

Science – Teacher Education Advanced Methods



S-TEAM Project



A coordination and support action under
FP7, SiS 2008, action 2.2.1.1

„Innovative Methods in Science Education“



S-TEAM Project



This project was selected by European Commission as the only one of 42 projects.

It is financed with 4,7 mil Euro

The project is capable to influence of about 0,5 mil European science teachers.



Objectives of S-TEAM

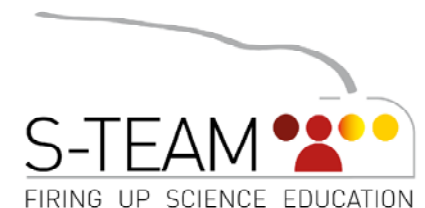
- **The three main objectives of the S-TEAM Project are:**
 - To improve motivation, learning and pupil attitudes in European science education, resulting in
 - increased scientific literacy
 - recruitment to science-based careers
 - Enabling large numbers of teachers to adopt inquiry-based and other proven methods for more effective science teaching
 - Supporting teachers by providing training in, and access to, innovative methods and research-based knowledge.



What is IBSTE?



- IBSTE = inquiry based science teaching and/or learning
- Inquiry is the intentional process of diagnosing problems, critiquing experiments, and distinguishing alternatives, planning investigations, researching conjectures, searching for information, constructing models, debating with peers and forming coherent arguments.



What is IBSTE?



- Inquiry Based Science is characterized by:
- Authentic and problem based learning activities where there may not be a correct answer
- A certain amount of experimental procedures, “hands-on” activities
- Self regulated learning sequences where student autonomy is emphasized
- Discursive argumentation and communication with peers (talking science)



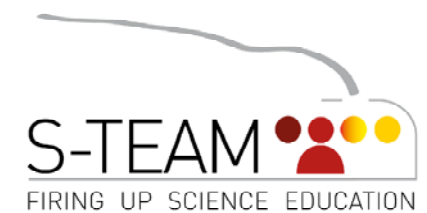
Partners of S-TEAM

- Cyprus European University - Cyprus
- Czech Republic University of South Bohemia
- Denmark University of Copenhagen & Aarhus Universitet
- Estonia University of Tallinn
- Finland Abo Akademi University, Helsinki University, University of Jyväskylä
- France Centre National de la Recherche Scientifique, Université Pierre Mendès-France
- Université Rennes 2- Haute Bretagne
- Germany Friedrich Schiller University of Jena, Leibniz Institute for Science Education at the University of Kiel (IPN)
- Hungary Hungarian Research Teachers' Association
- Israel Technion – Israel Institute of Technology
- Lithuania Kaunas University of Technology, Vilnius Pedagogical University
- Norway **Norwegian University of Science and Technology (coordinator),**
University of Oslo
- Spain Universidade de Santiago de Compostela
- