

## Experiences

Expériences, Kokemuksia, Erfahrungen, Izkušnje, Erfaringer,  
Deneyimler, Experiencia

**Please regard also the chapter “Experiences and Research Results” of the ScienceMath Volume.**

The ScienceMath modules are tested in the classroom. Many module descriptions include specific reports about experiences to the special module (please use the link, see screenshot).

Proportional factor 1	
Keywords	Proportionality, proportional factor, concept of function, functional relation, linear function
Lesson applicable for	12- to 15 years old. The lesson can be integrated into a course about functions/ functional relation. Aim is a networked learning with an insight into the possible, not only formal meanings of the proportional factor in a functional relationship.
Advice	The experiments should be arranged in stations. Time-frame should be 1 or (better) 2 double-lessons. Depending on the time every group (2 to 4 students) should work at about 3 experiments. The sequence should be closed by a plenary discussion in the class-room, where every group presents the results of one experiment including the extra-mathematical meaning of the proportional factor in that special relation. The experiments are simple interdisciplinary experiments for the use in mathematical lessons.
<a href="#">Background</a>	General didactic background Mathematical background The idea of teaching implementation
<a href="#">Teaching material</a>	Possible course Needed equipment Worksheets
<a href="#">Further information</a>	Experiences Literature

*A general report offers chapter 2.1. of the ScienceMath volume, p. 19f:*

According to the different forms of interdisciplinary cooperation different kinds of modules were developed and tested. We learned that – for a successful cooperation - the relation between the cooperating teachers is a very important basis. There has to be an acknowledgement about knowledge and competencies of each other. There should be an understanding and agreement about contributing with own aspects and overtaking ideas from each other. On the other hand the cooperating person has to feel like a real cooperating person and has to be aware with the module. E.g. in one of the teaching trials the biological teacher was only waiting for her entry and didn't take own initiative.

For all cooperating teachers interdisciplinarity was a challenge, which led to new perspectives. They stressed the value of the scientific part of the mathematical lessons. Some mentioned initial difficulties to accept and to integrate a different view on a topic; but looking back they felt enriched. Some teachers were afraid of the time aspect, but they learned that the ScienceMath-module should not be used additional, but instead of traditional lessons. Teachers pointed out the long-term effects and re-usability at many different mathematical themes during the whole schooldays.

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We did not feel that there were differences between the countries in accepting interdisciplinary lessons; more the differences concern the individuality of the teacher. It could be noticed – perhaps - that there is a longer tradition in open oriented and interdisciplinary mathematical lessons in Scandinavia than in Eastern European countries; but summarising we observed the motivating impulse of the ScienceMath- Approach for all.

Last but not least it is a very important result of the ScienceMath project, that the developed modules motivated teachers to try them out and to get into cooperation and integrate interdisciplinarity in the classroom. This concerns European teachers who visited the ScienceMath-website as well as teachers who participated at teacher trainings. It promises a continuing European exchange in future.

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