

PARSEL teaching –learning materials compiled by the consortium
as part of an EC FP6 funded project (SAS6-CT-2006-042922-PARSEL) on
Popularity and Relevance of Science Education for scientific Literacy

Can Lake Water Be Made Safe?

A grade 8-9 Science (Biology) module on
Micro-organisms and Purification of Water



Abstract

Lake water is an important source of household water in many countries. But lake water can accumulate water soluble substances used within the environmental and can be home to many unicellular and multicellular inhabitants. This module examines the condition of the lakewater and the life within it. It raises the question as to whether the lake water is safe and if not how safe drinking water can be established. During this study an understanding of the term micro-organism is introduced

Sections included		
1.	Student activities (for students)	Describes the scenario in more detail and the tasks the students should perform.
2.	Teaching guide	Suggests a teaching approach.
3.	Assessment	Gives suggested formative assessment strategies.
4.	Teacher notes	Describes student activities and gives background information.

Developer: Felix Atachu and Sahondra Rasuloarijao. Edited by Jack Holbrook

Institution: International Council of Associations for Science Education (ICASE)
Country: South Africa



Overall Objectives/Competencies: The students are expected to:

- Decide, with justification, whether the lake water can be made safe for drinking.
- Carry out experiments to determine the usefulness of chlorine as a purification agent.
- Communicate experimental outcomes and the decisions made in both oral and written forms.
- Cooperate with members of a group in carry out experiments and in making the decisions.
- Explain how chlorine oxidizes substances.
- Explain the meaning of microorganisms and bacteria.
- Distinguish between bacteria and viruses.

Curriculum content: purifying water, micro-organisms, oxidation to kill micro-organisms, usefulness of chlorine as an oxidising agent, bacteria, comparison of bacteria and viruses.

Kind of activity: experimental work, group discussion

Anticipated time: 4 lessons

This unique teaching-learning material is intended to guide the teacher towards promoting students' scientific literacy by recognising learning in 4 domains – intellectual development, the process and nature of science, personal development and social development.

Its uniqueness extends to an approach to science lessons which is designed to be popular and relevant. For this the approach is intentionally from society to science and attempts to specifically meet student learning needs.

This uniqueness is specifically exhibited by:

1. a society related and issue-based title (supported in the student guide by a scenario);
2. student-centred emphasis on scientific problem solving, encompassing the learning of a range of educational and scientific goals;
3. including socio-scientific decision making to relate the science acquired to societal needs for responsible citizenship.

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