WATER, HYGIENE, AND SANITATION PRESENTATION



February 2011



Water, Hygiene, and Sanitation Poster Presentation

CAWST is a Canadian humanitarian organization focused on the principle that clean water changes lives. Safe water and basic sanitation are fundamentals necessary to empower the world's poorest people and break the cycle of poverty. CAWST believes that the place to start is to teach people the skills they need to have safe water in their homes. CAWST transfers knowledge and skills to organizations and individuals in developing countries through education, training and consulting services. This ever expanding network can motivate individual households to take action to meet their own water and sanitation needs.

One of CAWST's core strategies is to make knowledge about water common knowledge. This is achieved, in part, by developing and freely distributing education materials with the intent of increasing its availability to those who need it most. This document is open content and licensed under the Creative Commons Attribution 2.5 Canada. To view a copy of this license, visit http://creativecommons.org/licenses/by/2.5/ca/ or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California 94105, USA.

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This poster presentation can be used as a participatory learning tool by Community Health Promoters (CHP) in a variety of situations to:

- Teach about safe water, hygiene and sanitation practices in general
- Introduce new household water treatment technologies
- Train people how to operate and maintain their household water treatment technology
- Reinforce key messages about water treatment, hygiene and sanitation on a return visit to a household

The CHP sits or stands in front of the audience while showing the posters to the group or individual. The written text for each poster is used by the CHP as a reminder about the key messages and content of each poster.

The text for each poster includes the following sections:

- Key Message This is the main message of the poster to be communicated to the participant(s).
- **Possible Questions** This section lists questions to engage the participant(s). Choose from these questions to begin a discussion about current practices and knowledge. It is not necessary to ask all of the questions, choose the ones that you think will generate a good discussion.
- **Content** The content includes the important points of each poster to be discussed and reviewed with the participant(s). Use the text as a guide to talk about the posters. Refer to this text frequently to make certain you are including all the important information and not forgetting any details.
- Check for Understanding These questions are designed for the CHP to review the important points of the poster with the participant(s). Choose from the questions to review any new information and assess the participant(s) knowledge level. If the individual or group answers a question incorrectly, review the information again and clarify the correct answer.

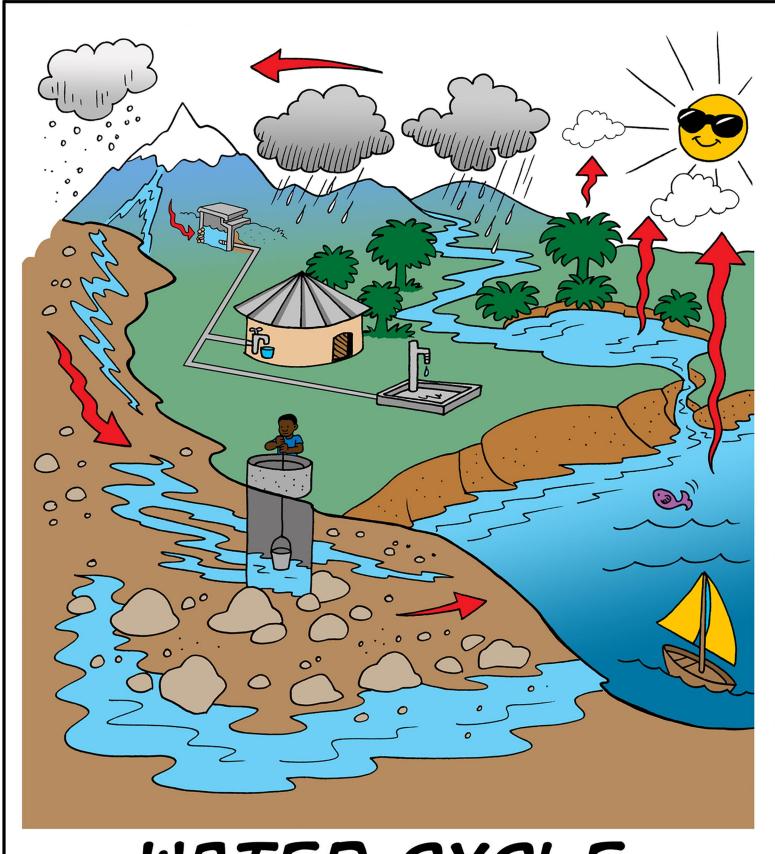
It is not necessary to use all the posters during the presentation. Some posters are designed for specific household water treatment technologies, such as the biosand filter, SODIS and the ceramic filter. Pick and choose which posters apply to your project and goals for the session, and use those posters to illustrate your points. There is no specific order to the posters, so present the posters in an order that fits your needs. The time required to complete the poster presentation will vary depending on the number of posters used, questions asked and the understanding of the audience.

Table of Contents

Poster Title	Key Message
Water Cycle and Sources	Water is in continuous movement on, above, and below the surface of the Earth. Drinking water comes from three main sources (rainwater, groundwater, surface water).
How We Use Water	Good water is important for many uses in our life (drinking, cooking, washing dishes, growing plants/crops, laundry, bathing).
How Water is Contaminated	Water can be contaminated in many ways (humans, animals).
Contaminated Water Contains Microbes that Make Us Sick	Contaminated water can make us sick (diarrhea, vomiting, hospitalization, death).
Microbes Come From Poop	Microbes are transferred from faeces to our mouths in many ways (hands, flies, water, fields, food).
Stop Microbes Protect Yourselves	There are three main ways to stop the transfer of faeces to our mouths: basic sanitation, safe water and proper hygiene.
Use Good Sanitation	Good sanitation habits prevent transmission of microbes (latrines, soak pits, fences, waste disposal).
Properly Dispose Your Waste	Bury your garbage and dispose of wastewater properly.
Use a Latrine and Fences	Use a latrine and fences to stop the transmission of microbes from faeces.
Look After Your Latrine	Use and maintain your latrine to prevent illness.
Use Good Hygiene	There are things we can do to protect ourselves from the microbes (handwashing, waste disposal, washing, cleaning, covering food)
Wash Your Hands	Washing our hands well and often will prevent illness (after defecation, before eating, after cleaning a baby).
Get Good Water	You can have good water if you from protect the water source, treat your water and store your treated water safely.
Protect Your Well	Keep your well safe by placing your latrine downhill and far away from your well.
Protect Your Water	There are ways to protect water from contamination (watershed and water source protection, protected well, proper rainwater storage, good wastewater disposal).

Poster Title	Key Message
Treat Your Water	Contaminated water can be treated to make it safe (sedimentation, filtration, disinfection).
Sediment Your Water Use Prickly Pear Cactus	Prickly pear cactus can be used to help remove sediment from your water.
Sediment Your Water Use Seeds	Different seeds can be used to help remove sediment from your water.
Sediment Your Water Use Chemicals	Different chemicals can be used to help remove sediment from your water.
Sediment Your Water Let it Settle	Natural settling can be used to help remove sediment from your water.
Filter Your Water Biosand Filter	The biosand filter can provide good quality water.
Biosand Filter Maintenance	Good maintenance practices of the biosand filter will ensure good quality water.
Filter Your Water Ceramic Pot Filter	The ceramic pot filter can provide good quality water.
Ceramic Pot Filter Maintenance	Maintain your ceramic pot filter to ensure good quality water.
Filter Your Water Ceramic Candle Filter	The ceramic candle filter can provide good quality water.
Ceramic Candle Filter Maintenance	Maintain your ceramic candle filter to ensure good quality water.
Filter Your Water Cloth Filter	Use a cloth filter to provide better quality water.
Disinfect Your Water SODIS	Solar disinfection (SODIS) is a good way to disinfect your water.
Disinfect Your Water Chlorine	Using chlorine is a good way to disinfect your water.
Disinfect Your Water Boiling	Boiling is a good way to disinfect your water.
Protect Your Treated Water	Using a safe storage container and cleaning it regularly will protect your treated water.
Store Your Treated	Treated water should be stored properly to keep it safe (good and bad

Water Safely	storage containers).



WATER CYCLE AND SOURCES



Water Cycle and Sources

Key Message: Water is in continuous movement on, above, and below the surface of the Earth. Drinking water comes from three main sources.

Possible Questions:

- What is the main source of water for your household?
- Do you use other water sources during different seasons?
- Where does your drinking water come from?
- Which source of water do you prefer?
- Why do you prefer this source of water?

Content:

The Earth has a limited amount of water. Water is in continuous movement on, above, and below the surface of the Earth. This is called the water cycle. Water exists as moisture in the air, creates clouds and falls as rain. Rainwater is one source of drinking water.

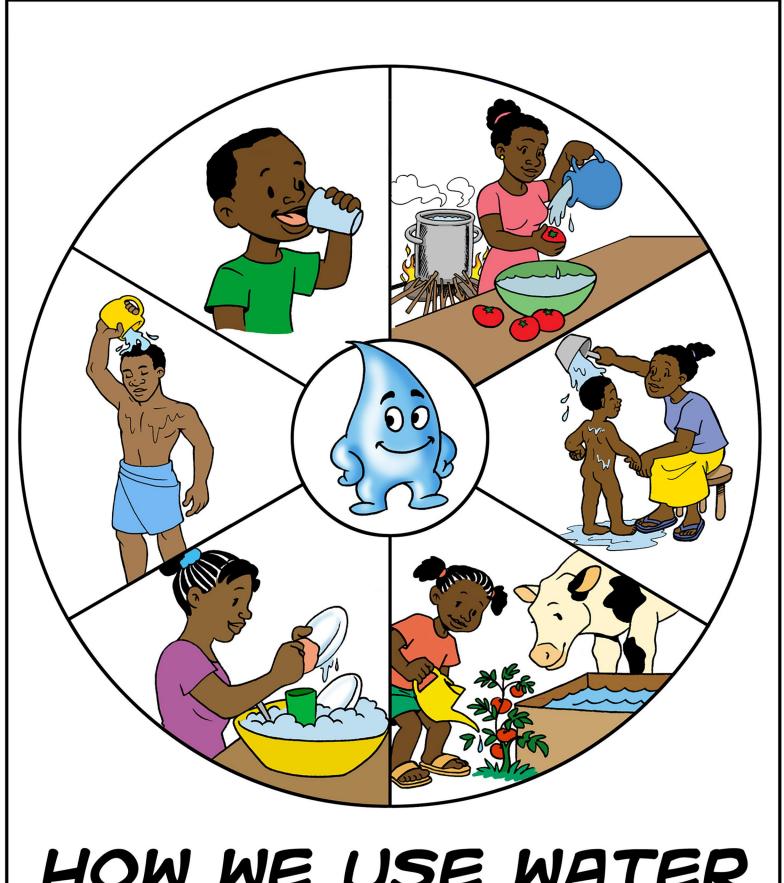
Rain feeds rivers, lakes and ponds and eventually reaches the ocean. Lakes and rivers are surface waters – another source of drinking water.

Some water seeps into the ground and is stored underneath the earth's surface in aquifers. There are both shallow and deep aquifers. This is known as groundwater – also used as drinking water.

Finally, water in the ocean and on land evaporates and the cycle begins again.

Household water comes from three main sources: groundwater, surface water and rainwater.

- Explain the water cycle.
- What are the three main sources of drinking water?



HOW WE USE WATER



How We Use Water

Key Message: Good water is important for many uses in our lives.

Possible Questions:

- What do we need and use water for?
- What are other uses of water?
- How much water do you drink each day?
- How much water do you use for cooking? Bathing?

Content:

We use water for: drinking, cooking, bathing, washing dishes, laundry, preparing food, giving to animals to drink, watering gardens and plants.

It is important that the water we drink is clean and safe. Water that is used to prepare food and to wash dishes should also be clean and safe.

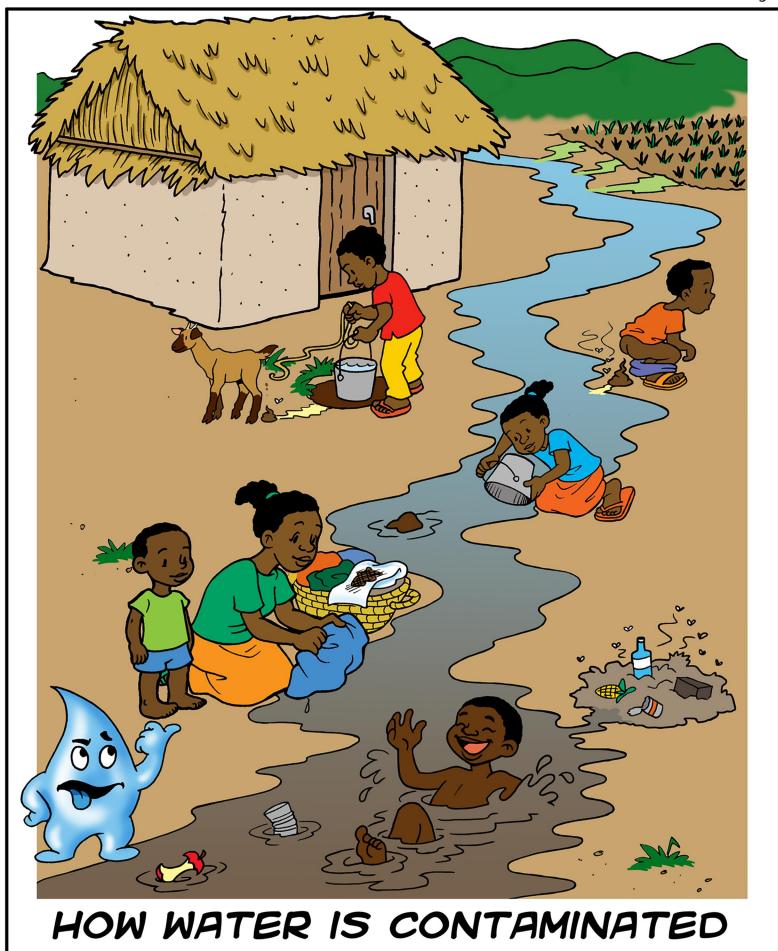
We also use water for recreational purposes, for example swimming in ponds or rivers.

Water that is used to water gardens and plants can be of lower quality.

Water is very important for our livelihood and quality of life. We need it to live and to grow the food that we eat.

To protect the water is a task of all people - children as well as adults. A healthy life for everyone requires good quality water. The whole family should understand how to look after and use water. The next pages will show us how to look after and obtain good quality water.

- Why do we need water?
- Tell me what you use water for.
- For which activities do we need really good quality water?
- For which activities can we use water that isn't the best quality?





How Water is Contaminated

Key Message: Water can be contaminated in many ways.

Possible Questions:

- Where does the water come from?
- What does it mean when we say that water is contaminated?
- What are the possible sources for water contamination?
- Are humans the only ones contaminating the water?
- Where do the people dispose of faeces?
- Is it alright to defecate anywhere?
- How can we protect the water that we use?

Content:

Water that contains microbes and other pollutants is contaminated. Human and animal faeces are the main source of water contamination. Water is contaminated when people and animals defecate in an open field or near a water source and when latrines are not properly used and maintained. The faeces get into the water and are spread to everyone who uses that water.

Contaminated water can come through rivers, streams, wells and is carried to our homes in pipelines and buckets.

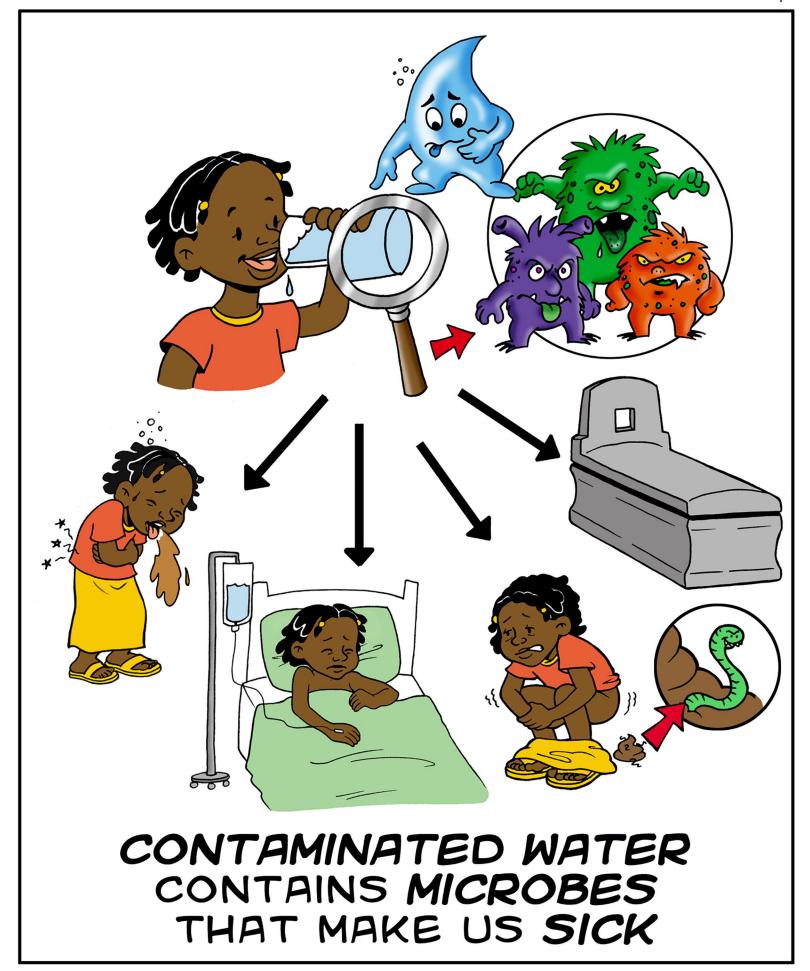
Water can also be contaminated when:

- Containers for storing water are not cleaned properly
- Water storage tanks are not covered to protect against contamination
- The bucket and rope that are used to pull water out of the well were in contact with something dirty (hands, animals, ground)

Water can look dirty when it is contaminated, but even clear water can contain microbes that cause illness. Not all sources of water are good quality water.

Rainwater is pure when falling from the sky, but may become dirty when landing on the roof. Groundwater can be of good quality, but may be contaminated with chemicals or latrine waste. Surface water is of poor quality because there are many so ways it can become contaminated.

- Explain, in your own words, what contamination means.
- Which sources of drinking water are easily contaminated?
- Why are these water sources easily contaminated?
- If you get water from a well, can microbes get into that well? How?
- How can garbage contaminate our water?
- What are some other habits that can lead to contamination of water?
- If the water is clear, could it be contaminated?





Contaminated Water Contains Microbes That Make Us Sick

Key Message: Contaminated water can make us sick.

Possible Questions:

- Have you or someone in the family been sick recently?
- Do you know why you or your family was sick?
- Have you or your family ever become sick from contaminated water?
- How much money did you spend the last time someone in your family went to the doctor?

Content:

When water is dirty, we know that it is not good to drink. We may think clear water is safe to drink, but that is not always the case. There may be very small living things called microbes, pathogens or micro-organisms (depending on the language and culture) in the water. These microbes can be worms, parasites, and bacteria. Most microbes are so tiny that we cannot see them with our eyes.

If we drink contaminated water, we may become ill with:

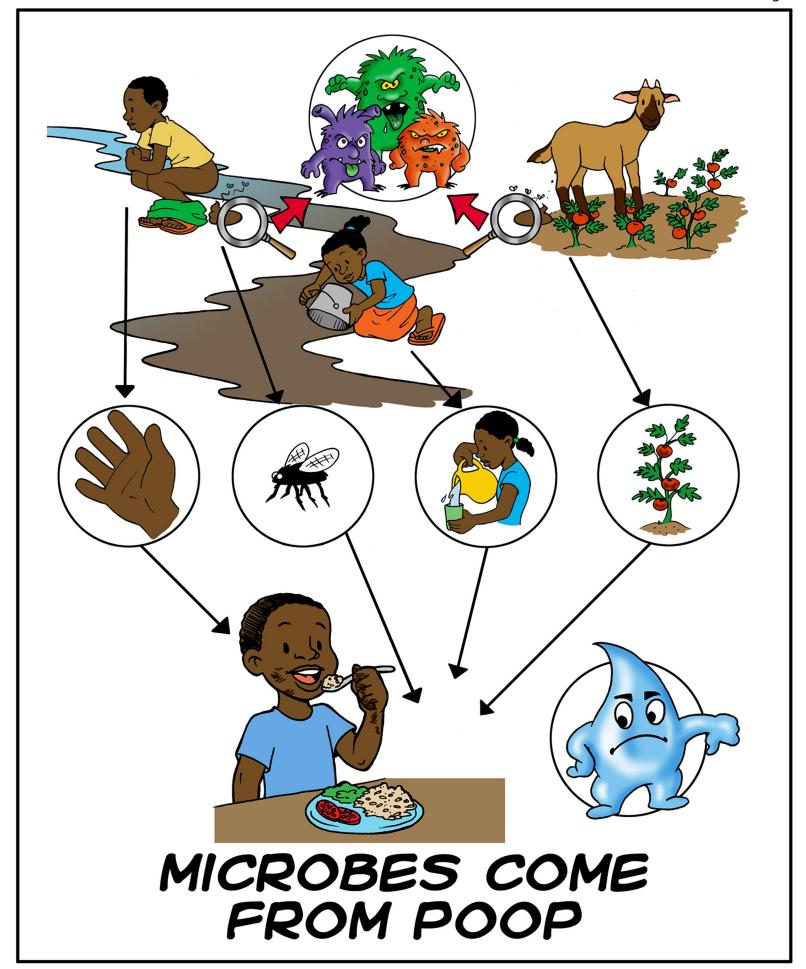
- Diarrhoea
- Vomiting
- Stomach pain
- Fever

(Talk about any water-related diseases that are common in the area.)

