Safe Water

Lesson plan and teacher's notes · Grade 1 Science · 1 period of 40 minutes

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Grade 1
Subject	Science	**Enrolment**	Boys ___ Girls ___ Total ___
Time	40 minutes	**Topic**	Safe Water

Learners name sources of water, tell clean water from dirty water, see how dirty water is filtered and made safe, and say why the body needs water. The lesson uses real water samples and a simple filter, and links safe water to preventing cholera, dysentery, typhoid and diarrhoea.

Specific outcomes

By the end of the lesson, learners should be able to:

1. Name at least four water sources around the school or village
2. Say that water that looks clean may still be unsafe to drink
3. Name two things that can filter dirty water
4. Say two reasons why the body needs water
5. Say one way to take good care of a water source

Prior knowledge

- Learners know that we drink water and wash with it
- Learners can say where their family collects water
- Learners can look and say what they see (clear, muddy, dirty)

Teaching and learning materials

- Chalk and board
- Three clear jars or cups with tap or rain water, muddy water and soapy water
- A plastic bottle cut in half, sand, small stones and a piece of cloth for a simple filter
- Pictures or drawings of water sources and of a community where people make water dirty, if available
- Drawing sheets and crayons

References

Ministry of Education (CDC) Grade 1 Science syllabus and module; 25Schools learners' note: Safe Water.

Lesson development

Stage and time	Teacher activities	Learner activities
Introduction: where is water 5 min	Ask: Where does the water at your home come from. Write the answers on the board. Say that water is very important for our bodies. We drink it, cook with it and keep clean with it.	Tell the class where their family gets water.
Water sources 10 min	Draw the hierarchy of sources: under the ground (well, borehole), on top of the ground (river, stream, dam) and from the sky (rain). If a short walk is safe, take learners to a tap or borehole at school and keep them away from deep water. Ask: Is this water clean. Can we drink it. Ask how we can take good care of the water sources and how we can save water. End with a song or rhyme on water sources.	Name sources, group them, and say how to take care of them.
Clean and dirty water 10 min	Show the three jars. Ask which looks clean and which looks dirty. Ask which is safe to drink. Explain that clear water can still have germs we cannot see, so not all water is safe. Show a picture of a community where people throw rubbish in water and ask: Which things are bad and why. Link the answers to cholera, dysentery, typhoid and diarrhoea.	Look at the jars, say clean or dirty, and say why dirty water makes people sick.
Making water safe 10 min	Pour the muddy water through the cut bottle filled with sand, stones and cloth. Show the water coming out clearer. Explain that filtering takes out dirt but the water still needs chlorine or boiling to be safe. Say that only a grown-up adds chlorine or boils water, and that chlorine water is covered for about thirty minutes.	Watch the filter, say what it takes out and say who makes water safe.
Conclusion: why the body needs water 5 min	Show a picture of a person drinking. Ask why we need water. Guide answers to quench thirst, cool the body and help digestion. Give the homework.	Say why the body needs water and listen to the homework.

Teacher's content notes

Read these before the lesson. They are what you need to know, not what to copy onto the board.

Water sources

Water sources are ground water (well, borehole), surface water (river, stream, dam) and rain water. A tap may give ground water or water from a river or dam. A dam, stream or well may be the only source for a whole community, so it must be cared for.

Clear is not always safe

Water can look clean and still carry germs. Safe water is water that has been made clean, by boiling it or adding chlorine. The Ministry module reminds teachers that not all water is safe to drink.

Waterborne diseases

Dirty water can cause cholera, dysentery, typhoid and diarrhoea. Rubbish and bad habits near water make it unsafe. Safe and clean water prevents these diseases.

Making water safe

Filter dirty water with sand, small stones, cloth or a sieve. Then add chlorine in the recommended amount for the water and cover it for about thirty minutes, or boil it. Boiling is done by an adult only. Invite a health worker to demonstrate.

