



Lesson 7: The School BioSand Filter and the School WASH program

CURRICULUM CONNECTIONS:

Grade 6-8 Social Studies and Science (for grade and subject specific Curriculum Connections please see Curriculum Connections Chart for Alberta, British Columbia and Ontario Educators)

INSTRUCTIONAL METHODS:

- MindMap
- Showing of video
- Handout showing School (Samaritan) Filter
- Group work

ESTIMATED TIME: 75 minutes

KEY QUESTIONS/IDEAS:

- What is the difference between a School Filter and a Household BSF?
- Why is it important to provide clean water, sanitation facilities and hygiene lessons in schools especially?
- What are the health impacts of a School WASH program?

Note to Teacher:

This lesson allows students to be creative while thinking about the importance of clean water at school. It is intended to be taught following the lesson on the BioSand Filter since the school filter is a modification of that same technology. If you decide to teach this lesson without previously teaching about the BSF, you may need to modify a few of the questions that compare and contrast the two filters.

MATERIALS

Chart paper (or board) for MindMap

Space in classroom for performing skits

Projector or TV for showing video

Copies of Activity W15– School WASH

Poster paper, markers, etc. for creating posters.

Part A: Explore (50 min)

1. **DEFINITIONS:** Write the following definitions on the board.

Potable Water: Water fit for drinking, free from contamination. Water that can be consumed without concern for adverse health effects (sickness). Potable water does not have to taste good, it is just safe to drink.

Sanitation: Generally refers to the provision of facilities and services for the safe disposal of human urine and feces. Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The word 'sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal. (Source: WHO)

2. **MIND MAP:** As a class, create a mind map showing all of the reasons for and results of having clean water and sanitation at your school.

(Some reasons are: to drink, to wash hands, to flush the toilet, use the toilet, don't have to go outside to do these things etc. Results of having clean water – not thirsty, clean hands, healthier kids, keeps school clean, etc. Results of having sanitation – somewhere to go to the washroom, keeps feces away from people, privacy (if no toilet may have to find a tree), etc.)

Teaching Strategy—Mind map

A mind map is a visual representation of information that includes a central idea surrounded by connected branches of associated topics. All mind maps begin with a main concept or idea that the rest of the map revolves around. Begin by creating an image or writing a word that represents that first main idea. From that main idea, create branches (as many as needed), that each represent a single word that relates to the main topic. It's helpful to use different colors and images to differentiate the branches and sub-topics. Then, create sub-branches that stem from the main branches to further expand on ideas and concepts. These sub-branches will also contain words that elaborate on the topic of the branch it stems from. This helps develop and elaborate on the overall theme of the mind map.

3. **SKITS:** Using some of the ideas that were generated in the Mindmap, have groups of students create skits showing the impact of clean water on students at schools in developing countries.

Allow students to present their skits to the class.

Part B: The School BioSand Filter (25 min)

1. **VIDEO:** Watch a video of Samaritan's Purse work in Cambodia—building household filters as well as a Samaritan Filter at a school.

[SAMARITAN'S PURSE CANADA - WATER FOR KIDS](#)

Class Discussion: After watching the video discuss the following questions with students.

- In what ways, that you could see in the video, is the Samaritan Filter different from the household BSF?
- In what ways is the Samaritan Filter the same as the household BSF?
- Why did this team of Canadians choose to go and work in Cambodia for a week? Give some examples of reasons they state on the video and also what they learned through the experience.

PART C: A HOLISTIC PROGRAM FOR SCHOOL WASH (20 MIN)

1. **ACTIVITY:** Complete Activity W15 – The School WASH Program

Discuss the story and the follow-up questions when class has finished activities.

Note to Teacher:

This can be completed individually, in pairs or as a whole class depending on the amount of time you have and the dynamics of your class. If your class, or certain students in your class, are keen to explore this topic further there is an optional reading exercise about the importance of clean water at school at the end of this worksheet. Depending on time and student interest it may be an in-teresting resource to explore.

