

Fields	Content	Comments
Topic	Water and Sanitation	
Sub-topic	N/A	
Skills/knowledge accessed/developed	Relationship between hygiene, sanitation and health	
Prior learning required	Good to know the difference between a bacteria, virus and fungus.	
Learning objectives	• Students get some understanding of the relationship between water and sanitation • Students can understand water and sanitation issues (Define key concepts related to water and sanitation, including access to clean water, wastewater management, sanitation facilities, and hygiene.) • The facilitator discusses best practices for maintaining and improving sanitation systems to prevent environmental contamination. • Students learn basic daily hygiene and sanitation gestures through a game called Toilets World Cup (organized at Musée de l'Eau) • Students recognize the role of local communities in managing water and sanitation resources.	
Suggested learning outcomes	1. Students can discuss the connection between water, hygiene, sanitation and public health 2. Students can define essential terms related to water and sanitation, such as "access to safe drinking water," "sanitation facilities," "wastewater treatment," and "hygiene practices." 3. Students will be able to explain the connection between inadequate water and sanitation	Because learning outcomes are context-based. Teachers can decide on this based on the learners' lived experiences.

	systems and the spread of diseases such as cholera, diarrhea, and dysentery. 4. Students experiment and set up a hand washing system called tip-tap easy to install at school and at home	
Use of teaching time	5 mins The facilitator can ask the students to define Sanitation. The facilitator can ask the students the difference between hygiene and sanitation. Hygiene refers to practices or conditions that help maintain health and prevent the spread of diseases. Sanitation is a broader concept that refers to the systems and infrastructure that ensure the safe disposal of waste and maintenance of public health (refer to section <i>Background content</i>). 5 mins The facilitator may open with the following questions – What are some diseases that are caused by contaminated (dirty) water? Let's make a list. Are any of these diseases fatal (kill people)? 3-5mins The facilitator will ask students if these diseases are related to lack of hygiene or lack of sanitation? Related more to Hygiene - Ringworm (can be avoided by good hygiene practices) Related more to Sanitation - Cholera, Diarrhea, Typhoid 5 min The facilitator will then ask students to list 5 daily practices on how to prevent these diseases. 10-15 min The facilitator will ask students to identify infrastructures related to sanitation in their homes and how water is a part of the process.	

	15-30 mins World Toilet Cup: It is a football game between students and facilitators. The concept is to have good practice when using toilets and maintaining cleanliness. 30 mins – The facilitators will assist students in creating a simple handwashing system using tree branches and a water container. This system, called a tip tap, is the Museum's invention. (More information in background content) Total time - 45 mins	
Methods and materials		
Background content	<u>Hygiene vs Sanitation</u> Hygiene refers to practices or conditions that help maintain health and prevent the spread of diseases. It's more about personal cleanliness and behaviors to keep yourself and your environment clean. Examples of hygiene practices include: - o Washing your hands - o Brushing your teeth - o Taking regular showers - o Keeping your body and clothes clean Sanitation is a broader concept that refers to the systems and infrastructure that ensure the safe disposal of waste and maintenance of public health. It focuses on the cleanliness of the environment, especially in public spaces and communities. Sanitation includes things like: - o Proper waste management (e.g., trash disposal, sewage systems) - o Clean drinking water supply - o Cleaning public facilities (e.g., toilets, streets) So, in short: • Hygiene is mostly about personal care.	

- Sanitation is about the cleanliness of the environment and public health systems.

Both are important in preventing diseases and maintaining overall health.

Common diseases that occur from consuming or using poor quality water are -

1. Diarrhea
2. Cholera
3. Typhoid
4. Ringworm

All of these diseases can be fatal especially for small children.

Relevant links:

<https://clearinghouse.unicef.org> › sites › files › site...

<https://www.undrr.org/understanding-disaster-risk/terminology/hips/bi0110>

<https://www.unicef.org/press-releases/triple-threat-water-related-crises-endangering-lives-190-million-children-unicef>

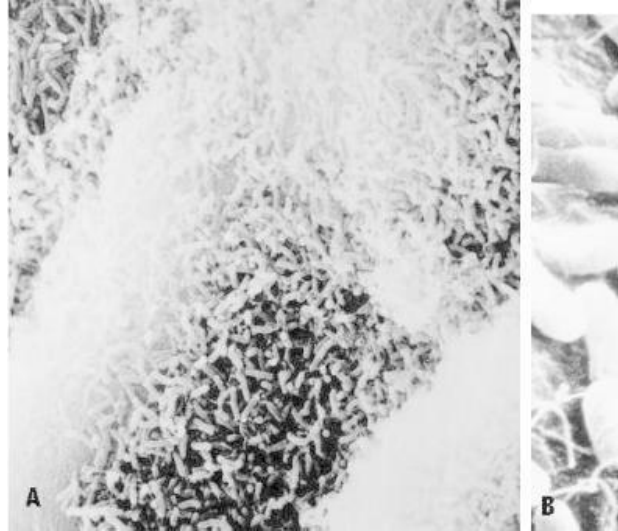
Biology of the water-borne disease

1. Diarrhoeal diseases occur when pathogens like bacteria (*E. coli*), viruses (rotavirus), or parasites (Giardia) infect the intestines, usually through contaminated water, food, or unclean hands. They disrupt the gut lining, causing rapid fluid loss, dehydration, and nutrient imbalance. Children are especially vulnerable. Safe water and hygiene greatly reduce risk.