When we get sick, we may have to visit the doctor or even stay in the hospital. If we require medications to cure these illnesses, it can cost a lot of money. Sickness can cause us to miss school or work. Some illnesses are so bad that we may die.

There are a lot of consequences of using contaminated water.

- What can you see in the water?
- What is something that you can't see in the water, but might still be there?
- What happens if you drink water that has microbes in it?
- What are the illnesses that we can get when we drink contaminated water?
- What are some consequences of being sick?





Microbes Come From Poop

Key Message: Microbes are transferred from faeces to our mouths in many ways.

Possible Questions:

How do you think microbes can be transferred from faeces to your mouth?

Content:

This poster shows ways in which microbes are transferred from faeces to our mouth and into our stomach. These are the ways that we become sick from microbes.

Microbes can spread on our hands and fingers. Every time that our hands touch human or animal faeces, there is a chance that microbes can be spread to our mouth or to our food. The microbes can also be spread to other people's hands and food.

Flies are attracted to the smell of human or animal faeces. When they land on faeces and then fly and land on our food, they spread the microbes that cause illness. Also if the flies land on our face or hands, they can spread the microbes to us.

Water that is contaminated with faeces will flow around the countryside and spread the contamination. When this water is used in the household, the microbes could be transferred to our mouth. This can happen when we drink the water and also when we use dishes washed in contaminated water.

Plants can also pick up microbes from faeces. The fruit or vegetables may become contaminated with microbes from animal or human faeces. If fruit or vegetables are not washed with clean water then we can become sick.

When a healthy person consumes contaminated food and water, the microbes enter the stomach and can result in illness. When children and adults are sick, their faeces contain the microbes that caused their illness. When a sick person defecates, especially out in the open field, the microbes are once again entering the environment. In this way, the transmission cycle of microbes and disease continues.

- How do flies transfer microbes from faeces?
- How can microbes be transferred through water?
- How are microbes transferred through our hands and fingers?
- How can food become contaminated?
- How is water contaminated?





<u>Stop Microbes – Protect Yourselves</u>

Key Message: There are three main ways to stop the transfer of microbes to our mouths: basic sanitation, safe water and proper hygiene.

Possible Questions:

If poster is used as an introduction:

- What do you see on this page?
- How do you think these items and activities will help make your family healthier?

If poster is used as a review:

- Show the ways that microbes can go from faeces to your mouth.
- How do you keep a latrine clean?
- What are some ways to treat water to ensure that it is of good quality?
- What is a good way to wash your hands?
- How do you protect your food?

Content:

This poster illustrates the three main ways to prevent illness by stopping the transfer of microbes to our mouths.

- 1. <u>Sanitation</u>: A well maintained latrine will not attract the flies and will stop the spread of human faeces from contaminating our food and water systems. Burying our garbage is a good way to reduce the number of flies and rodents around our homes.
- 2. <u>Water</u>: Treating our water before drinking is a good way to ensure our water is safe to drink. We can make sure our families do not become sick by drinking good quality water.
- 3. <u>Hygiene</u>: Keeping food covered so that flies don't get on our food is a good way to protect ourselves from illness. Washing our hands with soap and water will remove microbes from our hands so that they can't get into our mouths.

The cycle of transferring microbes from faeces to our mouths can be stopped with a few easy steps. Good sanitation, water treatment and good hygiene practices will improve the health of our families. By doing these things regularly, we will establish good habits that will lead to better health.

Check for Understanding:

If poster is used as an introduction:

- What are the three ways to stop the transfer of microbes from faeces to your mouth?

If poster is used as a review:

- What will a properly used and maintained latrine prevent?
- Why should household garbage be buried?
- How can we stop the transfer of microbes through water?
- Why should we wash our hands?
- How can we protect food from contamination?



USE GOOD SANITATION



Stop Microbes – Use Good Sanitation

Key Message: Good sanitation habits prevent transmission of microbes.

Possible Questions:

- Do you have a latrine?
- If yes, is it a communal or household latrine?
- What do you use your latrine for?
- Do you or your community practice any of these activities?

Content:

This poster illustrates the different ways to prevent illness by practicing good sanitation.

A well maintained latrine will not attract flies and will stop the spread of human faeces from contaminating our food and water systems.

Wastewater can be disposed of in a soak pit. A soak pit is a hole in the ground filled with gravel where water can soak into the ground safely. Standing water is dangerous because mosquitoes breed in standing water. Mosquitoes spread illnesses like malaria and dengue fever. We can help stop these illnesses by constructing and using soak pits.

Protecting our water sources from animal faeces is very important. If we use a well for our water then it is best to build a fence around it to keep animals out. To prevent pools of water forming around the well, divert the spilled water away from the well, pump or tapstand. The wastewater from the well, pump or tapstand can be used to water a small garden or diverted into a soak pit.

Animals can contaminate the food we grow in gardens if there is no fence to keep them out. Make a fence around the garden to protect fruit and vegetables.

Burying household garbage is a good way to maintain a clean home and compound. We can help stop flies from being attracted to our garbage and lying eggs there.

- How can we stop the transfer of microbes through sanitation?
- What are some good sanitation habits?













STOP MICROBES
PROPERLY DISPOSE YOUR WASTE



Stop Microbes - Properly Dispose Your Waste

Key Message: Bury your garbage and dispose of wastewater properly.

Possible Questions:

- How do you dispose of your garbage?
- Are there places in your community with standing pools of water?
- Where do you dispose of water after cleaning the house or washing clothes?

Content:

Household garbage should be disposed of properly. It is best to bury your garbage to prevent flies and rodents from gathering and reproducing. Throwing our garbage on the ground damages the environment. Burning our garbage will harm the air.

There is often standing water around pumps, wells, or tapstands. Standing water is where mosquitoes breed. Mosquitoes can spread illnesses like malaria and dengue fever. There are ways to prevent standing water.

Protect your well, pump or tapstand by:

- Building a platform to prevent standing water collecting there
- Diverting the spilled water through a channel
- Building a soak pit nearby to soak up the wastewater

Wastewater from laundry or household chores can be disposed of in a soak pit. Wastewater can also be used for watering gardens or feeding animals.

- How should we dispose of garbage?
- Name two ways to protect a well, pump or tapstand.
- What is the best way to dispose of household wastewater?
- How do these activities prevent microbes from spreading?
- How do these activities prevent illness?





Look After Your Latrine

Key Message: Use and maintain your latrine to prevent illness.

Possible Questions:

- Who cleans your latrine?
- How often does the latrine get cleaned?
- How do you dispose of children's faeces?

Content:

The latrine house built on the slab can be made of many materials. If air can flow through, the latrine will smell less. A vent pipe from below the slab to above the roof will let the smells blow out. A fly screen must cover the top of the vent pipe to stop the flies and insects from getting out. Flies will enter the hole, see the light at the top of the vent pipe, fly up the pipe and get caught in the trap.

A floor made of concrete is best for the latrine, since it is more secure, lasts long and is easy to clean.

Maintain the latrine to stop the spread of illnesses:

- Wash the latrine seat and floor
- Keep the vent pipe in good working order
- Check the fly screen regularly and repair it if needed

Do not put the following things inside the latrine hole:

- Wastewater (fills the pit quickly)
- Chemicals (do not allow the waste material to decompose)
- Empty bottles, cans and other rubbish
- Bricks and stones

Children's faeces should be dumped into the latrine. They also contain microbes, the same as the faeces of adults.

- Why is it important to keep a clean latrine?
- How is a good latrine built?
- How can we look after the latrine?
- What should not go into the latrine hole?
- How should we dispose of children's faeces?





<u>Stop Microbes – Use Good Hygiene</u>

Key Message: There are things we can do to protect ourselves from microbes.

Possible Questions:

- How can microbes from faeces be transferred to your mouth?
- How can microbes from faeces be transferred to your food?
- What are some good personal habits to stop the transfer of microbes from our fingers to our mouths?
- How can we protect our food and dishes from being contaminated?
- What can we do to keep our homes clean?

Content:

Good and bad habits can determine whether our food is clean or contaminated. Faeces from humans and animals are the main cause of contamination and illness.

Microbes can be transferred from faeces through our hands and fingers and then on to our food or mouth.

Microbes will be transferred to our fingers every time we touch something that has been contaminated. When our fingers are contaminated and we touch our mouths, we may become sick.

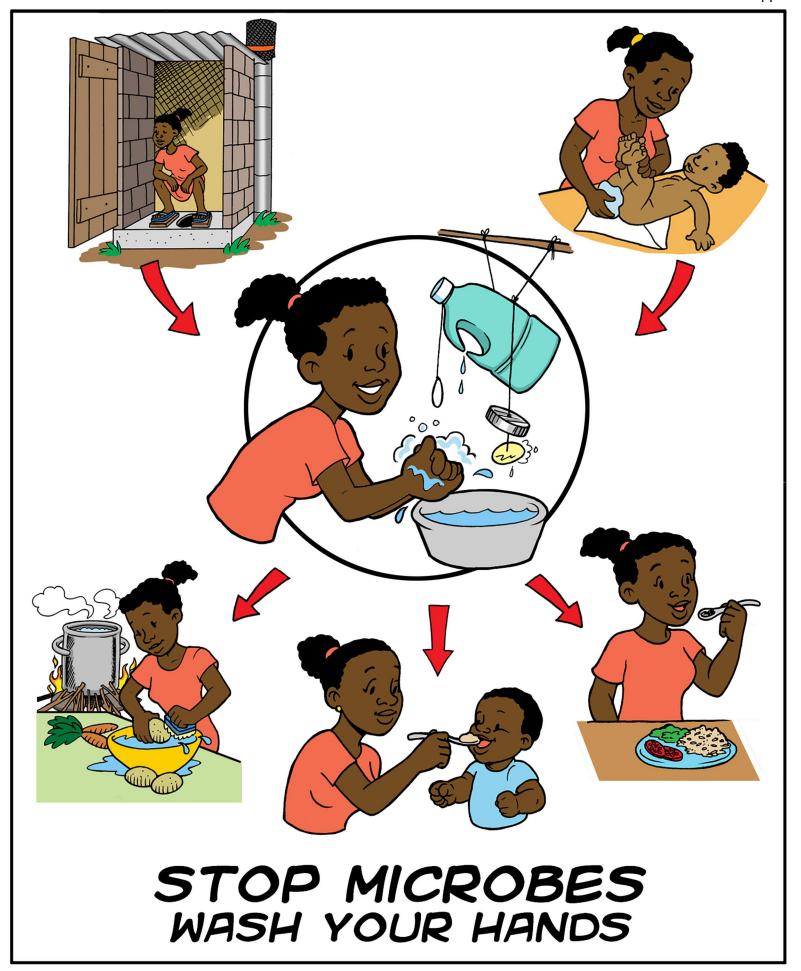
We should wash our hands after using the latrine, before we eat and before we prepare food. We should also wash our hands after contacting children's faeces.

