June 2015

Teacher's Guide to Integrating WASH in Schools

USAID
FROM THE AMERICAN PEOPLE

Ministry of Education
Science, Vocational Training
and Early Education

SPLASH
Schools Promoting Learning Achievement through Sanitation and Hygiene

About SPLASH:

SPLASH (Schools Promoting Learning Achievement through Sanitation and Hygiene) is a comprehensive school-based water supply, sanitation, and hygiene (WASH) project funded by USAID/Zambia through field support. SPLASH is implemented through the WASHplus project, which supports healthy households and communities by creating and delivering interventions that lead to improvements in WASH and household air pollution (HAP). This multi-year project (2010-2016), funded through USAID's Bureau for Global Health (AID-OAA-A-10-00040) and led by FHI 360 in partnership with CARE and Winrock International, uses at-scale programming approaches to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under age 5 globally.

Recommended Citation:

WASHplus. 2015. A Teacher's Guide to Integrating WASH in School. Washington DC: USAID/WASHplus Project.

Contact Information:

Justin Lupele
SPLASH Chief of Party
Plot 2473 Farmers' Village, ZNFU Complex
Tiyende Pamodzi Rd, Off Nangwenya Rd
Showgrounds Areas
P.O. Box 51439 Ridgeway
Lusaka, Zambia
Cell: 0971252490
jlupele@fhi360.org

Sandra Callier
WASHplus Project Director
1825 Connecticut Avenue, NW
Washington, DC 20009-5721
Office tel.: 202-884-8960
scallier@fhi360.org

This publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID) Bureau for Global Health under terms of Cooperative Agreement No. AID-OAA-A-10-00040. The contents are the responsibility of FHI 360, and do not necessarily reflect the views of USAID or the United States Government.

Acknowledgments

WASHplus/SPLASH is indebted to USAID/Zambia for its financial and technical support to the SPLASH project and the Ministry of Education Science, Vocational Training and Early Education (MESVTEE), Eastern Province for supporting the development of this publication. This WASH in School Teacher's Guide was developed through a series of workshops and consultative meetings involving MESVTEE staff, curriculum specialists, environmental health technologists from Mambwe, Chipata, Lundazi, and Chadiza, and other stakeholders in the WASH sector. Special recognition goes to SPLASH Chief of Party Dr. Justin Lupele, for coordinating the development of this publication; Sarah Fry, SPLASH activity manager under the WASHplus project, for her tireless efforts to finalize this publication; District Resource Center Coordinator (Chipata) Margaret Mapata; and Steve Sichone who was in charge of this project.

Special thanks to the following people for their valuable efforts in developing this guide:

Bridget Kakuwa Kasongamulilo	SPLASH Knowledge Management, Documentation and Communication Advisor
Emmanuel Banda	Curriculum Development Center, Curriculum Specialist
Abigail Tuchili	Curriculum Development Center, Senior Curriculum Specialist
Kenneth Mudenda	Curriculum Development Center, Curriculum Specialist
Lazarous Kalirani	Curriculum Development Center, Principal Curriculum Specialist
Lwiza Banda	Environmental Health Officer
Romakala Banda	SPLASH Hygiene Behavior Change Technician, Mambwe
Mayombo Mandevu Mwanza	SPLASH Hygiene Behavior Change Technician, ` Lundazi
Boyd Hakubeja	SPLASH Hygiene Behavior Change Technician, Chadiza
Febby Busiku	SPLASH Provincial Coordinator (former)
Davidson Phiri	District Resource Center Coordinator, Mambwe
Paul Mvula	Environmental and Hygiene Technologist, Mambwe
Chibwe Bensic	Assistant District Resource Center Coordinator, Lundazi
Lackwell Nundwe	Senior Environmental and Hygiene Technologist, Chipata

Table of Contents

Introduction

Purpose of this Guide

This Teacher's Guide supports the teaching and learning about water, sanitation, and hygiene (WASH) in Zambian primary schools. WASH is part of the new national curriculum, which was launched in January 2014. This guide provides technical content for the teacher to familiarize himself/herself with the subject of WASH. It also provides ideas and suggestions on how WASH content can be integrated into classroom and out of class teaching and learning.

Current WASH in Schools Situation

A "WASH-Friendly School" is a school that has:

- ✓ A functioning source of clean water near or at the school
- ✓ Enough toilets or latrines for pupils and teachers, separated by male and female
- ✓ Anal cleansing materials
- ✓ Handwashing stations equipped with soap and water that are placed near the latrines and any school eating area
- ✓ Treated drinking water
- ✓ Washrooms and menstrual hygiene materials for adolescent girls
- ✓ A hygiene education program

The prevailing WASH in School situation in most schools is below the standard student-to-toilet ratio of 50:1 set by the Ministry of Education, Science, Vocational Training and Early Education (MESVTEE). The national sanitation ratio of student to toilet is 97:1 in basic schools (Ministry of Education 2010 ED*ASSIST data). In many schools access to WASH facilities is inadequate, although there have been improvements.

The SPLASH-led baseline facilities survey[*] from 2013 was conducted in 616 basic schools in four districts of Eastern Province (Chipata, Chadiza, Lundazi, and Mambwe). This survey provided data on the current WASH situation in Zambian schools and showed 71 percent of schools had a water point. Of these, between 30 percent and 51 percent required immediate repairs, but only 17 percent of the schools had funds to carry out repairs. The 29 percent without a nearby water source represented about 74,000 pupils without access to water. Very few schools (11 percent) treated drinking water. A high number of schools (92 percent) had toilet facilities for boys and girls and teachers, mostly pit latrines, but these were not adequate to meet the enrollment numbers. Traditional latrines rarely met the accepted standards, and many were actually unsafe. Only a few schools (31 percent) had handwashing facilities, and of those, only 6 percent had soap available for handwashing. Almost none of

[*] See http://www.washplus.org/sites/default/files/splash-baseline_survey2014.pdf

the schools (only 3 percent) had any kind of menstrual hygiene management support or materials. Sanitation facilities also lacked provision for disabled children. Hygiene education occurred, but only 20 percent of teachers had any training in hygiene education.

National Policies and Programs on WASH in Schools

The Zambian government vision for the water supply and sanitation sector, as spelled out in the Sixth National Development Plan, is "a Zambia where all users have access to water and sanitation and utilize them in an efficient and sustainable manner for wealth creation and improved livelihood by 2030." This vision will be achieved through new and old policies, programs, and regulations that the government has put in place to increase and improve access to water supply and sanitation to achieve the Millennium Development and Education for All goals. These include:

- Public Health Act (drainage and latrine regulation),
- National Rural Water Supply and Sanitation Program,
- School Health and Nutrition Program and Implementation Framework.

Why Teaching WASH in Schools is Important

In response to the above question, participants in a WASH in School Teacher Education Workshop in Petauke in 2014 said that teaching WASH in Schools:

- Improves teacher-pupil contact time. *Teachers and learners spend more time on the pedagogical processes of teaching and learning due to reduced incidences of diarrheal diseases.*
- Improves pupil attendance. *Anecdotal evidence from SPLASH work shows that attendance is improving in schools where the project has intervened.*
- Improves teacher deployment and retention. *Teachers are reluctant to work in deprived rural areas, which lack basic facilities such as water and sanitation facilities, electricity, good housing, and health care.*
- Improves pupil enrollment. *Enrollment numbers increase in schools with better WASH facilities.*
- Creates an enabling, safe, and healthier learning environment for children. *The incidence of diarrheal diseases, helminthes infection, schistosomiasis, and other diseases is reduced.*
- Serves as a platform to teach and acquire improved hygiene behaviors.