Why the body needs water

Water quenches thirst, cools the body and helps process food in the body, which is digestion.

Questions to ask during the lesson

Question	Expected answer
A boy walks to the river with his mother to fetch water. The river is brown after the rain and a goat is drinking from it. (a) Name the water source. (b) Is the water clean and safe to drink. (c) What can his mother do before the family drinks it.	(a) The river. (b) No, it is dirty. (c) Filter it, then add chlorine or boil it.
A school has a borehole that gives water to the whole village. One day a girl sees some learners washing dirty shoes next to it and leaving rubbish. (a) Why must the borehole be cared for. (b) What can happen to the water. (c) What would you tell the learners.	(a) It is the water for the whole village. (b) It becomes dirty and unsafe and can cause disease. (c) Keep the borehole clean and do not leave rubbish.
After football a boy feels very thirsty and hot. His teacher gives him a cup of safe water. (a) Why did the boy feel thirsty. (b) Name one thing the water does for his body. (c) Name another thing water does for the body.	(a) His body needed water. (b) It quenches thirst or cools the body. (c) It helps the body to digest food.

Worked examples for the board

Filtering muddy water

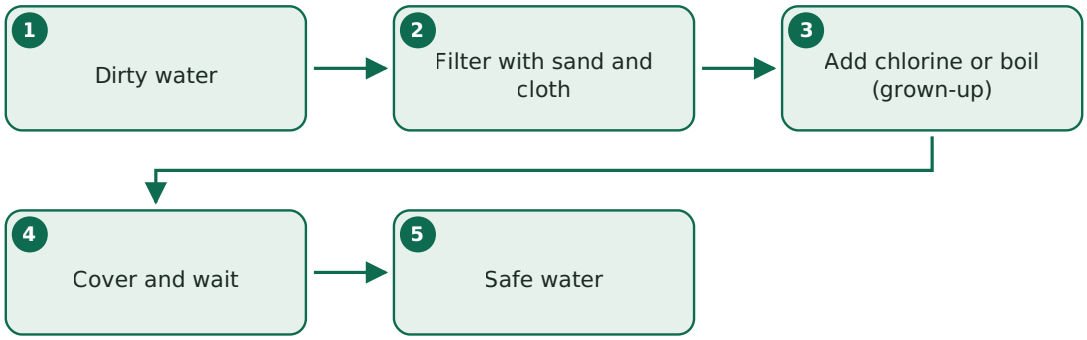
Step 1: Put sand, then small stones and a piece of cloth inside a cut plastic bottle. Step 2: Pour muddy water slowly into it. Step 3: Catch the water that comes out in a clean cup. Step 4: Compare it with the muddy water. The dirt stays behind. The water is clearer, but still needs chlorine or boiling to be safe.

Making water safe with chlorine

Step 1: A grown-up fills a clean bucket with filtered water. Step 2: The grown-up adds the recommended amount of chlorine for that amount of water. Step 3: Cover the bucket. Step 4: Wait for about thirty minutes. Now the water is safe to drink.

Board plan

Write the title. Draw the sources hierarchy on the left. In the middle write clean-looking water may not be safe. On the right draw the four steps to make water safe and write why the body needs water.



The finished board: making dirty water safe

Mistakes to expect

Learners often think	Put it right
If water looks clear it is safe.	Show a clear jar and explain that germs cannot be seen. Clear water also needs chlorine or boiling.
Filtering makes water safe.	Filtering takes out dirt only. Compare the filtered water with the muddy water, then explain that chlorine or boiling is still needed.
Children can boil water or add chlorine alone.	Teach that a grown-up must boil water and show how much chlorine to use.

Differentiation

Learners who struggle

Use real water samples and let learners touch the jars. Ask yes or no questions first, such as Is this clean, then Can we drink it. Pair a struggling learner with a friend for the drawing.

Learners who finish early

Ask learners to draw their home water source and write one way their family keeps it clean. Ask them to explain to a friend why clear water may not be safe.

