

Teaching –learning module compiled by the PARSEL consortium
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Popularity and Relevance of Science Education for scientific Literacy



Brushing up on chemistry*



A grade 10-11 science (chemistry) module on
salt, its properties, uses and effects on human health

Abstract:

In this module students get to know toothpastes, products that we use in everyday life. What is their composition (what ingredients are used in them), as well as the role/function of the ingredients. Various kinds of toothpastes. The importance of regular brushing and care of teeth both for their health and the general health. The need to pay regular visits to the dentists.

Sections included		
1.	Student activities (for the students)	Describes the learning 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	Extend the chemistry and physical chemistry of salts and provides further material for the connection of salt t human health.

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*Based on the Classroom Activity #47, Brushing up on chemistry, Journal of Chemical Education, 2002, 79, 1168A-1168B.

Overall Objectives/Competencies:

1. Connection of chemistry with everyday life and increase students' interest in chemistry.
2. Getting to know numerous substances that are ingredients of toothpastes and their role.
3. Preparation of an elementary toothpaste and comparison with commercial products.
4. Various kinds of toothpastes.
5. The importance of dental care.

Competences: Investigative skills, group work, evaluation, creative work, manipulative skills, communication skills.

Curriculum content: Chemistry (acids, artificial sweeteners, food colouring and flavouring), health education.

Kind of activity: Through the study of toothpaste, a common, well-known product of daily use, we aim to connect chemistry with everyday life, and increase students' interest in chemistry. In addition, through toothpaste, we have the opportunity to refer to a large number of chemical substances. A notable feature of the practical activity is its creativity feature; it is known that students express a preference for such activities.

Anticipated time: 4 teaching periods at school, plus pre-activity preparation and experimental activities at home.

Prior Learning: Acid-base chemistry, basic organic chemistry

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. student-centred emphasis on scientific problem solving, encompassing the learning of a range of educational and scientific goals;
2. including socio-scientific decision making to relate the science acquired to societal needs for responsible citizenship.

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