The reasons cited above to support teaching WASH in Schools will be even stronger when healthy environments and facilities for handwashing, sanitation, menstrual hygiene management, and water supply are provided and maintained. Students and their families will experience the health benefits in their daily school and home lives.

How This Guide was Developed

The content of this guide was developed in a series of workshops with teachers, environmental health technicians, and SPLASH staff. The guide provides a critical perspective on the importance of water, sanitation, and hygiene education in schools. The guide also provides direction on planning and teaching lessons on WASH, especially hygiene behaviors and practices, and serves as a tool for teachers to create their own teaching materials. The guide can be used to stimulate discussions and critical thinking on WASH among school teachers and their students.

Ways of Learning

Critical Reflection and Action

Teachers and other users of this guide are encouraged to engage in a critical reflection-action-reflection process. The reflection activities encourage the learners to engage in the logical and critical development of the concepts that are introduced and to deepen their understanding of their own context. A variety of readings are introduced to assist learners to develop their critical thinking and analytical skills. The action tasks should encourage children's natural imagination and curiosity and engage them in "learning by doing" as they actively discover their world and their own capabilities and gain self-confidence.

Participation

A participatory approach that encourages active involvement by the learner is used throughout this guide. This approach is supported by social learning theory and current understanding and research on how learning occurs. All learning needs to be learner centered. Rather than "show and tell" or "chalk and talk" approaches, learners should take an active role in their own learning. For example:

- Play and experiential or hands-on learning are engaging for children, and children learn best when they are fully engaged
- Child-led as well as guided play and learning support children's sense of agency, i.e., of being active contributors to their learning and that of others

Examples and tools for promoting participatory learning:

- Engage with children in play
- Engage in conversations and interactions that support learning
- Plan experiences to deepen and extend children's knowledge, understanding, and skills
- Differentiate learning opportunities for individual learners and learning styles
- Create physical environments that promote learning

Participation is the key feature of this guide. Learners are encouraged to weigh ideas against their own knowledge and experience and to question ideas/concepts of WASH. Learners' prior knowledge (such as taboos and myths on menstruation or traditional water treatment methods and experience) are valued and used in the development of new ideas and practices.

Key Hygiene Practices

Schools are places where children spend a great amount of time, especially during the day. Improved health and quality learning is not possible without adequate water and sanitation facilities in schools. To ensure a healthy and conducive learning environment, children need safe water for drinking, handwashing facilities with soap, and safe, user-friendly sanitation facilities (toilets). School children who lack access to safe water and sanitation have increased chances of suffering from water and sanitation-related diseases. It is important to ensure that schools are safe places, where strong efforts are made to limit the transmission of diseases and prevent negative impacts from affecting children, their families, communities, and overall development.

Globally, three hygiene practices have been shown to be effective at reducing diarrheal disease. **Safe feces disposal, handwashing with soap, and safe storage and treatment of water at point of use**, when done correctly and consistently, can each result in a 30 percent to 40 percent reduction in diarrhea prevalence. These three evidence-based practices are the foundation of WASH in Schools hygiene education curriculum and programs, along with additional practices that are important for school-age children to learn about and practice at school and at home.

a. Safe Disposal of Feces

Human feces (also called excreta) are the principal source of contamination responsible for a wide range of communicable diseases. According to the World Health Organization (WHO 2004), 80 percent of the disease burden in developing countries such as Zambia results from poor feces management/disposal.

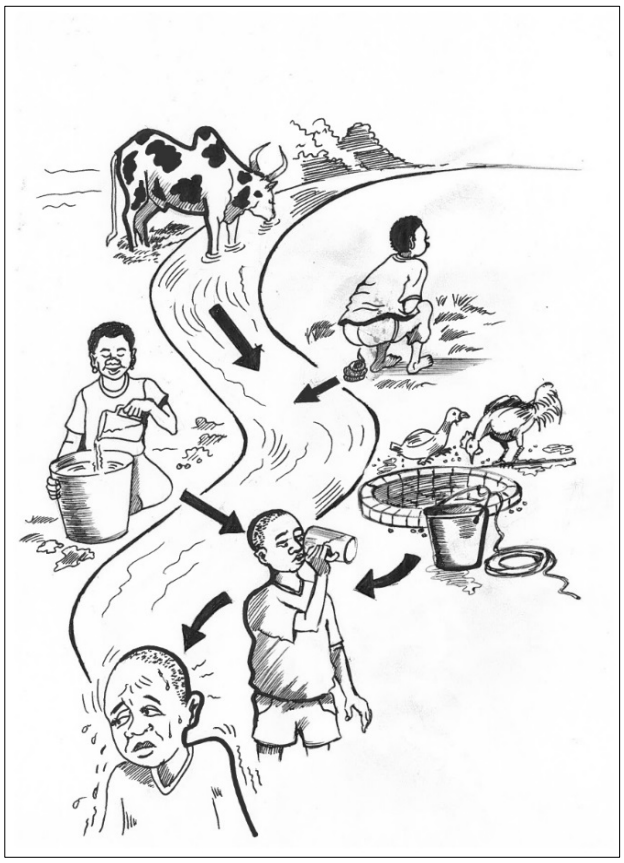
The environment can become contaminated in several ways. Some of the ways include: rain carries feces into fields, streams, and ponds; people drink contaminated water; people can walk through fields and track the feces into homes; flies can land on feces and then land on food; and hands can touch feces and then touch others, or touch food (see illustration on next page).

There are a number of ways to safely dispose of human feces so that they do not lead to contamination of the environment and an outbreak of disease. First, it is important that every pupil, teacher, and family member learn proper use and management of the latrine and disposal of feces. A safe latrine must have a cover or some other kind of seal to prevent flies and people from coming into contact with the feces. Acceptable disposal methods are: improved pit latrines, ventilated improved pit (VIP) latrines, flush toilets, and bucket latrines. It is also important for latrines to have a superstructure with walls and a door or curtain to provide privacy and security. Women and girls in particular need the privacy and security that latrines with a door can provide. A door with an inside lock is the best option.

Feces can be made safe by burial in the ground. Even a shallow covering of soil over the top of the feces will prevent flies from walking on the feces and thus transmitting germs. Where no other type of feces disposal system is available, burial is a clean and convenient disposal method. For example, a person working in the fields can bury his/her feces with a hoe. This is sometimes called the "cat method." Care needs to be taken to make sure that *all* feces, including the feces of infants and children, are disposed of in a latrine or buried. Infants' feces actually contain *more* contaminants than adult feces (SHARE 2015). Finally, after using the latrine, a person should wash his/her hands to prevent spreading contamination from feces to others and the environment.

Dangers of Fecal Contamination and Diseases Associated with Poor Sanitation

Human feces have been implicated in the transmission of many infectious diseases including cholera, typhoid, infectious hepatitis, polio, cryptosporidiosis, and ascariasis. In 2012, 502,000 diarrhea deaths, globally, were estimated to be caused by inadequate drinking water and 280,000 deaths by inadequate sanitation. The most likely estimate of disease burden from inadequate hand hygiene amounts to 297,000 deaths. In children under 5 years old, 361,000 deaths could be prevented, representing 5.5 percent of deaths in that age group.[†] Poor sanitation spreads infection: flies are attracted to and breed on waste and feces, and contaminated water is unsafe to drink, wash with, or swim in. Among human parasitic diseases, schistosomiasis (sometimes called bilharzia) ranks second behind malaria in terms of socio-economic and public health importance in tropical and subtropical areas such as Zambia.



