

OVERVIEW OF THE TASK

Lemonade

Target audience:	1st cycle
Type of work:	Group, individual and in teams
Class time required:	150 minutes + 45 minutes in mathematics

Educational Aim

The student will explore the economic aspect of consumption using mathematical problem solving. He must first explore conservation of matter during manipulation and results compilation in order to determine the best glass size to use to sell lemonade. He will be initiated to the concept of solubility and will exercise his senses to make observations. Through different activities the student will develop work methods in terms of measurement with the eye-dropper, data tabulation and water manipulation.

Targeted disciplinary competencies

Science and technology

Explore the world of science and technology

Mathematics

To solve a situational problem related to mathematics

To reason using mathematical concepts and processes

Targeted cross-curricular competencies

- To solve problems
- to adopt effective work methods

Broad area of learning	**Environment and consumption** Consciousness of the social, economic and ethical aspects of the world of consumption.
Involved world	Material world
Essential knowledge	**Science and technology** ○ Conservation of matter (quantity of liquid and volume) ○ States of matter (solid – liquid – gas) ○ Mixtures: soluble and non-soluble substances **Mathematics** ○ Comparisons of objects from the environment to solids ○ Meaning and writing of numbers ○ Meaning of operations on numbers

Strategies	❑ Exploration strategies Emit hypotheses Imagine solutions to a problem starting from its explanation ❑ Instrumentation strategies Resort to various techniques and tools of observation (eye-dropper) Resort to consignment tools (take notes in the space provided)

Possible evaluation criteria

Science and technology

❑ Use of language appropriate to the description of the phenomenon or objects in one's immediate environment

❑ Formulation of explanations or of solutions avenues

Mathematics

❑ Production of a correct solution: process and result

❑ Choices of mathematical concepts and processes appropriate to the application situation

Adequate application of the retained processes

Global context

The suggested activity involves selling glasses of lemonade. It will therefore be necessary to become familiar with the notions of liquid quantity and of mixtures.

The teacher will present the students with containers of the same volume but different shapes in order to establish a relationship between the quantity of the liquid and the shape of the container. (S)he will put different substances at the students' disposal so that they may be initiated to the concept of mixtures. Then the student will have to choose a size of glass allowing him to sell a sufficient number of glasses to cover the cost of the lemonade. The two activities, that is in science and technology and in mathematics are led separately.