<https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease>

<https://pmc.ncbi.nlm.nih.gov/articles/PMC7151906>

2. Cholera is caused by the bacterium *Vibrio cholerae*, which releases a toxin in the small intestine. This toxin triggers massive water and salt loss, leading to sudden, severe watery diarrhoea. Infection spreads through contaminated water or food. Quick rehydration saves lives. Sanitation, clean water, and oral vaccines prevent outbreaks.



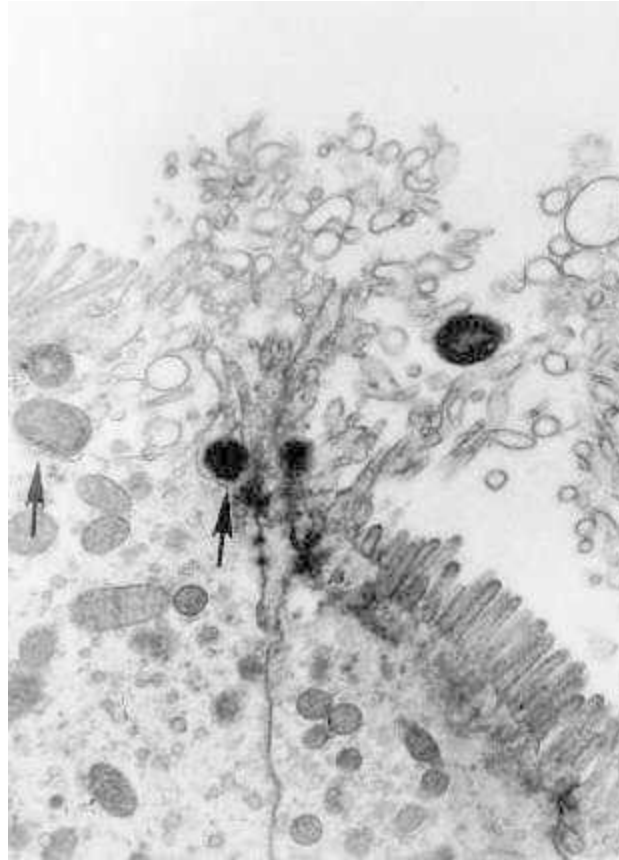
Images of the bacteria using different kinds of electron microscopy.

Source -Related Chapter in Medical Microbiology book

<https://www.ncbi.nlm.nih.gov/books/NBK8407/>

<https://www.cdc.gov/cholera>

3. Typhoid is caused by *Salmonella enterica* serotype Typhi. After entering through contaminated water or food, the bacteria cross the gut wall, travel in the bloodstream, and infect organs. Symptoms include fever, weakness, abdominal pain, and sometimes intestinal complications. Clean water, handwashing, and vaccination are key to prevention. Antibiotics may be administered as a cure.



Arrows point to the *Salmonella* bacteria as seen in an electron microscope.

Source -

<https://www.ncbi.nlm.nih.gov/books/NBK8435/>

<https://www.sciencedirect.com/science/chapter/monograph/pii/B0721605370500220#cesec26>

4. Ringworm or *Tinea corporis* is a fungus (not a worm) that can cause skin infection. The fungi feed on keratin in the outer skin, hair, or nails, creating circular, itchy patches. It spreads through shared towels, soil, animals, or damp conditions. Good hygiene and keeping skin dry help prevent it.

<https://my.clevelandclinic.org/health/diseases/4560-ringworm>

<https://www.ncbi.nlm.nih.gov/books/NBK544360/>

	To learn more, search online or in textbooks - What is an electron microscope?	
	The Tip Tap is a handwashing device that operates without taps or electricity. It is usually made from local materials such as sticks, ropes, plastic containers, and soap. It relies on a foot-operated lever system, which releases a small amount of water (about 40 ml) to wash hands without touching them, thus reducing the risk of cross-contamination. Advantages of the Tip Tap • Economical: Made from local materials, it costs very little (around \$2 per unit). • Eco-friendly: Uses little water (around 40 ml per wash), and wastewater can be reused for irrigation or seeped into the soil. • Hygienic: The touchless system limits the transmission of germs between users. Easy to build and maintain: Children and communities can participate in its construction and maintenance. Building a Tip Tap is simple and can be done with the following materials: • A plastic container (can or bottle) • Two sturdy sticks or branches • Strong rope or wire • A small hook or nail to hang the soap from • A lever (rope attached to the bottom of the container)	



How to play World Toilet Cup

Set up a goalpost and use a football.
The goal represents the toilet.
The football represents the faecal matter.

Students step up one-by-one and select from the three (increasing level) difficulty levels:

1. Burkina Faso-National Cup
2. African Cup
3. World Cup

If students select the World Cup, the football is placed farthest from the goal. If students select Burkina Faso-National Cup, the football is placed closest to the goal.

Goal posts are set up as shown in the image below -



[illegible]

- [illegible]

[illegible][illegible][illegible]