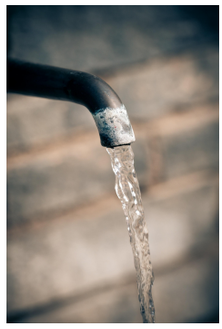


Hazard Literacy Center

Hazard Literacy Education Program

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What If Your Tap Water Isn't Safe?



1. Program Overview

This program is an integrated social-science education unit centered on tap-water contamination incidents, exploring the causes, pathways, and harms of water pollution, and seeking individual and social response measures to minimize damage. It consists of brainstorming using real news articles as material, along with group discussion and presentation, through which learners come to concretely understand the effects of water pollution on daily life and build the ability to propose prevention and response measures.

Grade Level	Elementary school grades 3–4	Instructional Methods	Lecture, brainstorming activity, group discussion and presentation
Learning Environment	Regular classroom	Duration	Total 80 minutes (40 min × 2 sessions)
Required Materials	News article material (printouts + screen display), brainstorming tools (large sheets of paper, sticky notes), worksheet		

2. Learning Objectives (Hazards Literacy Framework)

① Explain the major causes of tap-water contamination (aging pipes, factory wastewater, natural disasters, etc.).
② Identify the effects of water-pollution damage on daily life (drinking water, hygiene, economic activity).
③ Propose measures to prevent water pollution and minimize damage when contamination occurs.

Learning Objectives	Knowledge & Understanding		Reasoning & Skills					Values & Attitudes			Psychology & Emotion			Behavioral & Practical Enagement		
	A1	A2	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	E1	E2	E3
Objective ①	O	O														
Objective ②		O	O					O								
Objective ③											O	O		O	O	

3. Key Concpets

· Definition of water pollution: contaminants entering water such that it exceeds water-quality standards or becomes unusable

· Major causes of water pollution: damage to aging water/sewage pipes, leakage of factory wastewater or pesticides, floods and other disasters, careless management

· Disaster-vulnerable groups: economically vulnerable populations, the elderly, and children are more heavily affected

· Prevention vs. after-the-fact response: the importance of building an ongoing management system

4. Program Sequence

Learning Activities	
Introduction	·Present a recent news article about tap-water contamination ·Prompt: "If rusty water suddenly came out at home, what would be inconvenient?" ·Brainstorm: write down the inconveniences of tap-water contamination
Inquiry1	·Explain recent cases of tap-water contamination damage and the effects of water pollution on the body/environment ·Connect the brainstorming results to the damage water pollution causes across the physical, environmental, and economic dimensions ·Explain the major causes of water pollution by linking them to actual cases
Inquiry2	·Group discussion topic: action guidelines when water pollution occurs ·Scenario discussion: "If our school's water supply were contaminated, what could we do?" ·Whole-class presentation and feedback
Wrap-up	·Review the public action guidelines (boiling water before drinking, how to report, etc.) ·Complete the worksheet

5. Theoretical Background and Activity Design for Disaster Education

From 2020 to 2024, a total of 705 water-pollution incidents occurred in Korea. By type, the most common were oil spills (279 cases), fish die-offs (172 cases), and chemical spills (98 cases); by cause, the most common were careless management (263 cases), natural phenomena (84 cases), and traffic accidents (52 cases). To prevent damage from large-scale water-pollution incidents, the Ministry of Environment announced public action guidelines, including halting fishing and hunting activities, securing drinking water in advance, prohibiting access to contaminated areas, and reporting to local administrative authorities when a water-pollution incident occurs. Through various visual materials and scenario-discussion activities, this program is meaningful in helping students understand that water-pollution incidents directly affect the hygiene and health of local residents, and in having them devise response measures to minimize damage when such incidents occur.

6. Instructional Considerations

- Accept all opinions during the brainstorming stage, but after presentations, correct any misconceptions without scientific basis (e.g., "tap water was never drinkable to begin with")
  • When teaching about the causes of contamination, maintain a balanced perspective so as not to portray any particular company or region overly negatively.
  • During group discussion, explain that economically vulnerable populations and disaster vulnerable groups such as the elderly and children may suffer greater harm, and guide students to also consider measures for preventing and mitigating water-pollution damage for these vulnerable groups.

7. References

- Ministry of Climate, Energy and Environment, & Korea Environment Corporation. (2024). 2024 Annual report on water pollution accidents and response

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Topic	
What will we learn?	

① Opening Reflection

If rusty or cloudy water suddenly came out at home, what would be inconvenient over the course of a day?

② Summarizing: Effects and Causes of Water Pollution

- Effects of water pollution
  - Exposure to microorganisms or harmful substances from water pollution can cause various illnesses such as ( ), ( ), and ( )
  - Water pollution can also cause mass die-offs of ( ), destroying the ( )
- 수질 오염의 원인
  - ( ) : Pollutants leak due to aging treatment facilities or mistakes (carelessness) during work
  - ( ) : Pollutants leak when vehicles carrying oil or chemicals overturn, etc.
  - ( ) : Pollutants leak due to explosions or fires at factories, etc.
  - ( ) : Illegal dumping of waste or wastewater near reservoirs or streams
  - ( ) : Environmental changes such as rising temperatures, heavy rainfall, and changing precipitation patterns

③ Discussion: Responding to School Water Contamination

What I can do	What we can do together with friends	What to ask the teacher

④ Wrap-up

Let's write down the 7 action guidelines for a water pollution incident.

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