(Illustration by: Kombe Roy Kazembe)

Prüss-Ustün, A., Bartram, J., Clasen, T., Colford, J. M., Cumming, O., Curtis, V., Bonjour, S., Dangour, A. D., De France, J., Fewtrell, L., Freeman, M. C., Gordon, B., Hunter, P. R., Johnston, R. B., Mathers, C., Mäusezahl, D., Medlicott, K., Neira, M., Stocks, M., Wolf, J. and Cairncross, S. (2014). Burden of disease from inadequate water, sanitation and hygiene in low- and middle-income settings: a retrospective analysis of data from 145 countries. *Tropical Medicine & International Health*, 19: 894–905. doi: 10.1111/tmi.12329

Handwashing with Soap/Ash

Washing hands with soap is the most important hygiene practice for diarrhea prevention (and can reduce respiratory infections, too). Critical times for handwashing are:

- After defecating (using the toilet)
- Before eating
- Before touching or handling food

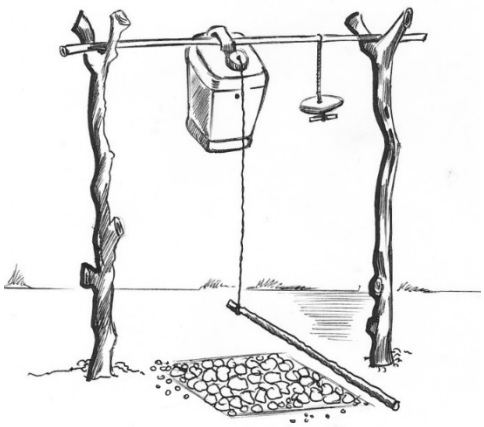
Both hands should be washed using water and a cleansing agent. When soap is too expensive or is not available, wood ash will also rub off any dirt and remove smells. Clean sand with water can also be used for handwashing to help rub off dirt.

The Correct Way to Wash Hands

1. Wet hands with running water.
2. Rub your hands and fingers well with the soap or ash at least three times. It is the soap or ash combined with the scrubbing action that helps dislodge and remove germs.
3. Clean between the fingers, under your fingernails, and up to your wrists to help control germs.
4. Rinse your hands well with running water (pour from a jug or tap).
5. Dry them in the air to avoid recontamination on a dirty towel.

Correct handwashing is very important to a person's health and well-being. Hands are used for anal cleansing after defecation. No matter what material is used for anal cleansing, ***hands get contaminated from the feces, even if the feces cannot be seen or smelled.*** Hands should also be washed before eating and handling any kind of food. It is important to emphasize that washing hands with water alone is not enough, because it does not remove all the bacteria.

Most people do not wash their hands often enough, or use only water and no soap. Soap or ash MUST be used with water. Quite simply—handwashing should be made as convenient as possible. Simple handwashing devices can be made from locally available materials (see illustration). Put and keep a handwashing device and cleansing agent beside the latrine, and if possible, also outside the kitchen or food eating area to provide a visual reminder to practice this behavior. Group handwashing stations in school are a good way for pupils to gain lifelong good habits through daily mandatory group handwashing.



"Tippy tap" handwashing device with foot pedal to tilt jerry can.
(Illustration by: Kombe Roy Kazembe)

b. Safe Collection, Transport, Storage, and Treatment of Water at Point of Use

In Zambia, like in many parts of the world, drinking water is sometimes collected from unsafe surface sources and then put into storage vessels. Drinking water may be contaminated from the source during collection, during transport, or during storage in the home before it is consumed. Strategies to reduce waterborne disease transmission must safeguard each step in the process of managing drinking water.

Safe Collection and Transport of Water

Water from surface sources is always considered unsafe and must be treated before drinking. Water coming from boreholes or pipes can be considered safe, but can rapidly become contaminated with fecal matter if it is collected in dirty or clean but uncovered receptacles such as buckets or basins. Transportation can also be a source of contamination, depending on how the water is contained and handled during transportation. For example, water containers can be lifted on and off heads or carts by someone with unclean hands. Transporting water in a clean receptacle that is not covered can lead to contamination from hands or dirt in the environment.

Safe Storage of Water

Safe water storage is a critical component of a household water treatment and safe storage (HWTS) system promoted by WHO and others in areas that do not have reliable piped drinking water. In these areas it is not uncommon for drinking water to be stored in a pot, jar, crock, or other container. Even if this drinking water is of acceptable microbiological quality initially, it can become contaminated from dirty hands and utensils, such as dirty dippers and cups. Drinking water containers with a "narrow neck opening" will help to keep water from being contaminated while being stored in the classroom or at home.

Treatment of Water

Water can be treated by simple methods. The four key water treatment methods include chlorination, ceramic filtration, slow sand filtration, and solar disinfection. These have been proven to reduce diarrhea in users in developing countries and improve the microbiological quality of stored household water. The most appropriate water treatment option for a location depends on existing water and sanitation conditions, water quality, as well as cultural and socio-economic conditions. For schools, the most feasible option often is treating drinking water stored either in the classroom or in the school yard with a commercial water treatment chlorine solution. It is inexpensive and effective. Use a capful per 5 liters.

Teachers should be aware of the many ways water can become contaminated and help schools to take measures to prevent the possible contamination of drinking water.

a. *Source of water*: Some water sources such as rivers, unprotected springs, or wells are already contaminated or have the potential to be contaminated. If a river is the only source, water should be collected upstream from any section of the river where washing or bathing of people or animals takes place. A well or spring should be fenced to keep animals away. The collection bucket and rope should be kept off the ground.
b. *Water fetching containers*: Water can also be contaminated if water containers such as clay jars, jerry cans, etc. are not cleaned properly. Proper washing includes washing with soap, scrubbing with a clean abrasive, rinsing well with clean water, and drying in the sun.
c. *Safe transport to the home or to the school:* Even if water is fetched from a safe and protected source, it can be contaminated during transport. Be certain to cover all containers properly, using clean covers or screw caps.
    - A covered jerry can is the best
    - A covered clay jar can also protect the water
    - Open buckets are easy to contaminate and should be replaced by covered containers
d. *Storing water at home*: Water can also be contaminated at home when it is left out in the open where animals can drink it and children can dip their hands in it. The safe way to store water is in a narrow-necked container that can be covered with a screw cap or a hard cover. A clean jerry can is also a safe storage container.
e. *Serving water in the classroom or at home:* Children should be encouraged to use a clean dipper or ladle that they hang on a nail when not in use.
f. *Drinking vessel:* Each child should use his/her <u>own</u> clean cup or water bottle. If children share a cup, they share their germs.

c. Personal Hygiene

Taking care of our bodies is an important element of hygiene and prevents a variety of illnesses, including respiratory and other infections, skin problems such as acne, dental decay, lice and flea infestations, and more. Here are the most important actions related to personal hygiene:

a. Bathing—at least once a day with soap, especially the pubic area and armpits.
b. Hair cutting and washing—keep hair neatly trimmed and clean.
c. Nail trimming—finger and toenails should be regularly trimmed and dirt removed from underneath.
d. Washing clothes and underwear—clothes should be washed regularly with laundry detergent and dried in the sun, if possible. Underwear should be washed and worn clean.
e. Care of teeth—brushing after meals when possible using twigs or toothbrushes and toothpaste. Teeth should be brushed at least once a day.

d. Menstrual Hygiene Management

Menstrual hygiene management (MHM) refers to what females must and can do to manage their monthly periods in a safe, private, and healthy manner. Women need adequate water and safe spaces for washing with dignity and in privacy, clean material to absorb menstrual blood, and facilities to properly dispose of soiled materials. MHM also includes using soap and water for washing the body as required. MHM is a topic that is not often talked about in public, but is a key hygiene concern.