Regular baths with soap are important to wash off microbes that may be on our bodies. This will help keep us clean and healthy.

Protecting our food from flies will help stop the spread of microbes. Washing dishes in soapy water after we eat will stop the transfer of microbes to the next person who uses that dish.

Keeping our houses clean and burying our garbage also helps stop the transfer of microbes.

- What are some good hygiene practices?
- How are microbes spread through our fingers?
- How can we stop microbes from being spread on our fingers and hands?
- Why do we keep flies off food?
- What should we do with garbage?
- When should we wash our hands?





Stop Microbes - Wash Your Hands

Key Message: Washing our hands well and often will prevent illness.

Possible Questions:

- When do you wash your hands?
- How do you wash your hands?
- Why does washing your hands help to prevent illness?

Content:

Microbes are transferred from our hands and into our bodies through our mouths, nose and eyes. This transfer can be stopped if we wash our hands well and frequently.

This poster shows how and when we should wash our hands. We call this the 3 x 3 method.

The three times when we should wash our hands are:

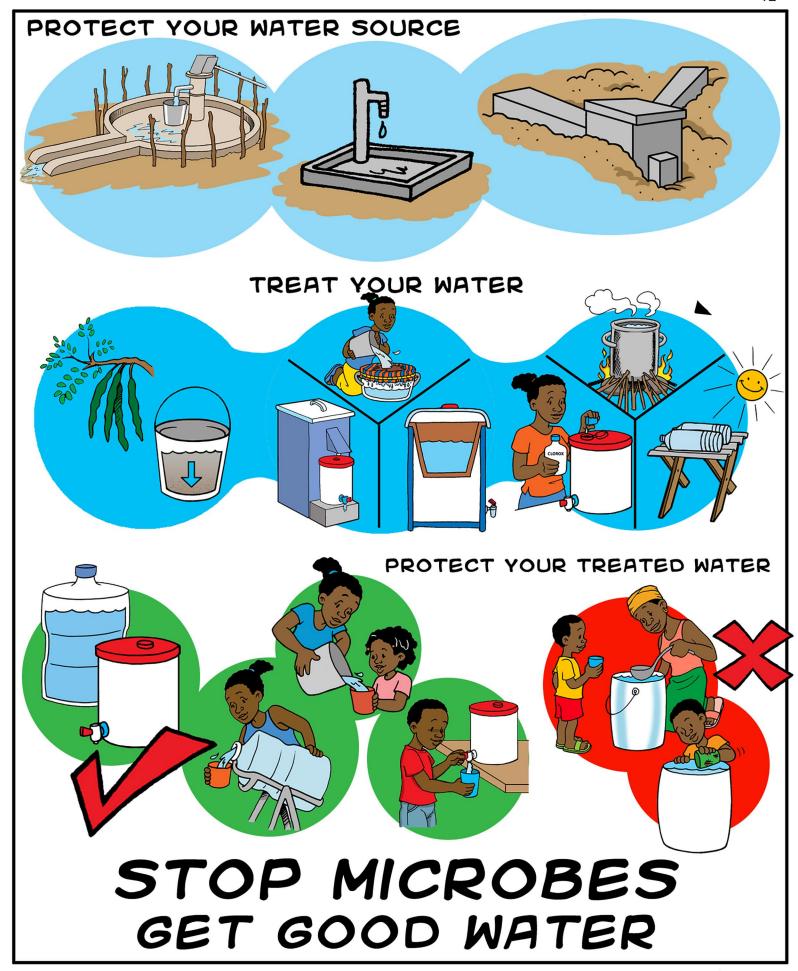
- Before cooking or preparing food
- Before eating or before feeding children
- After defecating and after changing or cleaning babies

The three steps to wash our hands are:

- Wash both hands with water and soap or ash.
- Rub the front and back of your hands and in between your fingers at least three times
- Dry hands with a clean towel or air dry your hands

We need to wash our hands thoroughly to remove the microbes from our hands. Water alone will not remove all microbes from our hands. That is why we use soap or ash every time we wash our hands. We need to be careful when drying our hands so we don't make them dirty again.

- Show me how to wash your hands.
- When should we wash our hands?
- Why do we use soap or ash?
- Why do we use good water?
- Why do we use a clean towel to dry our hands?





Stop Microbes - Get Good Water

Key Message: You can have good water if you from protect the water source, treat your water and store your treated water safely.

Possible Questions:

If post is used as an introduction:

- What do you see on this page?
- How do you think these activities will help make your family healthier?

If poster is used as a review:

- How can you get good water?

Content:

Drinking good water will help stop the transfer of microbes and prevent you and your family from getting sick.

First, you must <u>Protect Your Source</u> water. Rainwater should be stored in a closed container with a lid to prevent microbes from entering. Wells should be covered, with a channel to divert wastewater away, to prevent microbes getting in. Surface water sources like ponds should be fenced to stop animals. Springs should be protected with a spring or catchment box.

Second, you can <u>Treat Your Water</u> in the home to ensure the water is safe for the family. Water treatment includes three steps: sedimentation, filtration, and disinfection. There are many good ways to treat your water. We will talk more about household water treatment in the next posters.

To <u>Protect Your Treated Water</u> use a storage container with a lid. A good storage container has a tap or narrow opening to pour out the water. Do not store your water in open containers. Stored water becomes contaminated with microbes if you use a cup or dipper to get the water out. Teach children to pour out the water when they need to drink or use a storage container with a tap.

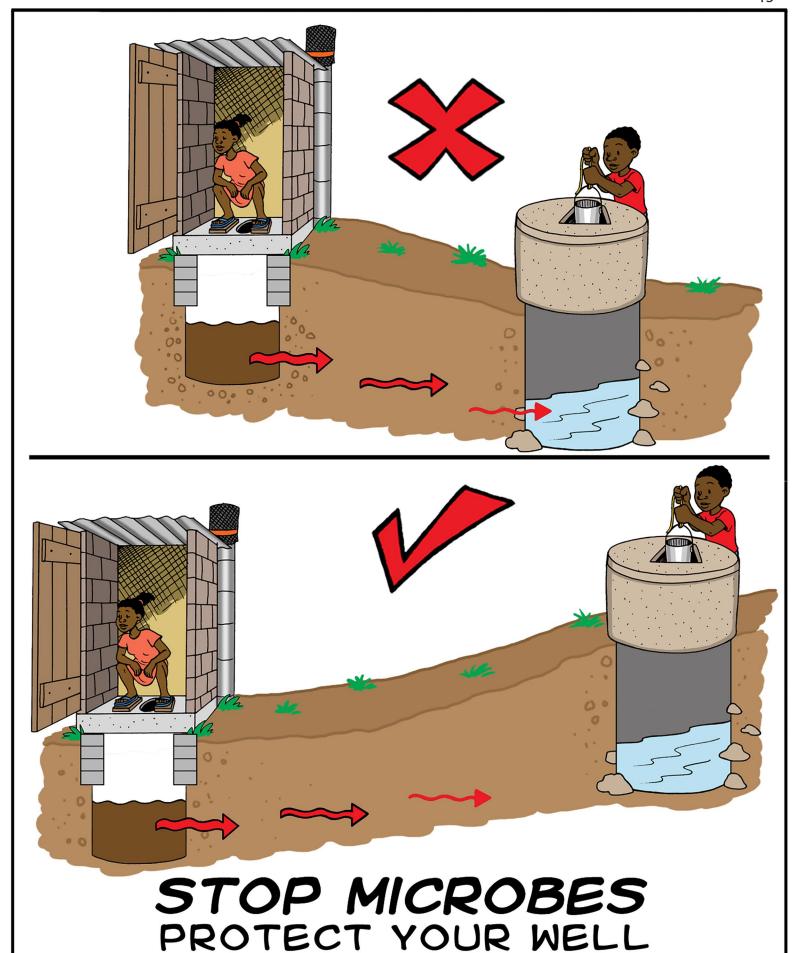
Check for Understanding:

If poster is used as an introduction:

- What are some ways to get good water?

If poster is used as a review:

- How do we protect our source water?
- Is it necessary to treat our water before drinking it?
- What are some examples of methods to treat the water?
- What type of storage containers will keep our treated water safe?





<u>Stop Microbes – Protect Your Well</u>

Key Message: Build your latrine downhill and away from your well.

Possible Questions:

- Where is your latrine?
- Where is your well?
- What is the distance between them?
- Do you think it is safe for your latrine to be next to your well?

Content:

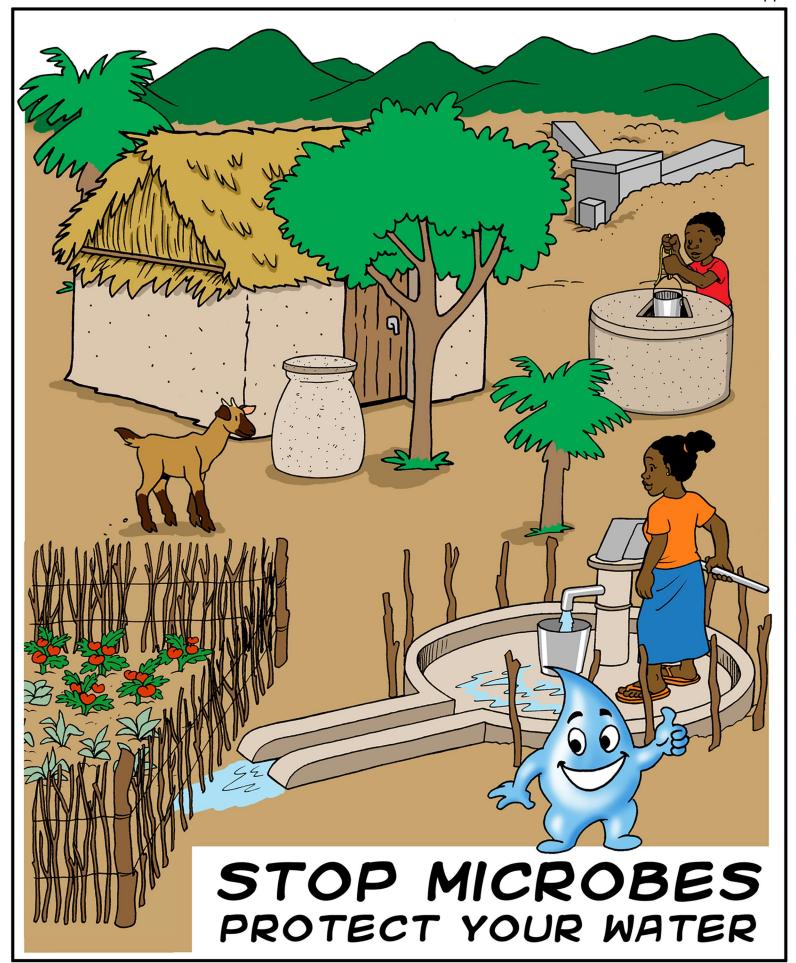
This poster shows where to build your latrine to help keep our well water safe.