Positions:

- Program Manager for WASH programs, Samaritan's Purse, Cambodia (2014-2016)
- Technical Advisor to WASH Programming for Samaritan's Purse Canada (2009-2014)
- Program Advisor for Household Water Programs in Asia, Samaritan's Purse Canada (2008-2009)

Education:

- Chemical Engineering (McMaster University 2002)
- PhD. Civil Engineering - specializing in water treatment (University of Toronto 2007)

When Ray Cantwell was in his first year of university, at McMaster in Hamilton, he was struggling with his major. He had gone into general sciences hoping to do medicine but decided halfway through first year that maybe it wasn't the path God had intended for him. After spending time in prayer and discussing with mentors, Ray felt God leading him to-ward a focus on water. He knew, at this time, that he wanted to make a positive difference to people around the world who were in need of both better health and a relationship with Jesus. So, he pursued water treatment – hoping to prevent illnesses for people around the world, and in doing so, share the good news of Jesus with them.



As soon as he finished school he joined Samaritan's Purse, as an intern initially, and was sent to Cambodia to start up a household water program in the northeast corner of the country. He, along with another intern and two Cambodian staff, set up a program in a very poor and rural area of Cambodia known as Poipet, on the border of Thailand. They taught the community about good hygiene, clean water, sanitation and built household Bio-Sand Filters for individual homes. Ray got to see the lasting impact of clean water on a community.

Following his time in Cambodia, Ray returned to Canada and worked as a consulting engineer for municipalities in Canada. But he didn't forget the needs of people around the world. While in Canada, he worked alongside Samaritan's Purse Canada to design a new version of the Household BSF—a larger scale sand filter to be used in schools, health centers and community centers. This is now called the Samaritan Filter and is being implemented in hundreds of communities world-wide.

In 2014 Ray returned back to Cambodia, this time as a Program Manager for WASH programs country-wide, and had the privilege of overseeing the installation and implementation of many household BSFs as well as Samaritan Filters first hand.

ACTIVITY W15 – THE SAMARITAN FILTER

(a.k.a. Intermittently Operated Slow Sand Filtration System)

THE SAMARITAN WATER FILTER IS BRINGING HEALTH AND HOPE TO STUDENTS AND STAFF AT RURAL SCHOOLS IN CAMBODIA.

Kak Ratha is the principal of a 450-student primary school in rural Cambodia and has dedicated his life to helping equip children with a good education. But for years, Kak has watched with dismay as one student after another was forced to stay home after contracting potentially deadly diarrheal diseases caused by drinking the school's contaminated water. Each time they were absent from class, they fell further behind. "Without good health, it's impossible to get a good education," Kak said.



Students and teachers would come to school and drink water from a well that no one knew was contaminated. Now that Samaritan's Purse has designed and begun producing large-volume Samaritan Water Filters, and installed one at Kak's school, he and his young pupils are enjoying the benefits.

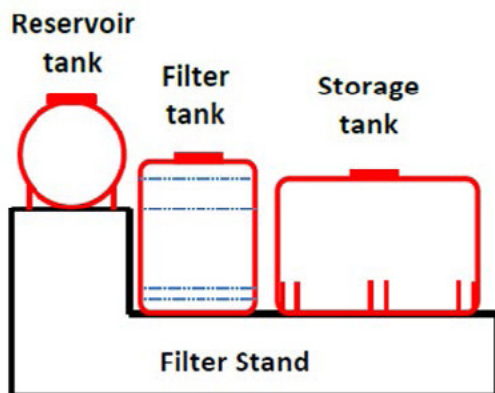
"Now things are very different for our students," Kak said. "The water filter we received provides enough water for our drinking needs, and our students are getting sick less."

When we installed the water filter at Kak's school, we also installed a hand-washing station so the children and staff no longer need to wash their hands in a nearby pond used by cows and water buffalo. In addition, our health and hygiene training reinforced good hand-washing habits to help the

students stay healthy.

Because of Canadian donations, Kak's students have clean water that won't hurt them-or their education. However, there are thousands more schools in Cambodia and other developing countries where students are trying to learn while drinking contaminated water.

The Samaritan Water Filter is a larger scale BioSand Filter – using similar technology but much larger in order to provide water for all students in a school. It has larger tanks and a storage tank of clean water ready to be used. The Filter tank is filled with sand and has a biolayer like the household BioSand Filter.