Between the ages of 10 and 14, most girls and boys begin to notice changes in their bodies and in their emotions. These physical and emotional changes take place over a number of years. It is a normal growing up process and part of becoming an adult.

Changes take place at different ages for different children. Girls start to develop the body of a woman, and that includes beginning to have a monthly menstrual period. Monthly bleeding is perfectly normal, not something to be scared of. It lasts four to seven days, and usually happens every month. Blood is shed from the uterus out through the cervix and vagina.

Even though it's normal, menstruation can present real challenges to girls in school. Surveys have shown that there is a lack of sustainable menstrual hygiene management support for girls, from basics such as suitable hygiene facilities to psychological support for girls dealing with menstruation. Often facilities aren't "girl-friendly" (safe, private, lockable, with washroom) and girls do not have good information about their menses and what to do. This may be why studies have shown that 60 percent of girls preferred to stay at home during their menses. Boys (and in some cases other girls) tease them. They are afraid of soiling themselves, and there is no adult they can turn to. Menstruation is normal and must be addressed properly. It is time to create a more positive atmosphere in which girls feel comfortable and safe attending school during menstruation. Here are some important elements for ensuring good MHM in school:

a. Informational program for school, PTA, and community
b. MHM-themed community events (theater, radio)
c. Washrooms for girls
d. Water and soap in girls' washroom
e. Disposal place for used pads
f. Emergency pads where girls know to find them
g. Comfort kits (bag with pads, panties, soap, booklet on puberty)
h. A local pad production program
i. Guidance and counseling teacher designated for MHM
j. School Health and Nutrition (SHN) Coordinator trained in MHM

k. MHM training for all teachers
l. WASH Club with MHM activities
m. Talks on MHM from local nurses or environmental health technician
n. Medicine supply for menstrual pain with Guidance and Counseling or SHN teacher
o. Mentoring by older girls for younger girls
p. Booklets on puberty for boys and girls
q. Guidance materials for teachers
r. Visual aids on menstruation and puberty
s. Inclusion of menstruation and puberty in classroom subject teaching
t. School funds raised and set aside for MHM support (for example, pad purchase)
u. Income-generating activities related to MHM (local pad production)

e. Food Hygiene

Studies have found that cooking food thoroughly and keeping foods at safe temperatures are the top two practices that can eliminate, prevent, or minimize the risk of food-borne contamination. In addition, it is especially important to wash hands with soap and water before handling food to prevent contamination. The recommended food hygiene practices listed below are adapted from the WHO *Five Keys to Safer Food* (WHO 2012).

a. *Cook food thoroughly*
   - Cook food thoroughly, especially meat, poultry, eggs, fish, and seafood. For meat and poultry, make sure juices are clear, not pink.
   - Bring soups and stews to the boiling point until steam is coming out and the first big bubble is seen.

b. *Keep foods at safe temperatures*
   - It is best to prepare food just before serving to infants and young children.
   - If food has been prepared earlier and stored, reheat the cooked food so steam comes out and food is bubbling hot before serving to infants and children. Stir while reheating. Serve when cool enough for the child to eat. Test temperature by spooning a small bit onto the inner wrist; do NOT dip finger into the pot or bowl.
   - Do not leave cooked food standing at room temperature for more than two hours.

c. *Treat raw foods before feeding to children*
   - Wash a sharp knife and cutting surface. Then peel the skin from raw vegetables before giving them to children. If this is not possible, wash raw vegetables/fruits with treated drinking water if children will eat them without cooking first.
   - Boil milk before giving it to children.

d. *Keep food preparation areas clean*
   - Wash all surfaces and equipment used to prepare or serve food with soap and water and if possible, with a water/bleach mixture.
   - Protect food from insects, pests, and other animals by covering food with netting, a cloth, or keeping it in closed containers.

e. *Separate raw and cooked food*
   - Keep raw eggs, meat, poultry, fish, and seafood away from other foods.

f. Environmental Hygiene

People do not always consider the environment when thinking about hygiene. A clean environment prevents the spread of germs and helps to keep people from ingesting feces.

a. *Keep animals away from the household and food or water sources since they may expose household members to diarrheal disease and worm infestation.*
   Keep animals out of the kitchen and house. Ensure that small children are not left to crawl or play in areas where they will come into contact with animal feces. Control disease vectors such as flies, mosquitoes, cockroaches, and rats by reducing the presence of uncovered food, improperly disposed feces, and standing water and garbage, and by plugging holes in walls and trapping and baiting if necessary.

b. Disinfect key surfaces.
   Clean the latrines, toilets, baths, basins, and kitchen or site of food preparation with a dilute bleach solution (9 parts water, 1 part bleach), if available, or with soap and water.

c. Safely dispose of garbage and non-reusable materials into a waste receptacle, protected pit, or latrine.
   Keeping trash in proper waste receptacles will also discourage animals from seeking food from the housing compound.

d. Drain standing waste water.
   Good drainage is a critical part of environmental hygiene for reducing diseases. Poorly drained water forms stagnant pools that provide breeding sites for disease vectors. Household waste water may also contain pathogens that can pollute groundwater sources, increasing the risk of diseases. Poor drainage can also lead to flooding, damage water supply infrastructure, and contaminate domestic water sources. Waste water can be managed in the following ways:

   - Minimizing the amount of surface waste water by making good drainage areas (soak-aways) with gravel and channels around water sources such as boreholes.
   - Creating soak-aways around handwashing stations.
   - Harvesting rainwater for various uses such as washing hands and clothes.
   - Increasing the amount of water that seeps into the ground by digging soak pits and seepage pits.
   - Constructing drainage canals, which take waste water into the main reservoir or sewer line meant for waste water.

Integrating Key Hygiene Themes into the Curriculum

Here are some topics and basic ideas that teachers can use to create lessons that insert WASH into different subjects. WASH lessons are meant to be "life skills" that should be applied to everyday living and become habits. Therefore, classroom activities related to WASH practices should be:

ACTIVE…FUN…CHILD-CENTERED

Basic WASH Lessons (See Annex 3 for sample lesson plans)

- Fecal-oral transmission of germs or why open defecation is a bad habit
- Three key hygiene practices that block fecal transmission
- Importance of personal hygiene
- How to wash hands correctly
- How to build a handwashing station
- How to use and maintain latrines
- How to transport water safely
- How to store water safely
- How to treat water via boiling, solar disinfection, filtering, or use of chlorine

Language

- Write essays or stories on WASH and MHM topics
- Write WASH/MHM plays to present to the school and community
- Read short WASH stories and answer questions in a group
- Read books about water or sanitation, write reports, or report on the book to the class

Science

- Germ theory—what are they? Where do they live? What do they do?
- How diseases are transmitted
- The water cycle—rain, rivers, oceans, evaporation
- How water gets contaminated—the danger of open defecation
- WASH-related illnesses—what are they? How are they transmitted? How can they be prevented?
- Food contamination—experiment with growing mold on food
- The science of puberty and human reproduction

Math

- Calculate how much water your class/school will need daily if every person should have 5 liters per day
- Do a Feces Calculation for the class/school (see Annex 1 at the end of this section)

History

- National water/sanitation policies—when were they developed? How have they changed?
- How has water influenced our country's history? The history of civilization?
- What are the traditional culture's key beliefs and practices regarding handling feces, drinking water, and hand hygiene? Which practices are harmful and which protective of health?

