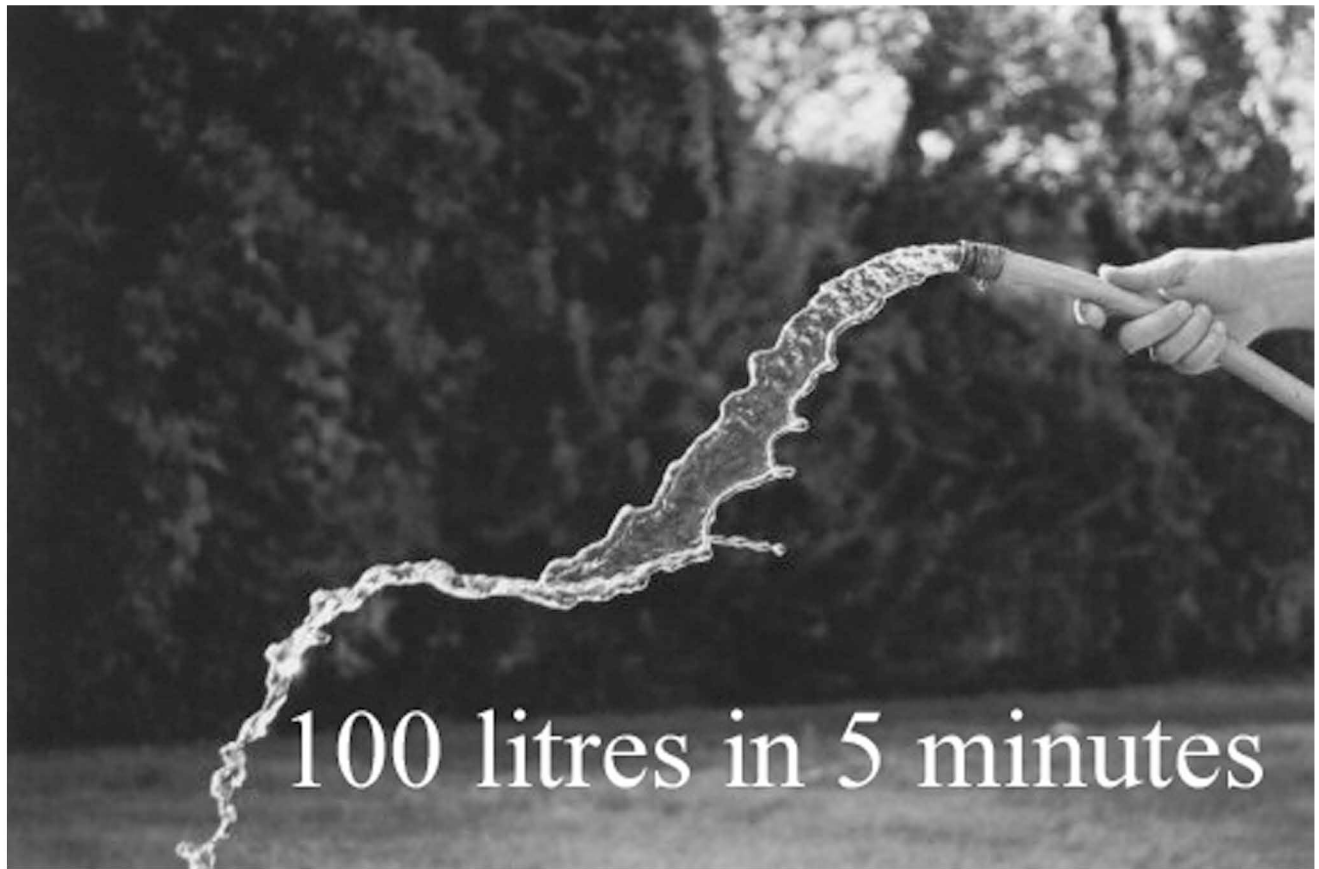


**100 litres in 5 minutes**



**50-75 litres per day**





## Assessment

Each student's contributions can be observed and recorded anecdotally by the teacher. A rubric is provided that can be used for assessment/evaluation purposes by the teacher.

## Water Works!

Student's Name: \_\_\_\_\_

Criteria	Level 1	Level 2	Level 3	Level 4
<b>Knowledge/ Understanding</b>	Demonstrates limited knowledge of content	Demonstrates some knowledge of content	Demonstrates considerable knowledge of content	Demonstrates thorough knowledge of content
	Demonstrates limited understanding of content	Demonstrates some understanding of content	Demonstrates considerable understanding of content	Demonstrates thorough understanding of content
<b>Thinking</b>	Uses processing skills with limited effectiveness	Uses processing skills with some effectiveness	Uses processing skills with considerable effectiveness	Uses processing skills with a high degree of effectiveness
<b>Communication</b>	Expresses and organizes ideas and information with limited effectiveness	Expresses and organizes ideas and information with some effectiveness	Expresses and organizes ideas and information with considerable effectiveness	Expresses and organizes ideas and information with a high degree of effectiveness
	Communicates for different audiences and purposes with limited effectiveness	Communicates for different audiences and purposes with some effectiveness	Communicates for different audiences and purposes with considerable effectiveness	Communicates for different audiences and purposes with a high degree of effectiveness
	Uses conventions, vocabulary, and terminology of the discipline with limited effectiveness	Uses conventions, vocabulary, and terminology of the discipline with some effectiveness	Uses conventions, vocabulary, and terminology of the discipline with considerable effectiveness	Uses conventions, vocabulary, and terminology of the discipline with a high degree of effectiveness
<b>Application</b>	Applies knowledge and skills in familiar contexts with limited effectiveness	Applies knowledge and skills in familiar contexts with some effectiveness	Applies knowledge and skills in familiar contexts with considerable effectiveness	Applies knowledge and skills in familiar contexts with a high degree of effectiveness
	Makes connections within and between various contexts with limited effectiveness	Makes connections within and between various contexts with some effectiveness	Makes connections within and between various contexts with considerable effectiveness	Makes connections within and between various contexts with a high degree of effectiveness