

Different Ways of Teaching Science in Europe – An European exchange process for the development of science teaching materials

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The poster presented the project „Different ways of teaching science - a European exchange process for the development of science teaching materials“. This project was initiated by Science Deutschland e.V. with the goal to develop an exchange process between European teachers for at least two years. Bringing the European know how together new teaching materials, ideas and suggestions should be created. The project ends with a final conference in 2006. Results and material will be presented, published and distributed to teachers and people working in the field of teaching and being interested in science teaching. A handout of the two year process will be printed.

The project is supported by THINK ING., an initiative of the Arbeitgeberverband Gesamtmetall. It started in November 2004 with a three days kick-off-meeting in Bad Honnef with 35 teachers from 15 European countries taking part. The participants were suggested and selected by the 22 national organisation comitees of the European project „Physics/Science on stage“. During the kick-off-meeting three working groups were organised dealing with the following topics:

- What are the roles of experiments during lessons in different European countries ?
The members collect “Best-Practise”- examples from all countries concentrating on the fields of astronomy, Archimedes law and Lorentz force.
- Are there different ways of interdisciplinary science education ?
Intention of this workshop is the development of an European curriculum for interdisciplinary science education.
- How science for primary school is taught in different European countries ?
Members of this workshop collect practise examples for science teaching in elementary school and evaluate existing websites for this subject.

The working process made an important step forward in June, when during the EduNetwork 05 conference in Schulpforte a second meeting took place. Former results were discussed, concretized and future work was planned. The current status of the project separated for each working group can be summarised as follows:

The role of the experiment in science teaching: There is no doubt about the essential importance of experiments in science teaching. This working group deals with two main topics:

- 1.) How to make pupils more interested and enthusiastic by the experiment ?
- 2.) Astronomy – Construction of the world view.

The participants started collecting material for interesting and fascinating experiments concentrating on Lorentz Force and Archimedes Law. The collected material will be summarized and evaluated. Examples of good practice will be prepared for the planned publication. In the field of astronomy examples are collected how this subject is taught. A homepage of this topic shall be prepared until 2006. In the final publication an introduction to astronomical experiments in school and general ideas on the presentation of experiments, thematic entities and contents, the description points and a few examples of experiments will be included

Science in primary school: Teachers in primary school are not always well prepared and trained to teach science. But especially this period in school has a main influence on the pupils' further interest in science. Having this in mind the group deals with three main topics:

- 1.) Teachers education and advanced training,
- 2.) Good practice examples for science teaching,
- 3.) Evaluation of websites.

Their goal is to concretize the following questions concentrating on the topic water: What does good practice in teaching science in primary school mean? How can we help teachers to realize good practice examples ? The participants design a structure which should help teachers to develop good practice examples for teaching science in primary school on their own. This structure contains questions concerning the childrens and teachers environment and situation, the way the topic is selected, the transfer to the lesson plan, the documentation, presentation and reflection.

Interdisciplinary Science Teaching in Europe: Interdisciplinary science teaching is an ongoing and often discussed topic in Europe. In some countries interdisciplinary science is

already taught. This working group started to collect examples and experiences from all different countries and develops a curriculum concept which can be summarized shortly with the following points: Biology, Chemistry and Physics will be included subjects. At the beginning the target group will be 11-14 years old pupils. The approach will be phenomenological. There should be no epochal teaching. The main goal should be a „natural science literacy“ and a „basic understanding of natural science“. Natural science should be part of teachers training. Currently the main work is to find an appropriate selection of context fields. For each context a detailed description and teaching concept including the three main subjects and a link to other interesting fields like e.g. mathematics or history have to be developed. There should be no overbalance of one subject. One example might be „Space-Mission“.

The next steps for all groups include the preparation of the final material and handouts. Besides their national work the participants will have the possibility to meet again during the festival „Science on stage“ in Geneva in November 2005.