Microbes from latrines move through the ground and can end up in the ground water.

Latrines should be built far away from our wells. As a general rule, latrines should be kept 30 metres away from our wells. At this distance, microbes from latrines will die naturally before getting to the well.

Latrines should always be built downhill of our wells since it is difficult for microbes to move uphill. This will help to protect our well water.

- Why do we want to keep our latrine far away from our well?
- As a general rule, how far should our latrines be built from a well?
- Why should we build a latrine downhill of a well?





Stop Microbes - Protect Your Water

Key Message: There are ways to protect our drinking water from contamination.

Possible Questions:

- Are there any activities you do to protect your water source?
- Do you use a container to collect rainwater?
- If yes, what type of storage container do you use?
- Do you use a tapstand, well or pump to get your water?
- If yes, is the well covered?
- Does the pump or tapstand have a platform?
- Is there a place for wastewater to go?

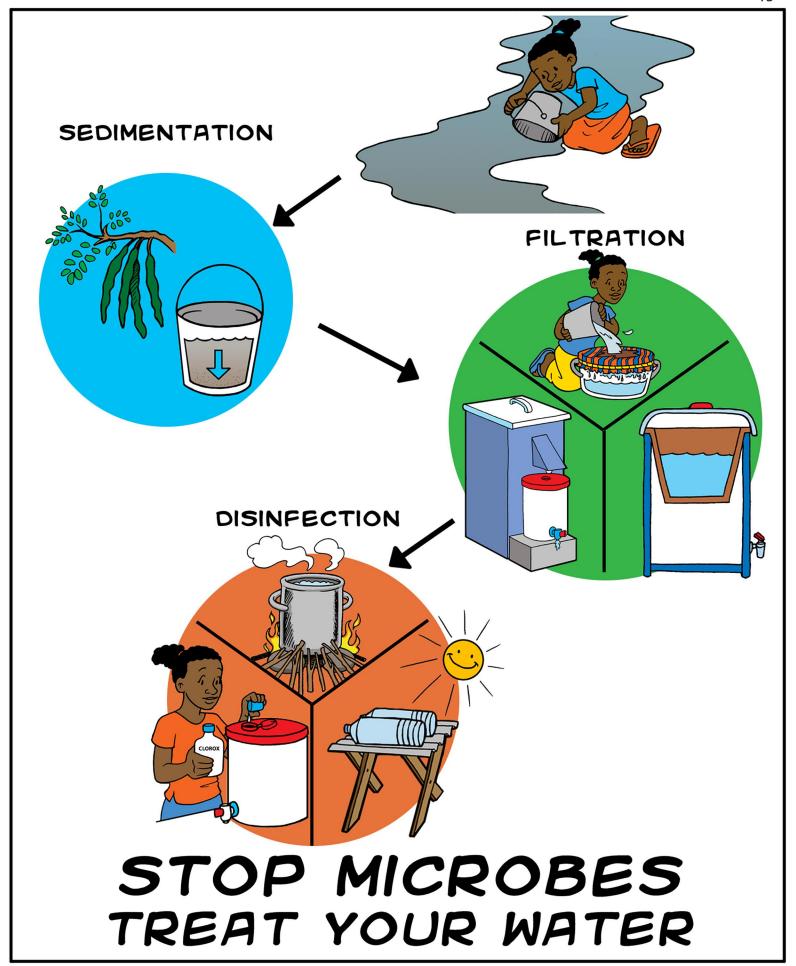
Content:

We have to protect our drinking water from contamination. To protect our water:

- Keep a protected and covered well
- Build a platform under the pump or tapstand
- Build a channel to divert wastewater
- Build a soak pit for wastewater
- Protect your spring by building a catchment box
- Collect rainwater in covered tanks
- Use a clean rope and bucket to pull water out of a well
- Keep animals away from our water sources by using fences
- Maintain a separate area for animals to drink
- Take care of the yard and general environment around the house
- Protect the source of water by planting trees along creeks and rivers
- Maintain a well forested area above your water source

If we do these things, the quality of the drinking water that we consume will be better, but we still may have to treat the water to make sure it is safe to drink.

- How can we protect our water sources?
- What should we do with wastewater from our water source?
- How do we protect our spring sources?
- How should rainwater be collected and stored?
- Why do we cover wells?
- Why should we have a platform underneath a pump or tapstand?
- Why would we use a soak pit?





Stop Microbes - Treat Your Water

Key Message: Contaminated water can be treated to make it safe.

Possible Questions:

- Do you treat your drinking water?
- Have you heard of any ways to treat your drinking water?
- Are you satisfied with your drinking water?

Content:

It is important to treat your water to ensure that it is safe. Treating our water helps remove microbes which make us sick.

Water can be treated in several different ways. Some ways are easy or fast but other methods can be hard and more expensive. Which ever way is used to treat water, it must be done well and correctly. If it is done correctly and consistently, you should always have good water to drink.

The first step in treating your water is to perform <u>sedimentation</u>. When our water is dirty we need to sediment our water. Microbes like to stick to sediment, so by removing the sediment we are removing microbes. We can sediment our water using seeds, prickly pear cactus, or chemicals. These will help remove sediment and make the water more clear.

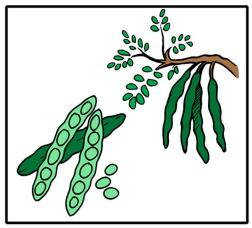
After sedimentation, it is necessary to filter our water to remove more microbes. We can filter our water using many methods. Some methods of <u>filtration</u> are straining the water with cotton cloth, using a biosand filter, or using a ceramic filter.

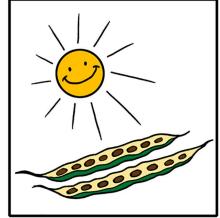
Although the water may look clear after filtration, it is still necessary to disinfect our water. <u>Disinfection</u> can be done by boiling, adding chlorine or using solar disinfection (SODIS).

If we have performed all three steps, we know that our water is safe to drink. There are different treatment methods, so we can choose which way is best for our family.

- Why should we treat the water?
- What are the three steps to treat our water?
- If our source water is clear, can it still make us sick?
- How do you remove microbes?
- Why are there different water treatment methods?



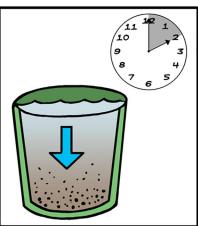
















SEDIMENT YOUR WATER USE SEEDS



Sediment Your Water - Use Seeds

Key Message: Different seeds can be used to help remove sediment from your water.

Possible Questions:

- Have you ever used seeds to sediment your water?
- If yes, how do you usually use seeds?

Content:

The first step in treating your water is to perform sedimentation. When our water is dirty we need to sediment it. Microbes like to stick to sediment, so by removing the sediment we are removing microbes.

We can sediment our water using seeds. Different seeds are used in different countries and regions. Some seeds that can be used for sedimentation are: fava beans (Latin America), moringa (Africa and parts of Asia), and peach (Latin America).

There are different ways people use seeds to sediment their water. Explain how to use the seeds available in your area.

One way is to do the following steps:

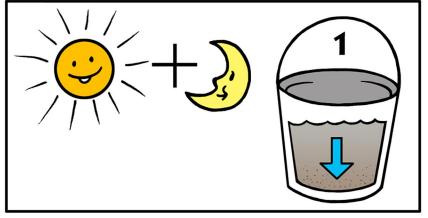
- Let the seeds dry out in the sun
- Grind up some seeds
- Add a handful of ground seeds to a bucket of dirty water
- Stir the water with a spoon or stick for a few minutes
- Let it settle for a couple of hours
- Pour the clear water into a <u>clean</u> storage container

The seeds will be left at the bottom of the bucket. They should be thrown out with the rest of the household garbage.

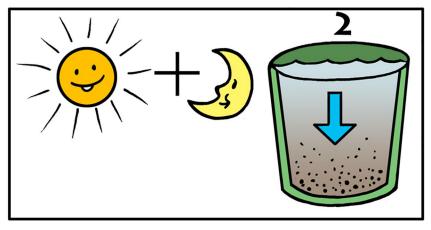
By using sedimentation, we are helping to get better water. We still need to filter and disinfect our water after using seeds.

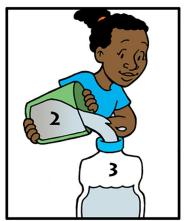
- Why would you want to use seeds?
- How would you use seeds to sediment your water?
- Is the water safe to drink after sedimentation?

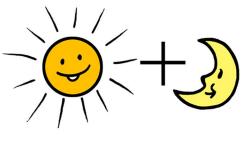














SEDIMENT YOUR WATER LET IT SETTLE



<u>Sediment Your Water – Use Chemicals</u>

Key Message: Different chemicals can be used to help remove sediment from your water.

Possible Questions:

- Have you ever used any chemicals to sediment your water?
- If yes, how do you usually use these chemicals?

Content:

The first step in treating your water is to perform sedimentation. When our water is dirty we need to sediment it. Microbes like to stick to sediment, so by removing the sediment we are removing microbes.

Different chemicals are used in different countries and regions. Some common chemicals used for sedimentation are: alum (aluminium sulphate), ferric sulphate, and liquid alum (poly-aluminium chloride).

There are different ways people use chemicals to sediment their water. Each type of chemical has specific directions for using it properly. You will need to read the label and follow the directions on the chemical's package.

In general, we follow these steps:

- Add some chemicals to the dirty water
- Stir the water with a stick or spoon
- Let it settle for a couple of hours
- Pour the clear water to a clean storage container

By using sedimentation, we are helping to get better water. We still need to filter and disinfect our water after using chemicals.

- Why would you want to use chemicals?
- How would you use chemicals to sediment your water?
- Is the water safe to drink after sedimentation?





Sediment Your Water - Let it Settle

Key Message: Natural settling can be used to help remove sediment from your water.