Geography

- Water sources in our community/district/country
- Drawing maps of local waterways or of water points in the community

Learning and Teaching Methods and Strategies

NOTE: Many methods can be used both in and out of the classroom.

1. **In the Classroom**
   a. Active learning strategies
      Any classroom activity that is pupil-centered is an active learning strategy. It could be working in groups, working in pairs to answer a question, asking the students to come up with questions to ask each other, etc.

   b. Project-based learning
      Project-based learning is a teaching method in which pupils gain knowledge and skills by working for an extended period of time to investigate and respond to a question, problem, or challenge. Pupils develop answers to the question or challenge, and present their results to their classmates. The activity can happen over a week or even longer. For WASH, some questions could be "What are barriers and solutions to proper handwashing at school and at home?"

   c. Games, songs, and jingles
      WASH is a perfect subject for inventing games and songs. Jingles can be slogans that encourage pupils to remember important practices such as washing hands before eating. WASH Club members can come up with games and songs and teach them to the younger classes or to teachers to use in the classroom.

2. **Out-of-Classroom Activities**
   a. Role play
      Pupils act out parts in loosely scripted scenarios around a problem. Good WASH role play topics can be "trying to convince parents that open defecation is a bad practice" or "problems encountered by girls during menstruation at school." Their fellow club members or classmates can react and discuss the role play and come up with solutions.

   b. Quiz and debates
      This can be a fun contest between teams where the teachers give quizzes to teams and see who gets the most right answers. Or, teams can debate questions about WASH (team 1 is pro, team 2 is con) and the audience scores the different teams. An example of a topic could be "Open defecation—why change? We've always done it!" Puberty questions are good for quizzes ("What are the changes a boy's body goes through at puberty? A girl's body?").

c. Posters, banners, charts

These can be created by the pupils themselves if the material is available. If old magazines are available, pupils can cut out pictures and create a story on a poster. Otherwise, existing posters or charts can be used to ask questions or as the basis for active learning.

d. Peer education

Usually the older pupils learn about a subject such as open defecation, keeping latrines clean, puberty, and MHM, then they give lessons to their classmates or to the younger pupils. This is a very effective way of teaching about certain things such as handwashing with soap or always using the toilet because younger children are in awe of older children and will listen to them. Older girls can be good mentors to younger girls who are learning about menstruation and MHM.

e. School WASH Clubs

Every school should have a WASH Club! Pupils from all grades over 3rd can join, but there should be some rules. The pupils can decide the rules and the activities. Leadership should rotate so many pupils gain experience in being a leader. It is critical to allow girls to take turns being leaders. A brief guide on WASH Club activities appears at the end of this section.

f. WASH audits

Schools should conduct a systematic assessment of WASH/MHM conditions. These can be designed and done by the pupils themselves as an active learning exercise. The audit should cover drinking water, handwashing, latrines, facilities, and products for MHM, and pay attention to the quality of the facilities and whether the practices are being done.

g. Using cameras

If it is possible to obtain a good number of single-use cameras, pupils can take pictures of their WASH situation at school and in their homes. The best is to be able to develop the pictures and display them for the school and the community, and also for the MESVTEE officials.

h. Action research

Action research is a problem solving self-reflective enquiry process that can be undertaken by the school and the community to solve identified problems, such as those related to WASH. The school can identify a WASH issue in the school/community, plan on the type of action needed to be taken, take action by implementing the plan, and monitor, observe, and reflect on the outcome of the

implementing process. If needed, planning starts again to correct mistakes, reconsider options, etc.

3. Involving the Parents and Community

a. School-led total sanitation (SLTS)
SLTS is a participatory process like CLTS (community-led total sanitation) where a group of teachers, pupils, and PTA/community members explore the issue of open defecation and other hygiene practices at a school in the nearby community with a trained SLTS facilitator. The exercises involve mapping defecation sites, calculating the amount of feces in the school yard, and eventually concluding that open defecation is leading to everyone consuming each other's feces. This leads to immediate action and development of a school WASH Action Plan. See http://www.washplus.org/sites/default/files/wash_friendly_schools2014.pdf

b. Community popular theater
Many larger communities have theater groups who can be hired to perform plays with different social or behavioral messages. They may travel to a number of communities and might be available to develop and perform plays that would appeal to both pupils and their families. The PTA could sponsor such events. Community theater groups are well-suited to popularize WASH messages and practices. Explore whether another group or project linked to a health program is using a community theater group for message diffusion and see if it would be agreeable to adding handwashing, ending open defecation, or other important WASH messages to its performance.

c. Community media
Community radio and even TV stations are quite common, even in fairly rural areas. These stations are always searching for new topics and programs. Schools interested in spreading WASH messages in the community can suggest programs such as debates or quiz shows featuring pupils from different schools, or call-in shows on WASH challenges where pupils with teachers could answer community questions related to WASH topics, such as, "Where can we get help with latrine construction?" or "What do we do if our pump breaks down?". Maybe pupils can write skits for the radio, or invite TV stations to their school to film WASH improvements with commentary on why WASH is important.

Annex 1: Feces Calculation Worksheet

Use this worksheet to calculate amount of feces deposited in the school community, including the surrounding areas, by those without latrines.

Take 10 minutes in groups to calculate the amount of feces generated in a school. It is preferable that the school members themselves calculate the amount of feces. Ask for volunteers who can multiply and add simple arithmetic. Give them pen and paper and guide their calculations. The volunteers are the ones who will be announcing the amount per day, week, month, and year to the school community members. Your role will be to exclaim and exaggerate.

A. How many times a day do YOU defecate? _____

B. Volume of feces per bowel move _____ 100 g

C. Volume of feces per day (A x B) _____

D. Number of people in the school _____

E. Volume of feces per school per day (C x D) _____

F. Volume of feces per school per month (E x 30) _____

TOTAL AMOUNT OF FECES GENERATED PER MONTH BY A SCHOOL (F) _____

Once the volume is known, ask the participants to convert it to:

- ✓ Truck loads_____
- ✓ Cart loads_____
- ✓ Bucket loads (if you know the volume)_____

The most important question after this is

WHERE DOES IT ALL GO?

