



40 minutes total

## Lesson Plan 02 Safe Drinking Water

### Overview of Activities

1. Introduction
2. Safe Water Characteristics
3. Water Contamination
4. WHO Guidelines and National Standards
5. Review

### Learning Outcomes

At the end of this session participants will be able to:

1. Describe the characteristics of safe drinking water
2. Define safe drinking water
3. Explain how water is contaminated
4. Explain the relevance of water quality guidelines and standards

### Materials & Preparation

- Activity: Three bottle demonstration
- Material: Three small, empty, clear drinking-water bottles
- Material: Vinegar, yellow coloured beverage, turbid water or weak tea
- Prepare: Fill one bottle with clear smelly liquid (e.g., vinegar), one bottle with a yellow beverage (e.g., apple juice), one bottle with turbid water (or weak tea, if turbid water is not available)
- PowerPoint: Safe Drinking Water or write the WHO definition of safe drinking water on a flip chart. "Safe drinking water does not represent any significant risk to health over the lifetime of consumption, including different sensitivities that may occur between life stages."
- Activity: Sticky note grouping
- Stations with flip chart paper and sticky notes (alternative: coloured paper and tape), a heading on flip chart paper per group: "How is water contaminated?"
- Prepare (optional): Research the National Drinking Water Quality Standards (country specific) and identify any differences from the WHO Guidelines for Drinking Water Quality, in particular for E. coli, arsenic, fluoride, nitrate and turbidity. Print the relevant pages.

### Recommended Reading

- Technical Brief: [Safe Drinking Water and the Global Development Agenda](#)

5 minutes

## Introduction



1. Place the three bottles of prepared liquids on display in front of the participants, but do not allow the bottles to be touched.
2. Ask: “Which of these bottles would you drink from and why?”  
Examples might be:
  - Clear, looks cleaner, no colour, not contaminated
3. Present the learning outcomes or an overview of the lesson.

10 minutes

## Safe Water Characteristics



1. Pass the three bottles on display around the group and have them open each bottle and smell the contents.
2. Ask: “Have you changed your choice of which liquid you would drink and why?”
  - Most will say yes because the clear liquid smells very bad
3. Ask: “Is clear water safe to drink? Why or why not?”  
Possible answers:
  - There could be contaminants in the water that you can’t see, like chemicals or pathogens
  - Many toxic liquids are clear

### Key Points

- Water that has a lot of turbidity tends to be more contaminated than water that is clear, but just because water is clear doesn’t mean that it is free of pathogens or other contaminants.
- Many chemicals are odourless and colourless.

4. As a large group, brainstorm a list of characteristics of safe water.

Answers should include:

- Clear
- Pathogen free
- Low in concentrations of toxic chemicals
- Tasteless, odourless, and colourless (for aesthetic purposes)

5. Ask participants, in pairs, to come up with a simple definition of safe drinking water.

- Present the flip chart (or PowerPoint slide) with the WHO definition for safe drinking water. Ask participants to write the definition in their workbooks.

*“Safe drinking water does not represent any significant risk to health over the lifetime of consumption, including different sensitivities that may occur between life stages.”*

- Ask participants how their definitions differed from the WHO definition. Ask what the WHO definition means.

Answers could include:

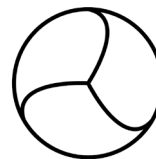
- Safe drinking water will not make people sick at any time throughout their life, including when they are young, old or sick.
- Safe drinking water should be good to use for all our personal needs, including drinking, cooking, and washing.

10 minutes

## Water Contamination



- Explain to participants that they will be split into groups and directed to go to one station where they will find some sticky notes and a piece of flip chart paper with the heading “How is water contaminated?”
- Explain that their groups need to brainstorm answers to the question, and to write down answers on separate sticky notes, as their answers will be moved around later.
- Split the participants into small groups of three to six participants (depending on workshop group size) and ask them to go to a workstation. Allow five minutes.
- Ask the groups how they would categorize the contaminants. Suggest they look closely at the sticky notes they have written and talk about their similarities and differences. Ask them to sort the items into categories based on those shared features.
- Ask each group to suggest a name for each category on their flip chart paper and place the sticky notes that belong to that category below or around it.
- Ask one person from each group to explain their grouping system and ideas to the rest of the participants.
- Explain that water contaminants fall into three main categories.
- Draw a large circle divided into three sections on a flip chart.
- Ask: “What categories did your group identify?”
- Record the categories on the circle.
- Ask one person from each group to add one or two sticky note contaminants into the appropriate category on the circle.



### Trainer Tip

*Categories should be grouped into: microbiological, chemical and acceptability (or physical) aspects.*

**Key Points**

- Microbiological contaminants: human or animal feces, bathing or laundry near water sources, agricultural runoff, livestock walking in water sources, wastewater dumping, hospital/medical waste, animal slaughter
- Chemical contaminants: industrial or agricultural pollutants, fertilizers, manufacturing waste, natural chemicals, oil or gas, transport (e.g., cars, trucks, boats), tanning industry
- Acceptability aspects (physical) contaminants: turbidity, iron (rust), manganese (black), algae blooms, sulphur

10 minutes

**WHO Guidelines and National Standards**

1. Ask: “What is the difference between guidelines and standards?”
2. Ask for suggestions from participants.
3. Encourage participants with different opinions to stand and share their point of view.
4. Explain the difference between guidelines and standards to the group.
  - Guidelines are recommendations
  - Standards are mandatory requirements and enforceable
5. Ask: “What do you know about the WHO Guidelines for Drinking Water Quality?”  
Allow two minutes for a group discussion.
6. Explain that the WHO Guidelines recommend limits for microbiological, chemical and acceptability aspects for drinking water quality.
7. Ask (optional): “What do you know about your national drinking water standards?”  
Possible answers:
  - Our country does not have drinking water standards
  - Our country has drinking water guidelines not standards
  - Our country follows the WHO guidelines
8. Explain that many countries have not yet developed their own drinking water quality standards and have adopted the WHO guidelines in the interim.
9. Ask: “Why might countries have their own DWQT guidelines?”
  - Reflect the national context
  - Consider environmental, social, cultural and economic circumstances particular to that country

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## Review



1. Review the WHO definition of Safe Drinking Water (refer to flip chart or PowerPoint slide).
2. Ask participants to complete the phrase in their workbooks: “Safe drinking water means to me...”

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