

PROFILES IBSE Teaching/Learning Materials – Overview

Compiled by the PROFILES Working Group of Valahia University of Targoviste – România

EFFERVESCENCE

Substances in everyday life – How comes the fizzy bubbles
`in` fizzy tablets come from?



A Module for Science Instruction – Chemistry – for Grades 9 to 12

Developed by:
Institution:
Homepage/E-mail:

Sabine Streller, Claus Bolte (2007)
Department of Chemistry Education, Freie Universität Berlin – Germania
<http://www.parsel.uni-kiel.de/cms/index.php?id=modules>
<http://www.chemie.fu-berlin.de/didaktik> - Mail: didaktik@chemie.fu-berlin.de

Romanian version translated and adapted by:
Institution:
Homepage/E-mail:

Radu Lucian Olteanu
Universitatea “Valahia” din Târgoviște, România
<http://www.profiles.ssai.valahia.ro/>

1. Abstract:

In this module, children will have the opportunity to examine a phenomenon that they will know from everyday life and which they may have asked themselves about before: „*How comes the fizzy bubbles in fizzy tablets come from?*”.



SEVENTH FRAMEWORK PROGRAMME
5.2.2.1 – SiS-2010-2.2.1, Grant Agreement No. 266589
Supporting and coordinating actions on innovative methods in Science education:
teacher training on inquiry based teaching methods on a large scale in Europe



The pupils will systematically examine the components of fizzy tablets, they will test each of the ingredients separately and after that water dissolving it will be made. After those tests the children will realise that separate solution of the ingredients / components does not produce effervescence / fizzy bubbles. This primarily „frustrating results” is deliberate since the children are meant to learn that experiments do not necessarily lead to the expected or desired results. It is only when a mixture of two components will be dissolved in water (e.g. citric acid and sodium hydrogen carbonate) the effervescence / fizzy bubbles, can be observed.



Fig. 1 How effervescence can be observed when a fizzy tablet is dissolved in water

By proceeding in this way, the children learn how scientific research work and that set-backs are to be expected. Only a systematic analysis of the variables will deliver successful results and solutions to problems. Further experiments – such as how the volume of gas released can be measured, the value of that volume, the variation of gas volume with fizzy tablet type – constitute a stage further in the activities who round up the module.

2. Subject: Science and/or Chemistry

3. Nivelul de predare: Grade 9 to 12

4. Curriculum content: Properties of the substances, dissolution, salts hydrolysis, neutralization reaction, relations between the uses and the properties of substances.

5. Kind of activity: Enquiring, explaining, laboratory work, building models, group activities, etc.

6. Anticipated Time: 4 lessons



7. Overall objective/Competencies:

Overall objectives have in view observing scientific phenomena and describing them by using everyday as well as specific technical terms; the investigation and description of the change of substances in a chemical reaction; the designing and implementation of simple experiments.

Sections		
1.	Students Activities	Describes the scenario in more detail and the tasks the students should carry out
2.	Teaching Guide	Suggests a teaching approach
3.	Assessment	Gives suggested formative assessment strategies

Acknowledgement:

These materials are taken from the Teaching-Learning Materials Tool compiled by the PARSEL Consortium (namly by Jack Holbrook, 2007) as part of the EC FP6 funded PARSEL Project (SAS6-CT-2006-042922-PARSEL) and adapted by the UVT-PROFILES Working Group – Member of the PROFILES Consortium. For further information see: <http://www.parsel.uni-kiel.de/cms/index.php?id=modules>