Annex 2: Examples of School WASH Club Activities

Activities are designed to be fun, engaging, practical, and to contribute to making a school WASH-Friendly. When the school pledges to become WASH-Friendly, it pledges to carry out a number of actions, some of which are perfect for a WASH Club to do. After a series of activities the school year can end with a special event for the school and community. Here are some suggested activities, but there are many more:

Making Handwashing Devices or Tippy Taps

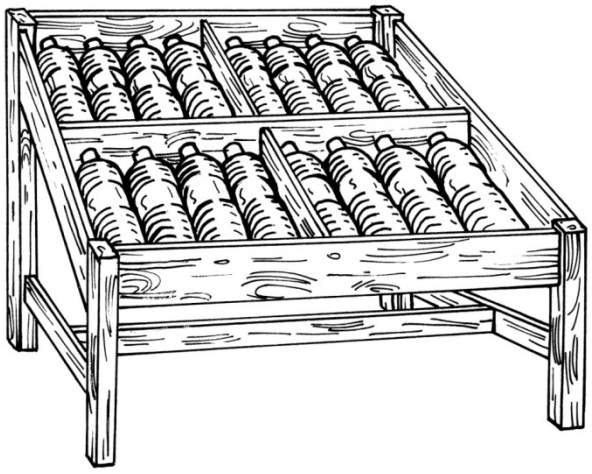
Pupils can make an important contribution to the school and also to their families by learning how to make simple water-saving handwashing devices called tippy taps. A school can have a bank of tippy taps near the latrines where many children wash their hands at once. Every classroom can have a tippy tap, too. Making sure handwashing devices have soap or ash at all times can be a club responsibility. For example, soap can be bought with club funds that are collected from students or through fundraising activities. (See Annex 4 for detailed instructions on page 28.)

Organize a "Scrub Club"

This club assigns toilets to different classes that are responsible for keeping them clean and also nicely decorated. Classes can compete!

Build a Solar Disinfection Stand

This is another good project for a club to undertake that makes a big contribution to the school. Basically it is a sheet of roof metal attached to four posts and built at a slant, so two posts are higher than the others. Fill empty, clean plastic bottles with water that is clear and not cloudy. Shake them a bit, close the lid, and put the bottles on the SODIS "roof" for six hours on a sunny day. The water will be safe to drink. Make the "roof" big enough to hold bottles for everyone to drink enough water in one day. One classroom might need as many as 80 bottles a day. It's a good way to recycle.



Sporting Events

Organize club members into teams: Sanitation, Water, Handwashing. Have each team make a distinctive uniform or hat or something that exemplifies the concept or practice it represents. Hold competitions between the teams: rope pulling, races, special games. Give the winning team small prizes such as soap.

Drama Performances

Prepare a drama presentation for the rest of the school or for the school parents, showing stories about the dangers of bad hygiene and the power of good hygiene practices. Through this performance, you will be educating adults in the community about the hygiene behavior you learned through the club and convincing them to change their behavior. A good way to begin is to identify the community's main hygiene problem(s) and address them in the performance. Display good and bad hygiene behavior. Try to incorporate all three hygiene messages within the performance. Learning from a performance is a memorable way to teach people. The performance can serve to create social pressure for people to adapt hygiene behaviors into their everyday lives. Remember that a drama is a story with characters, which has a beginning, middle, and an end. Players should have a script to follow.

Puppet Show

Make hand puppets out of locally available materials and use them to convey WASH messages and demonstrate good hygiene practices. Create and put on puppet shows for the rest of the school, for different grades, or for out-of-school children.

Making Music

Use music to teach the three key hygiene practices you learned to younger pupils, siblings, parents/PTA members, or even grandparents. You can have a song competition between teams of club members. Have each team make up its own song about a key hygiene practice, with hand or body movements. When teams have finished creating their songs, have one team at a time sing its song to the other two teams and any others in the audience. When all teams have sung, each individual should vote for their favorite team song. Count pupils' votes to determine who won the competition. Congratulate the winning team and have the whole club learn their song. Try to perform the song at a school assembly or community gathering. Rap is a great way to sing/speak about handwashing for instance. If poetry or some other creative expression is popular, that can substitute for songs.

Poster Contest

Create an activity where club members design posters related to the three key hygiene practices. You may duplicate some of the pictures from books or posters. Have students create posters either on their own or with partners. While they are drawing, go around the room asking about their posters and ensuring they are displaying the correct hygiene messages. Ideally, you would need markers, crayons, poster paper, colored paper or old magazines, scissors, and glue for this activity. Get permission from your school to hang the posters in the school classrooms. Or make a gallery of the posters where all the students can walk through and view them.

Hygiene or WASH Fair

A WASH fair is an event that the school organizes for the community. Teachers, students, out of school children, community members, friends, and family can join the hygiene fair. Hold the hygiene fair in a convenient place, either indoors or outdoors. This is a time to show off everything you have created and learned, including new or improved latrines, drinking water, and handwashing facilities. Students can demonstrate practices and set up places where people can play games or make things related to WASH. You can sing your hygiene song, perform your drama again, display posters, engage people in a short activity, speak about the WASH Club's accomplishments, demonstrate key practices such as correct handwashing, etc. This is an opportunity to welcome new members. Be creative and have fun with it!

Annex 3: Sample Lesson Plans that Integrate WASH and MHM Themes

Sample Lesson Plan 1[‡]

TEACHER**: ……**

SCHOOL: …… DATE: ……..

SUBJECT: English DURATION: 40 MINUTES

TOPIC: Composition TIME: 12:00-12:40 HOURS.

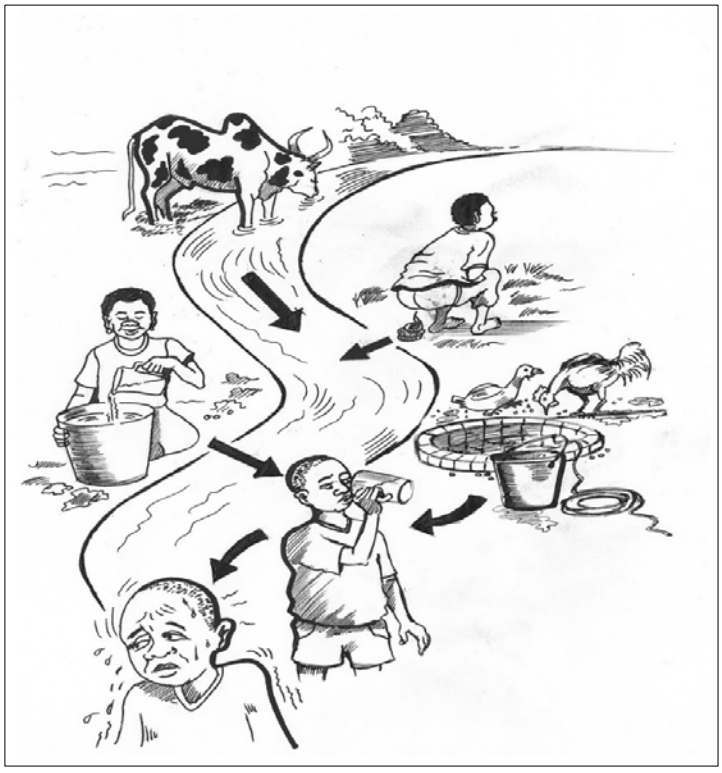
SUB-TOPIC: Descriptive Paragraph

CLASS: 8

RATIONALE: In this lesson, pupils will write a descriptive paragraph based on a picture, showing a number of water, sanitation, and hygiene problems, using correct word order.

SPECIFIC OUTCOMES: During and after the learning experience pupils should be able to:

- Describe what they see in the picture
- Identify a number of WASH problems in the picture
- Write a short paragraph of five sentences, using correct word order



PRE-REQUISITE: Pupils already know that the words in a sentence are arranged in a certain order so they make sense. They also know that the most important parts of a sentence are the subject and the predicate.