HAVING FUN WASHING HANDS

Clean water alone will not necessarily mean healthier children and more time at school. Students need to learn about all aspects of Water, Sanitation and Hygiene (WASH). For that reason, Samaritan's Purse not only provides Samaritan Filters for schools, but also includes a hand washing station and many times latrines as well. The teachers are trained to teach students proper hand washing and sanitation practices. This, in addition to the clean water they receive through the filter, makes students healthier and gives them a brighter future.

Meet Arruny – a Grade 2 student in rural Cambodia. The seven-year-old loves all her classes—except math! When Samaritan's Purse began building a Samaritan Water Filter and a hand washing station at her school, she was curious.



The construction coincided with health and hygiene lessons she was being taught about drinking safe water, washing hands, and using the latrine. Samaritan's Purse provided her principal and teachers with curriculum full of fun activities to make these important lessons memorable.

One session that stuck out in Arruny's mind was about all the germs that can be on our hands when they're dirty. She learned the importance of washing them thoroughly and regularly. Now that her school's hand washing station is constructed, it's something she and her friends enjoy doing together.

As is the case at Arruny's school, many of the hand washing stations Samaritan's Purse installs have mirrors that not only add an element of fun to hygiene, but help children wash their faces and brush their teeth, too.

QUESTIONS:

1. How does the Samaritan Filter and hand washing station, as well as the health and hygiene lessons, make an impact on the students in Kak Ratha and Arruny's schools? Give at least 5 examples.
2. Why is it important that Samaritan's Purse provides hand washing stations, and often latrines as well, in addition to the water filter?

WHY ARE SCHOOL WASH PROGRAMS SO IMPORTANT?

Programmes for school sanitation and hygiene education (SSHE) go beyond the construction of water and sanitation facilities. Their objectives are also to improve the education and hygiene and sanitation practices of school-going children and the quality of life of the children and their families, now and in the years to come.

Good practices require good facilities, kept clean and used by all children and teachers in a hygienic manner. Good practices also require education that is practice oriented, and builds skills and attitudes next to knowledge.

Addressing sanitation and hygiene in schools is very useful. Young children are far more receptive to new ideas than adults. In their primary school years they can be stimulated to cultivate the habits of good personal hygiene. The pro-motion of personal hygiene and environmental sanitation in schools can help children to adopt the good habits which will last throughout their adult life.

THESE PROGRAMS REFLECT A NUMBER OF IMPORTANT CONCEPTS ON CHILD EDUCATION:

- **Effective learning:** Children perform better in a clean and hygienic environment
- **School enrollment and completion by girls:** Lack of private sanitary facilities for girls often discourages parents from sending daughters to school. It contributes also to the abstinence and dropout of girls, especially during their adolescence. Growing girls find it difficult to attend schools that have no or few badly maintained sanitation facilities. They tend to go home during recess and not return.
- **Reduction of cases of infectious diseases and worm infections:** If sanitation and hygiene facilities are absent or are badly maintained and used, schools become health hazards. Children urinate and defecate behind and around school buildings or in whatever vacant space is available. This is a bad practice, a source of spreading infection, and sends strong negative signals to the children and teachers that this is an accepted norm.
- **Environmental cleanliness:** The presence and use of proper water supply and sanitation facilities prevent pollution of the environment and limit health hazards for the community at large.
- **Implementing child rights:** Children have the right to be as healthy and happy as possible in their given circumstances. Good sanitation and hygiene practices contribute to less disease, better health and better nutrition. As many children around the world fall in the 'mildly malnourished' category, any measure to protect them from slipping further is a significant investment in human resource development and happier child-hoods.

Source: JOYFUL LEARNING, on Hygiene, Sanitation, Water, Health and the Environment, A Source Book for Lesson Plans. By IRC International Water and Sanitation Centre..

QUESTION:

How are Samaritan's Purse School WASH programs in Cambodia and Kenya addressing these Child Education concepts?

GROUP ACTIVITY:

Pick one of these 5 concepts on Child Education. Make a poster emphasizing the chosen concept and showing how it will benefit the individual children as well as the surrounding community to have clean water and sanitation and hygiene.