Possible Questions:

- Have you ever allowed your water to sit for awhile to sediment the water?
- Explain how you usually settle the water.

Content:

The first step in treating your water is to perform sedimentation. When our water is dirty we can settle it. Microbes like to stick to sediment, so by allowing the sediment to settle out we are removing microbes.

We can sediment our water by allowing the particles to settle. This method is called 3-pot settling because you will need three buckets or pails for the process.

To settle the water:

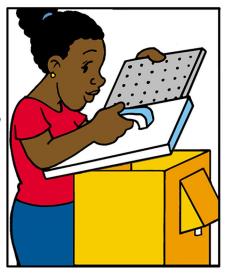
- Get a bucket of dirty water
- Allow the bucket to sit without moving it for about 24 hours
- Pour the clear water from the bucket to a <u>clean</u> bucket
- Allow the second bucket to sit without moving it for about 24 hours
- Pour the clear water from the bucket to a <u>clean</u> storage container

Cover your pots while they are settling so that more dirt and mosquitoes do not enter the water.

By using 3-pot settling, we are helping to get better water. We still need to filter and disinfect our water after settling it.

- Why would you want to settle your water?
- How would you use 3-pot settling?
- Is the water safe to drink after settling?



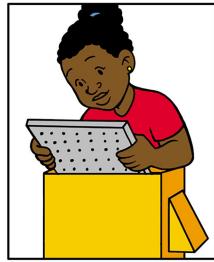


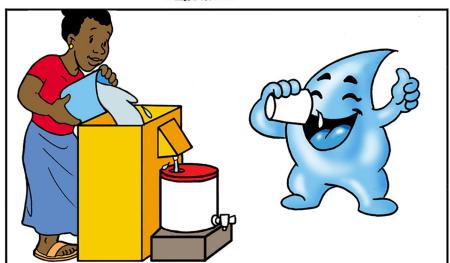












BIOSAND FILTER MAINTENANCE



Filter Your Water - Biosand Filter

Key Message: The biosand filter can provide good quality water.

Possible Questions:

- Have you ever seen or used a biosand filter?
- How do you think the biosand filter works?

Content:

The biosand filter can remove most microbes and sediment from the source water. The filter box is made of concrete or plastic. Inside the filter are layers of sand and gravel (top to bottom). The diffuser plate helps slow down the water.

A biolayer develops on the surface of the sand. The water slowly passes through the biolayer, sand and gravel. These layers remove the microbes. Filtered water flows out the tube. Place the storage container up on a block or stand so that the opening is just under the spout. If the source water is dirty, use a sedimentation method before pouring it into the filter.

Advantages:

- Removes most microbes
- Removes some sediment
- No on-going costs
- Made from local materials
- Filtered water tastes good

Disadvantages:

- Heavy should not be moved after installation
- May need to sediment water before using filter
- Cannot remove all colour

Don't:

How to use the filter:

- Place a clean storage container under the filter spout, as close to the spout as possible
- Remove the lid on the filter
- Ensure that the diffuser plate is in place- do not pour water directly onto the sand layer
- Slowly pour untreated water into the filter fill it full
- Replace the lid
- Allow the water to drain through the filter completely

We still need to disinfect our treated water.

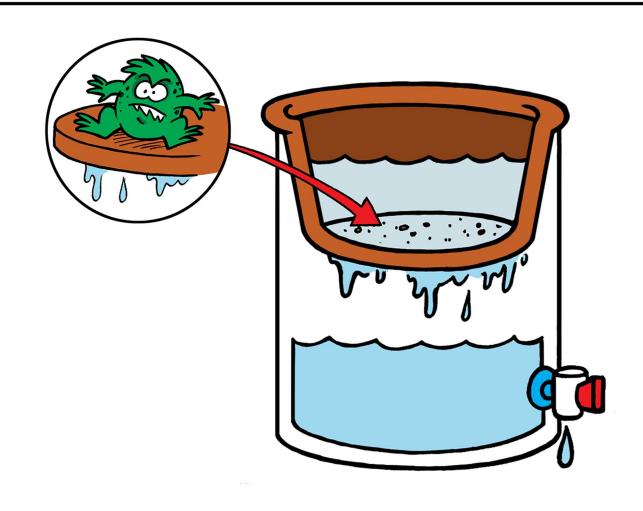
Here are some Do's and Don'ts when using the biosand filter.

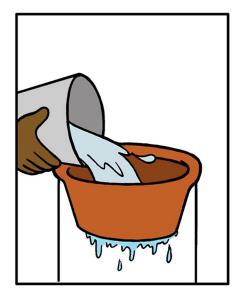
Do:

- Use your filter everyday
- Protect the filter from weather
- Use the lid
- Keep animals away from the filter

- Add chlorine to the biosand filter
- Plug the outlet with a tap or hose
- Pour dirty water into the filter
- Store food inside the filter box (attracts ants, flies, cockroaches)
- Allow children to play with the filter

- How does the biosand filter work?
- How do you use the filter?
- How often should you use your filter?
- What happens when we store food in the filter box?
- What are some of the do's and don'ts for using the biosand filter?









FILTER YOUR WATER CERAMIC POT FILTER



Biosand Filter Maintenance

Key Message: Good maintenance practices of the biosand filter will ensure good quality water.

Possible Questions:

- How do you know when you need to maintain the filter?
- What has happened to the flow rate?
- How can we restore the flow rate?

Content:

The flow of the filter will decrease over time because of clogging of the sand layer by sediment in the untreated water. We need perform maintenance when the flow rate of the filter is too slow. How often depends on how dirty the untreated water is.

To restore the flow rate, we:

- Remove the filter lid
- If there is no water present above the diffuser plate, add about 4 litres (1 gallon) of water
- Remove the diffuser plate
- Using the palm of your hand, lightly touch the very top of the sand and move your hand in a circular motion; be careful to not mix the top of the sand deeper into the filter
- Scoop out the dirty water with a small container
- Dump the dirty water outside the house in soak pit or garden
- Repeat the maintenance task until the flow rate has been restored
- Make certain the sand surface is smooth and level
- Replace the diffuser plate
- Wash your hands with soap and water
- Refill the filter and set up the water storage container to collect the clean water

The biolayer has been disturbed by the maintenance, but it will re-grow. It is important to continue disinfecting the filtered water.

If you find the flow rate of the filter decreases rapidly, sediment your source water before pouring it into the filter.

You should also monitor the sand level and take care of the sand. Check the standing water level, the sand should be 5cm (2 inches) below the standing water level.

If you are still having problems with your filter after cleaning it, contact the filter manufacturer or your community health promoter.

- Show me how to operate and maintain the filter.
- How often do you need to perform maintenance?
- Why is it necessary to continue disinfecting the filtered water after cleaning the filter?





Filter Your Water - Ceramic Pot Filter

Key Message: The ceramic pot filter can provide good quality water.

Possible Questions:

- Have you ever seen or used a ceramic pot filter?
- How do you think the ceramic pot filter works?

Content:

The ceramic pot filter can remove most microbes from the source water. Microbes cannot pass through the ceramic surface. Sediment is also removed by the ceramic pot filter. The filter pot is made of clay. The filter is placed in a five gallon plastic or ceramic container with a lid and a tap.

If the untreated water is dirty, use a sedimentation method before pouring it into the filter. How to use the ceramic filter:

- Remove the lid on the filter
- Pour water into the filter fill it full
- Replace the lid

The filter will flow faster when the ceramic pot is full, so fill it often. Keep the lid on the filter except when filling the filter. This prevents dust and mosquitoes from entering.

Clean the tap once every few days. Clean the tap with a <u>clean</u> cloth and chlorine solution (such as bleach).

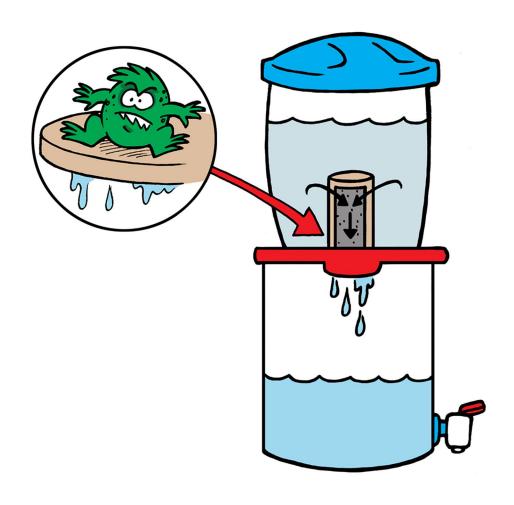
Advantages:

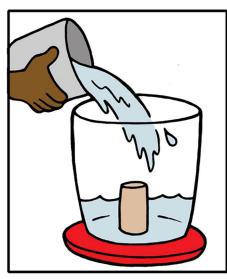
- Removes most microbes and sediment
- Removes odour and taste
- Made from local materials
- Easy to transport
- Low-cost
- Filtered water tastes good

Disadvantages:

- Clay pot can break easily and needs to be replaced when damaged
- Clay pot needs to be replaced every 3 years or when the flow rate is too slow after cleaning
- May need to sediment water before using filter
- Need to clean filter regularly if source water is dirty, reducing lifespan of filter

- How does the ceramic pot filter work?
- What are some of the good things about the filter?
- If your source water is very dirty, what would you do before filtering the water?
- How would you do this?
- How do you use the filter?
- How would you clean the tap?
- How often should you clean the tap?









FILTER YOUR WATER CERAMIC CANDLE FILTER



Ceramic Pot Filter Maintenance

Key Message: Maintain your ceramic pot filter to ensure good quality water.

Possible Questions:

- What has happened to the flow rate?
- How can we restore the flow rate?

Content:

When the flow of the filter decreases, you will need to clean the ceramic pot. How often depends on how dirty your source water is. If the source water is very dirty, you may need to clean the filter frequently.

Never remove the ceramic pot from the storage container when the pot is full of water. The ceramic pot may break.

To clean the filter properly:

- Wash your hands with soap before beginning
- Wash the lid with soapy water and let it dry
- Place the lid with the clean side facing up
- Carefully remove the ceramic pot and place it on the clean lid
- Touch only the rim of the pot and not the outside of the ceramic pot
- Fill the ceramic pot with a little bit of filtered water
- Using a clean cloth or soft brush, scrub the inside of the ceramic pot to remove sediment on the filter walls
- Do not use chlorine or soap when cleaning the ceramic pot filtered water and the brush are enough
- Rinse the ceramic pot with filtered water
- Place the ceramic pot on the lid
- Clean the storage container and tap with soapy water and rinse with treated water
- Place the ceramic pot back in the storage container immediately after to prevent recontamination
- The ceramic pot does not have to be dried after cleaning

Some other good hygiene practices include:

- Do not touch the outside of the ceramic pot, inside of the storage container or the tap opening with dirty hands
- Place the filter up off the ground in a clean and tidy place

Replace your filter when any of the following occurs:

- The filter has become cracked
- The flow rate is too slow and scrubbing no longer causes it to increase
- The filter has been used for 3 years

- How often do you need to clean the ceramic pot filter?
- How do you clean the ceramic pot?
- When should you replace the filter?



CERAMIC CANDLE FILTER MAINTENANCE



<u>Filter Your Water – Ceramic Candle Filter</u>

Key Message: The ceramic candle filter can provide good quality water.

Possible Questions:

- Have you ever seen or used a ceramic candle filter?
- How do you think the ceramic candle filter works?

Content:

The ceramic candle filter can remove most microbes from the source water. Microbes cannot pass through the ceramic surface. Sediment is also removed by the ceramic filter. The candle is made of clay. The candle is placed in a plastic or ceramic container with a lid and a tap.

If the untreated water is dirty, use a sedimentation method before pouring it into the filter. How to use the ceramic filter:

- Remove the lid on the filter
- Pour water into the filter fill it full
- Replace the lid

The filter will flow faster when the ceramic pot is full, so fill it often. Keep the lid on the filter except when filling the filter. This prevents dust and mosquitoes from entering.

Clean the tap once every few days. Clean the tap with a <u>clean</u> cloth and chlorine solution (such as bleach).

Advantages:

- Removes most microbes
- Removes some sediment
- Easy to transport
- Filtered water tastes good

Disadvantages:

- Can be more expensive than other filters
- Clay candle can break or crack easily
- Clay candle needs to be replaced more often than other filters
- Quality varies depending on product manufacturer
- May need to sediment water before using filter
- Need to clean filter regularly if source water is dirty, reducing lifespan of filter

- How does the ceramic candle filter work?
- What are some of the good things about the filter?
- If your source water is very dirty, what would you do before filtering the water?
- How would you do this?
- How do you use the filter?
- How would you clean the tap?
- How often should you clean the tap?





FILTER YOUR WATER CLOTH FILTER



Ceramic Candle Filter Maintenance

Key Message: Maintain your ceramic candle filter to ensure good quality water.

Possible Questions:

- What has happened to the flow rate?
- How can we restore the flow rate?

Content:

When the flow of the ceramic candle filter decreases, you will need to clean the ceramic candle. How often depends on how dirty your source water is. If the source water is very dirty, you may need to clean the filter frequently.

To clean the ceramic candle properly:

- Wash your hands with soap before beginning
- Wash the lid with soapy water and let it dry
- Place the lid with the clean side facing up
- Remove the top basin and place it on the clean lid
- Fill the top basin with filtered water
- Using a clean brush, scrub the outside of the ceramic candle to remove sediment on the candle walls
- Do not use chlorine or soap when cleaning the ceramic candle filtered water and the brush are good enough
- Rinse the ceramic candle with filtered water
- Place the ceramic candle basin on a clean surface
- Clean the storage container and tap with soapy water and rinse with treated water
- Place the top basin back on top of the storage container immediately after cleaning to prevent recontamination
- The ceramic candle does not have to be dried after cleaning

Check for leaks and cracks around the candle and plastic using the bubble test.

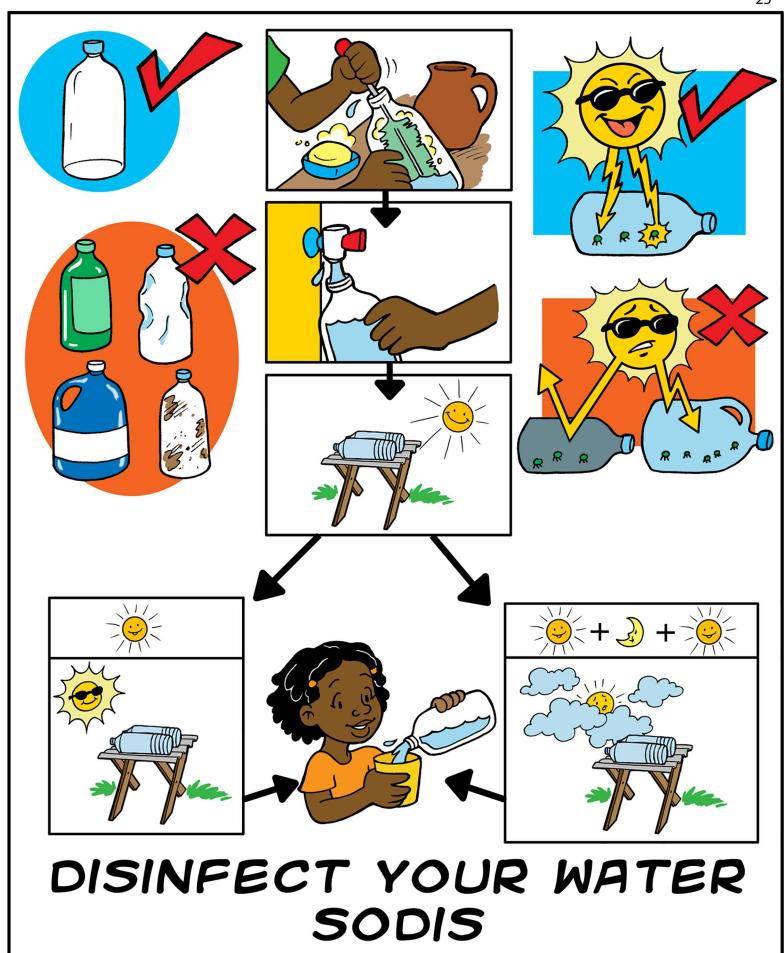
Some other good hygiene practices include:

- Do not touch the outside of the ceramic candle, inside of the storage container or the tap opening with dirty hands
- Place the filter up off the ground in a clean and tidy place

Replace your ceramic candle filter when any of the following occurs:

- The filter has become cracked or is leaking
- The flow rate is too slow and scrubbing no longer causes it to increase
- The filter has been used for 1 year or according to the manufacturers recommendation

- How often do you need to clean the ceramic candle filter?
- How do you clean the ceramic candle?
- When should you replace the filter?





Filter Your Water - Cloth Filter

Key Message: Use a cloth filter to provide better quality water.

Possible Questions:

- Have you ever seen or used a cloth filter?
- How do you think the cloth filter works?

Content:

The cloth filter can remove some sediment and dirt from the source water. Some microbes will pass through the cloth. You can use any cotton cloth that is fine and tightly woven to filter your water.

How to make the cloth filter:

- Take a long piece of cotton cloth
- Fold the cloth into a few layers
- Secure the cloth over a clean pot using string or rope
- Slowly and gently pour water through the cloth filter
- Wait for some water to filter before pouring more water
- Stop when the level of water in the pot is not quite touching the cloth

This method is good for removing some dirt and microbes. To ensure good quality water, disinfect your water after using the cloth filter to kill the remaining microbes.

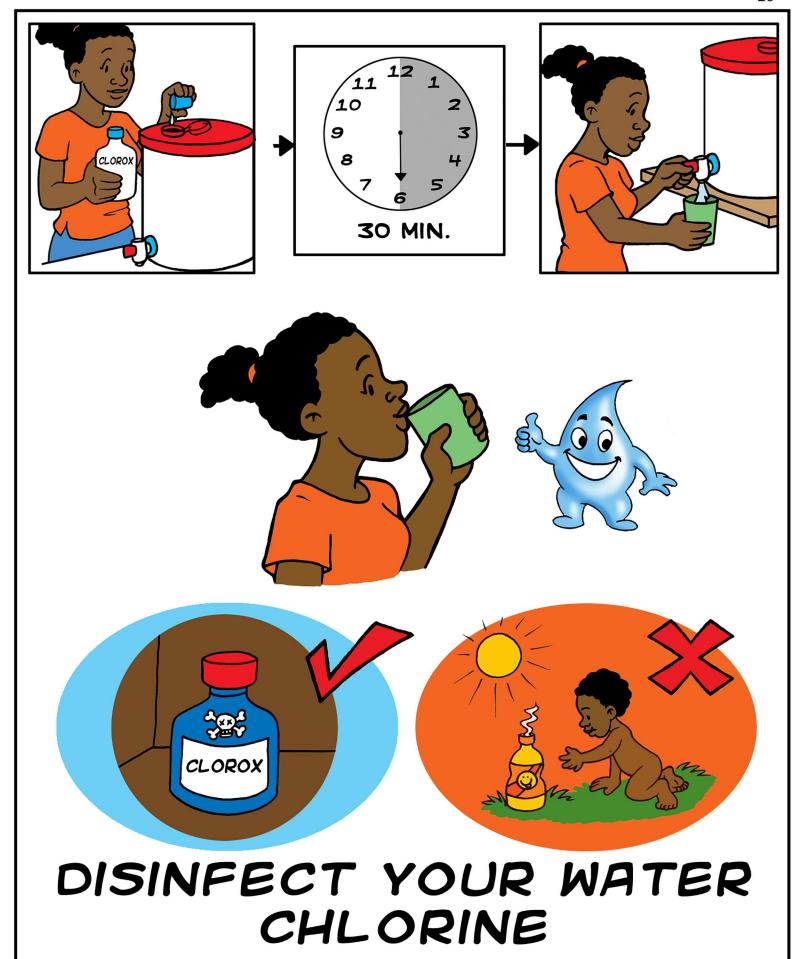
Advantages:

- Removes some microbes and sediment
- Cotton cloth is available within the home
- Low-cost

Disadvantages:

- Least effective filtering methods at removing microbes

- How does the cloth filter work?
- What are some of the good things about the cloth filter?
- How do you create a cloth filter?
- How do you use a cloth filter?





Disinfect Your Water - SODIS

Key Message: Solar disinfection (SODIS) is a good way to disinfect your water.

Possible Questions:

- Have you ever seen or tried to use SODIS?
- How do you think SODIS works?

Content:

SODIS stands for solar disinfection. During SODIS, the rays from the sun kill microbes in the water making it safe to drink. Your source water needs to be clear to use SODIS. If the source water is dirty, use sedimentation and filtration methods before using SODIS.

To perform SODIS, use PET plastic bottles that are <u>clear</u>. The bottles cannot be coloured, dirty, or tinted because the sun's rays will not pass through the bottle. The bottles should hold 1-2 liters of water.