Hearing or visual impairment

For learners with a visual impairment, let them touch the containers and the filter and describe the colour of the water aloud. For learners with a hearing impairment, face them, show each step with the objects and write the key words on the board.

No projector, no printing

Use any three containers for water samples. Make a filter from a cut plastic bottle, sand, stones and an old cloth. If there is no chlorine, only describe it and say that a grown-up or a health worker shows how it is used. Use drawings on the board in place of pictures.

If time is short

Keep the water sources, the three jars and the filter demonstration. Move the song and the body functions discussion to the next lesson, and give the drawing as homework.

Evaluation

Question or task	A correct answer shows
A girl fetches water from a stream near her home. The water is muddy and her little brother wants to drink it. (a) Is the water safe to drink. (b) What can she pour it through to take out the dirt. (c) Who must add chlorine or boil it.	(a) No. (b) Sand, a cloth or a sieve. (c) A grown-up. Learners know that dirty water is unsafe and that grown-ups make water safe.
A boy sees a glass of water that looks clear at a roadside stall. His friend says it must be safe because it is clear. (a) Is his friend right. (b) Why not. (c) Name one disease that unsafe water can cause.	(a) No. (b) Clear water can have germs we cannot see. (c) Cholera, dysentery, typhoid or diarrhoea.

Homework

Your mother collects water from a well at home. (a) Draw the well or the place your family gets water. (b) Ask a grown-up how your family keeps the water clean. (c) Tell the class one way you can take care of your water source.

Extra practice with answers

Question	Answer
1. A family collects water from a well at home. The water in the bucket has small leaves and dust in it. (a) Name the water source. (b) What can they pour the water through. (c) What must they still do to make it safe.	(a) A well. (b) A cloth, sand or a sieve. (c) Add chlorine or boil it, with a grown-up.
2. Two boys have two cups. One cup has water from a tap. The other has muddy water. The first boy says both are safe because water is water. (a) Which cup looks clean. (b) Which cup looks dirty. (c) Why must we be careful even with the clean cup.	(a) The tap water. (b) The muddy water. (c) Clear water may still have germs that we cannot see.

3. A mother uses a bucket of water to cook. She adds chlorine to it and covers the bucket. Her daughter asks when she can drink it. (a) Why did the mother add chlorine. (b) How long should the bucket stay covered. (c) Who should add the chlorine.	(a) To make the water safe. (b) About thirty minutes. (c) A grown-up.
4. In a village people wash clothes in the stream and throw rubbish in it. Some children get diarrhoea. (a) Is the stream water safe. (b) Name one disease that dirty water can cause. (c) Say one way the village can look after the stream.	(a) No. (b) Cholera, dysentery, typhoid or diarrhoea. (c) Stop throwing rubbish in it and keep washing away from it.

Answers to the learners' check-yourself questions

1. Name three places water comes from.
   Any three of: well, borehole, river, dam, stream, rain, tap.
2. Can water that looks clean be unsafe to drink?
   Yes. It may have germs we cannot see.
3. Name one thing you can use to filter dirty water.
   Sand, small stones, a cloth or a sieve.
4. Why does our body need water?
   It quenches thirst, cools the body and helps the body use food.
5. Your family gets water from a river near your home. Tonight the water in the bucket is muddy. (a) Is it safe to drink now. (b) What can you pour it through to take out the dirt. (c) Who must boil it or add chlorine.
   (a) No. (b) Sand, a cloth or a sieve. (c) A grown-up.
6. A girl sees a boy throwing rubbish into the village stream. The whole village uses the stream for water. (a) Is he doing a good thing or a bad thing. (b) What can happen to the water. (c) What can she tell him about taking care of the stream.
   (a) A bad thing. (b) It becomes dirty and unsafe and can cause diseases. (c) The stream is the water for the whole village, so we keep it clean.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: