

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



## Milk – Keep refrigerated

A grade 10-11 science (chemistry) module on  
Carbon dioxide, its properties, and use in beverages



### Abstract:

It is well known that milk and milk products are very important as food. In this activity, students get to know the composition of milk and various kinds of milk. Further they study and understand the role of acidity for the precipitation/turning sour of milk, as well as the effect of temperature on the increase of the acidity of milk. In addition students prepare yogurt at home. Finally a distinction is made between healthy food and non-healthy food products.

### Sections included

1.	<a href="#">Student activities</a> (for the students)	Describes the learning scenario in more detail and the tasks the students should perform
2.	<a href="#">Teaching guide</a>	Suggests a teaching approach
3.	<a href="#">Assessment</a>	Gives suggested formative assessment strategies
4.	<a href="#">Teacher notes</a>	Extend the chemistry and physics of carbon dioxide and gases.

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**Objectives.** With this activity, students will:

1. To know the composition of milk and various kinds of milk.
2. To understand the role of acidity for the *precipitation/turning sour* of milk.
3. To examine the effect of temperature on the increase of the acidity of milk.
4. To prepare yogurt.
5. To know the importance of milk and yogurt as basic foods.
6. To become knowledgeable citizens who can distinguish between healthy food and non-healthy food products.

**Competences:** Investigative skills, manipulative skills, collaborative experiences, communication skills

**Curriculum content:** Chemistry, food chemistry, biochemistry.

**Kind of activity:** Work in class and at home.

**Anticipated time:** 2 teaching periods at school, plus pre-activity preparation and experimental activities at home.

**Prior Learning:** Acids, and bases, 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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