To perform SODIS:

- Clean a PET plastic bottle with soap and water before using it
- Fill the bottle full of water, leaving no air bubbles
- Close the lid tightly
- Place the bottles in direct sunlight, on a corrugated iron sheet or put them on the roof
 - On a sunny day, expose the bottles from morning to night or for at least 6 hours
 - On a cloudy day, expose the bottles from morning to night for 2 days
 - On a rainy day, SODIS does not work use another disinfection method
- Remove the bottles from the sunlight

The water in the plastic bottles may be warm or hot. You may want to wait until the water cools down before drinking it. The water in the plastic bottles is safe to drink.

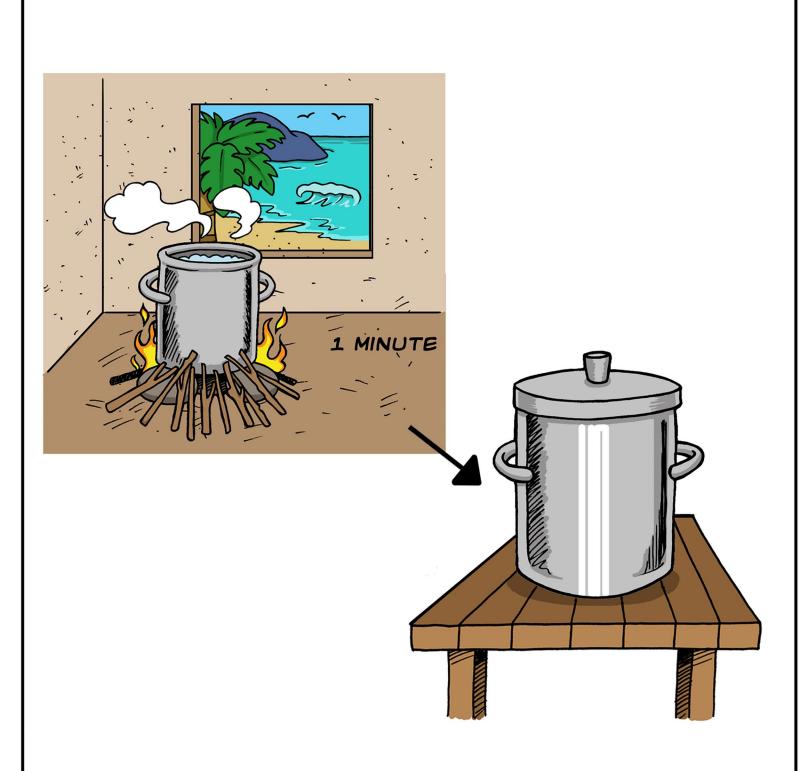
Advantages:

- Kills almost all microbes
- Plastic bottles are widely available
- Low-cost

Disadvantages:

- Water will be warm after disinfection
- Only effective for small quantities of water
- Process takes at least one day

- What does SODIS stand for?
- How does SODIS work?
- What are some of the good things about SODIS?
- How would you use SODIS?
- What if your source water is dirty? What would you do?
- If it's a sunny day, how long should you expose the bottles?
- If it's a cloudy day, how long should you expose the bottles?
- If it's a rainy day, what would you do?



DISINFECT YOUR WATER BOILING



Disinfect Your Water - Chlorine

Key Message: Using chlorine is a good way to disinfect your water.

Possible Questions:

- Have you ever used chlorine to disinfect your water?
- How do you think chlorine works?

Content:

Chlorine kills microbes in the water, making it safe to drink. Your source water needs to be clear to use chlorine. If the source water is dirty, use sedimentation and filtration methods before using chlorine.

Different types of chlorine are used in different countries and regions. Each type of chlorine has specific directions for using it properly. You will need to read the label and follow the directions on the package. Explain how to use the chlorine available in your area.

In general, we add some chlorine to the water and allow the water to sit for 30 minutes. Waiting 30 minutes gives the chlorine time to kill the microbes.

Chlorine can be dangerous to people, especially children. Store chlorine in a cool, dark place. Do not use a different bottle to store chlorine. Do not leave a bottle of chlorine within the reach of children.

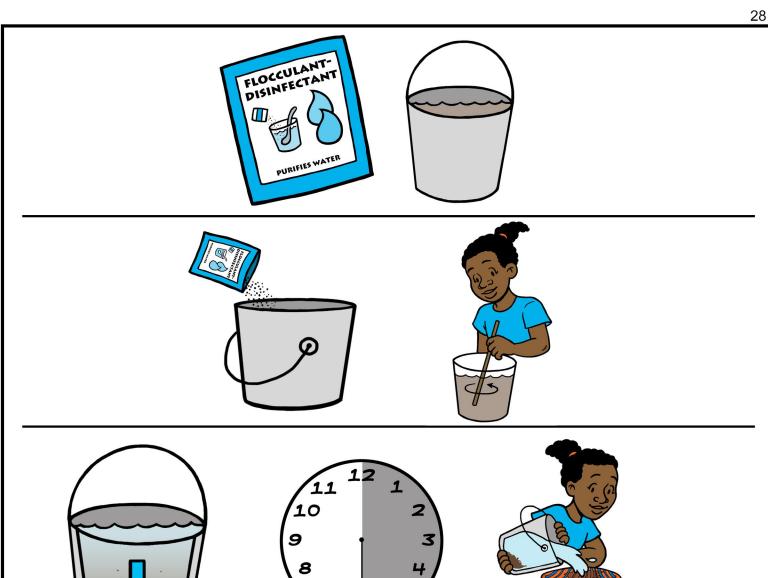
Advantages:

- Kills almost all microbes
- Available in most places
- Low-cost
- Chlorine in water will help prevent recontamination during storage

Disadvantages:

- On-going cost of buying chlorine
- May need to filter and sediment source water before using chlorine
- Need to wait 30 minutes for good quality drinking water
- Can take time to get used to taste
- May not be available

- How does chlorine work?
- Explain how to use the chlorine that's available in your community.





30 MINUTES

SEDIMENT AND DISINFECT YOUR WATER FLOCCULANT-DISINFECTANT



Disinfect Your Water - Boiling

Key Message: Boiling is a good way to disinfect your water.

Possible Questions:

- Have you ever boiled your water to make it safer to drink?
- How do you think boiling works?

Content:

Boiling kills microbes in the water.

To boil your water:

- Place a pot of water on the stove or fire
- Allow the water to come to a <u>rolling</u> boil. This means that big bubbles are coming to the surface.
 - If you live in the mountains, boil the water for 2-3 minutes at a <u>rolling</u> boil
 - Otherwise, boil the water for 1 minute at a rolling boil
- Remove the water from the stove or fire
- Cover the pot and let it cool

The water is safe to drink. Store it safely so that the water does not become re-contaminated.

Advantages:

- Kills all microbes
- Easy to do in the home

Disadvantages:

- May need to filter and sediment source water before boiling
- Water will be hot after disinfection
- Cost of fuel may be expensive
- Water can be recontaminated easily after boiling

- How does boiling work?
- How long do you need to boil your water?
- How do you know the water is boiling?
- Why should we cover the pot after boiling the water?





Sediment and Disinfect Your Water - Flocculant-Disinfectant

Key Message: Some products will treat your water by sedimenting and disinfecting your water at the same time.

Possible Questions:

- Have you ever used any chemicals to sediment your water?
- If yes, how do you usually use these chemicals?
- Have you ever used chlorine to disinfect your water?

Content:

A flocculant-disinfectant product is a powder that you add to water to make it safe to drink. The powder has a chemical in it that helps remove sediment from the water. The powder also has chlorine in it, which disinfects the water.

The flocculent chemical is what helps sediment the water. It makes small particles and dirt in the water stick together and fall to the bottom of the bucket. This makes the water clearer. Microbes like to stick to dirt, so by removing the dirt we are also removing microbes. Sedimentation will not remove all the microbes from the water.

Disinfection kills any microbes left in the water after sedimentation. Chlorine is one type of disinfection. Once we add chlorine to water, waiting for awhile before drinking it gives the chlorine time to kill microbes.

There are different brands of flocculant-disinfectant products available in different countries. Each product has specific instructions for using it properly. You will need to read the label and follow the instructions on the package.

In general, the instructions follow these steps:

- Add one package of flocculant-disinfectant powder to a bucket of dirty water
- Stir the water with a stick or spoon
- Let it settle for about 5 minutes
- Pour the clear water through a cotton cloth into a storage container
- Let the water sit for 20 minutes or more before drinking it.

- How does a flocculant-disinfectant product work?
- How would you use a flocculant-disinfectant?
- Is the water safe to drink after using a flocculant-disinfecant?





Protect Your Treated Water

Key Message: Using a safe storage container and cleaning it regularly will protect your treated water.

Possible Questions:

- What kind of storage container do you use for drinking water?
- How often do you clean the storage container?
- How do you clean the storage container?

Content:

Cleaning your storage container will keep your treated water safe to drink. The tap may become dirty with use. The inside of the storage container should be cleaned:

- When the container looks dirty
- When you do maintenance
- At least once a month

To clean your storage container:

- Wash your hands before cleaning the container
- Scrub the inside of the container with soap and treated water
- Empty the soapy water through the tap
- Rinse the container with a little treated water
- Add chlorine to water in the storage container let it sit for 30 minutes if chlorine is not available, let the container air dry
- Empty the remaining water through the tap
- Clean the tap with a clean cloth and chlorine solution (such as bleach)

The storage container is clean and safe to use.

When removing water from the storage container, always pour the water from the container to a cup or glass. Teach children to pour out the water when they need to drink. Do not dip cups or dippers into the storage container. This will contaminate your drinking water and storage container.

If the storage container is too big to pour and does not have a tap:

- Use a dedicated dipper with a long handle
- Clean the dipper everyday with soap and water

- How often should you clean the storage container?
- How should you clean the storage container?
- Why do you need to clean your storage container?
- How should you remove water from the storage container?
- How can the storage container become recontaminated?





Store Your Treated Water Safely

Key Message: Treated water should be stored properly to keep it safe.

Possible Questions:

- How can water be stored?
- What type of storage container do you use for drinking water?
- What are the good features of the water containers shown?
- What are the bad features of the water containers shown?

Content:

Treated water needs to be protected from recontamination with a good storage container.

A separate drinking water container should only be used to store treated water. Use a different container for dirty water and use it only for untreated source water.

A good storage container has the following features:

- Strong and tightly fitting lid or cover
- Tap or narrow opening
- Stable base
- Durable
- Comfortable handle
- Allows air to enter as water is poured
- Should not be translucent

These features of a good storage container will prevent recontamination.

A clear storage container, placed in the sun, may become dirty very quickly. Place the storage container in a shady place within the home. It should be stored off the ground in a clean place.

Sometimes it is difficult to find or buy a good storage container. The most important things are to make sure that it is covered and only used for treated water.

- What is a good water storage container? Why?
- Where can you get a good water storage container?
- Why should we keep our hand and fingers out of the storage container?
- Why does a good storage container have a lid?