REFERENCES: Progress in English: Learner's Book 8

TEACHING AND LEARNING AIDS: The lesson will be organized around the illustration above:

[‡] Lesson plan formats can vary from district to district and province to province. Please use and adapt these samples to what is a standard format where you teach.

Stage	Teaching and Learning Activities	Learning Points
INTRODUCTION (5 minutes)	• Ask the class to describe what they can see in the chart. • What are the people and animals doing in the picture?	• The river is flowing. • Animals are standing in and drinking water. • A boy is defecating into the river. • A girl is fetching water from the river. • A boy is drinking contaminated water. • The boy is sick after drinking contaminated water.
DEVELOPMENT (20 minutes)	• Let pupils work in pairs and identify WASH problems that are happening in the picture. • Ask children to discuss the consequences of drinking contaminated water as seen in the picture. • What illness is the boy in the picture likely to suffer from?	• Water sources can be polluted by animal droppings. • Open defecation can be a source of diseases when the feces pollute the water source. • Drinking contaminated water can cause diseases such as diarrhea, cholera, typhoid, etc.
APPLICATION (10 minutes)	Pupils write a short paragraph, based on the chart, of about five sentences using correct word order.	
CONCLUSION & EVALUATION (5 minutes)	• Teacher to read some of the short paragraphs from pupils who are willing to share. • The teacher will then take all the books for marking.	• Check for word order and understanding of the key WASH points. Give examples of common mistakes on the chalkboard.

Sample Lesson Plan 2

TEACHER**: ……**

SCHOOL: …… DATE: ……..

SUBJECT: Integrated Science DURATION: 40 MINUTES

TOPIC: The Human Body TIME: 12:00-12:40 HOURS.

SUB-TOPIC: Puberty

CLASS: 5

RATIONALE: In this lesson, pupils will learn about puberty and the different male and female parts of the body.

SPECIFIC OUTCOMES: During and after the learning experience pupils should be able to:

- Identify male and female parts of the body
- Define puberty
- Describe changes that occur at puberty in human beings
- Differentiate between the male and female physical changes at puberty

PRE-REQUISITE: Pupils already know that human beings like all animals grow from babies to adults. Between the ages of about 12 and 14, there are big changes in the human body to prepare it for reproduction. The body changes from that of a child to an adult. This period of change is called puberty.

REFERENCES: Integrated Science Grade 5.

TEACHING AND LEARNING AIDS: Chart of humans showing baby, toddler, child, and adult stages, and photographs of the pupils when they were babies or toddlers.

Stage	Teaching and Learning Activities	Learning Points
INTRODUCTION (5 minutes)	• Ask the class to name the main body parts of a human being • How many remember what they looked like when they were toddlers? What changes happened between then and now?	• The main body parts may include the head, chest, arms, legs, shoulders, knees, hands, feet, toes, eyes, nose, mouth, etc. • As boys and girls grow up their body parts change and grow bigger • Between the ages of about 12 and 14, there are big changes in the human body to prepare it for reproduction
DEVELOPMENT (20 minutes)	• What is puberty? • Discuss the main body changes that the pupils know • Identify changes in boys which are different from the girls • Discuss changes in girls which are similar to those in boys	• Puberty is a growth stage when the body changes from that of a child to that of an adult • At puberty the body begins to secrete hormones that help the body to develop into that of an adult • During puberty many changes take place in the body. The body parts' size and shape change • Some changes are different in boys and girls, but some are the same • Some changes cannot be seen easily Changes in boys include: • Hair starts to grow on the arms, legs, face, and pubic area • The penis gets bigger. Testes descend into the scrotum and start to produce sperm • The voice cracks and becomes deeper Changes in girls include: • Hair starts to grow under the armpits and the pubic area • The hips become wider • Breasts develop • **Menstruation** starts
APPLICATION (10 minutes)	Ask the pupils to draw a table with two columns, one for boys and another for girls to show their differences at puberty	
CONCLUSION & EVALUATION 5 minutes	• Teacher to ask oral questions to check understanding and give a summary of key points covered	• Check for understanding and emphasize key points

Sample Lesson Plan 3

TEACHER**: ……**

SCHOOL: …… DATE: ……..

GRADE: 6

SUBJECT: Language (English) DURATION: 40 MINUTES

TOPIC: Comprehension TIME: 12:00-12:40 HOURS.

SUB-TOPIC: Reading Comprehension

CLASS: 8

RATIONALE: Pupils read a short passage on handwashing to understand the critical times when they should wash their hands.

SPECIFIC OUTCOMES: During and after the learning experience pupils should be able to:

- Read the text on the chart/paper in turns
- Identify and discuss new words
- Discuss the words on the word cards
- Answer questions based on the story

PRE-REQUISITE: Pupils have some notion about the importance of handwashing

REFERENCES:

TEACHING AND LEARNING AIDS: The text should be written on a chart or handed out on papers. Pupils will read the text below (from the chart or paper) and answer the questions that follow.

Handwashing with soap is among the most effective ways of preventing diarrheal diseases. Every year more than 3.5 million children under the age of 5 years die from diarrhea. Handwashing can also prevent skin diseases, eye infections, and intestinal worms.

Hands must be washed with soap at critical times. These are: after using the toilet, before eating, and before handling food. If not washed properly, hands carry germs that cause diseases. It is, therefore, important that we wash our hands at critical times.

Stage	Teaching and Learning Activities	Learning Points
INTRODUCTION (5 minutes)	• Sing a song titled Kalulu Wenze Kuti or any other familiar song that discusses the importance of handwashing	• Pupils discuss the moral behind the song i.e., importance of hygiene—specifically handwashing
DEVELOPMENT (20 minutes)	Step 1: Teacher displays the chart with the story and pupils take turns reading the story on the chart Step 2: Pupils identify and discuss new words from the story with the teacher Step 3: Display word cards and discuss any additional new words with pupils Step 4: Pupils discuss the passage in detail with the teacher. For example, look at the main message and how what is in the passage affects them and their daily life.	• The word cards have the following words: effective; critical; preventing; diarrheal; infection; and germ. • Pupils identify other new words and discuss them. • Pupils explain in their own words why handwashing with soap is important, and when it should be done (critical times).
APPLICATION (10 minutes)	**Teacher writes the following questions for the pupils to answer.** 1. How can we prevent diarrheal diseases? 2. How many children under 5 years die from diarrhea every year? 3. How can handwashing also prevent eye infections and intestinal worms? 4. How should we wash our hands if we are to prevent diseases? 5. Hands carry/cause which diseases? 6. What can we do at home/at school to make sure we can wash our hands at critical times?	**Expected answers** 1. By washing our hands with soap 2. 3.5 million 3. Skin diseases 4. At critical times (after using the toilet, before eating, before handling food) 5. Germs 6. Build tippy taps; make sure soap is always available; help our younger siblings or school mates to wash hands; do group handwashing every day
CONCLUSION AND EVALUATION (5 minutes)	Teacher asks pupils to restate the critical times for handwashing, and why handwashing is so important	After using the toilet, before eating, before handling food to prevent illnesses
CONCLUSION & EVALUATION 5 minutes	• Teacher to summarize the lesson completing the exercise with the whole class	• Pupils to correct their work after the class discussion

Annex 4: Tippy Tap Instruction Sheet

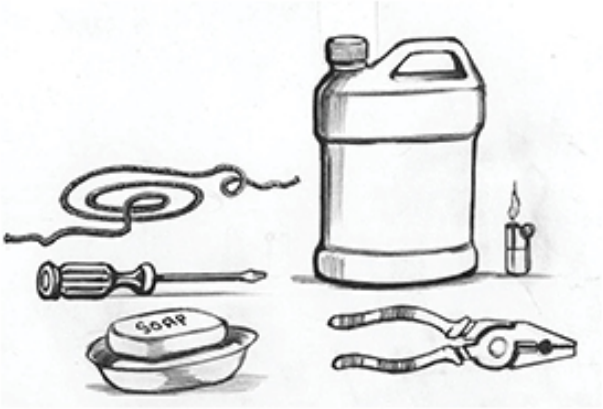
This is one model of tippy tap. There are many others. You can experiment and build your own model.

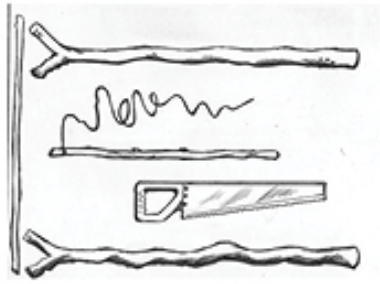
How to Build a Tippy Tap Hand Washing Station Instruction Sheet

Follow the easy steps below.

Materials needed:

- Two wooden branches of 2 meter length, with Y-shaped end
- Two thinner sticks of ~1 meter length.
- A saw to cut the wood.
- A nail
- A pair of pliers
- A lighter
- A shovel
- Two lengths of rope (0.5 m and 1 m)
- A 5 liter container
- A piece of soap
- A screwdriver
- A bag of gravel





1. Cutting the wood

- Cut two branches of wood of ~2 meter length, which have a Y-shape at the end.
- Cut two thinner branches, each of ~1 meter length.

2. Making the hole

Mark the location for the hole on the container, around 12 cm below the cap

3. Heating the nail

Hold the nail with a pair of pliers, and heat the nail with a lighter

4. Making the holes

With the hot nail, make the hole in the container, and a second hole in the cap

5. Inserting the rope

Put the rope, which is attached to the stick, through the hole in the cap

6. Knotting the rope

Make a knot in the rope which cannot pass through the hole.

7. Putting it together

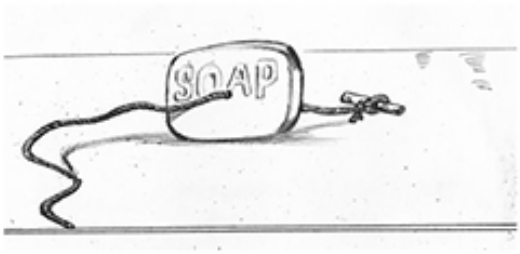
Screw the cap back on the container. The stick is now connected to the container with the rope.

8. Making the hole through the soap

Using a screwdriver, make a hole through the soap by slowly rotating and pushing the screwdriver through the soap

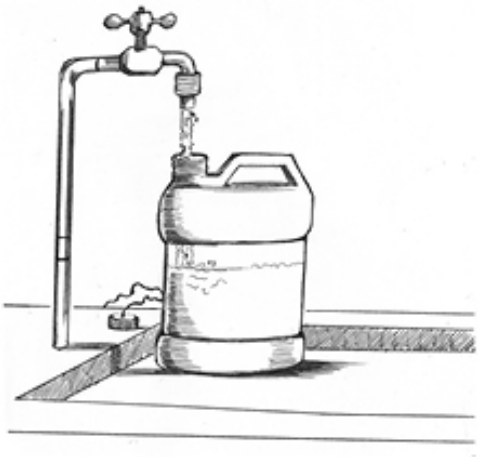
9. Inserting the rope

Put the second piece of rope through the hole in the soap, and tie a piece of wood to it.



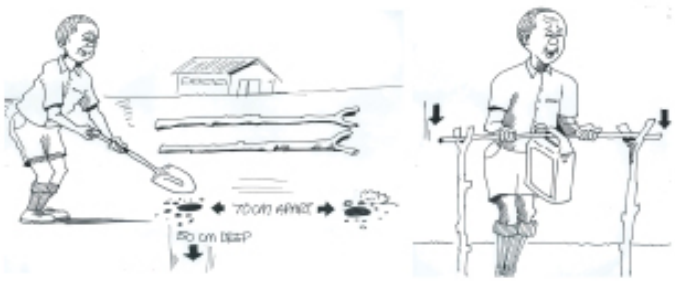
10. Filling the container

Fill the container with water, up to the level of the hole.



11. Putting the poles in the ground

Using a shovel put the poles in the ground to a depth of 50cm. The distance should be about 70 cm.



12. Hanging up the container

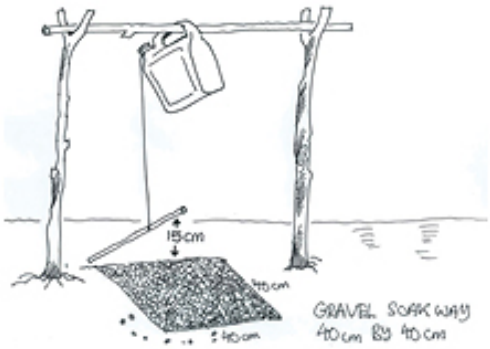
- Put the stick through the handle of the container, and put the stick between the poles.
- Adjust the length of the rope such that the end of the stick is about 15cm above the ground.

13. Adding the soap

Tie the rope with the soap to the stick.

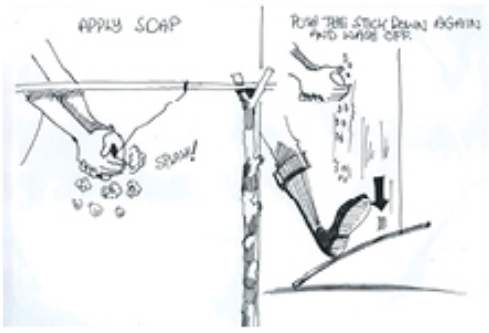
14. Gravel soaks away

- Between the two poles, below the container, dig a hole of 40 x 40 cm, and 10 cm deep. Fill the hole with gravel.
- The water soaks away in the hole, and prevents a mud hole from forming. The gravel also keeps mosquitoes from breeding.



Using the Tippy Tap

- Push the stick down with your foot. This tips the container, which makes water run out of the hole.
- Wet your hands and release the stick. Apply soap to your hands. Push the stick down again and clean your hands.



Adapted from: Mark Tiele Westra Werkgroep OntwikkelingsTechnieken (WOT) University of Twente, the Netherlands

From: WASHplus. 2014.*WASH-Friendly Schools: A Training Resource for SPLASH Use.* Illustrations by Kombe Roy Kazembe.

Endnotes

World Health Organization. 2004. *The Global Burden of Disease: 2004 Update*.

SHARE POLICY BRIEF. 2015. *Estimating the Potential Impact of Sanitary Child Stool Disposal.* http://shareresearch.org/LocalResources/Policy_Brief__Sanitary_Child_Stool_Disposal_April_2015.pdf

WHO. 2012. *Five Keys to Safer Food*. http://www.who.int/foodsafety/consumer/5keys/en/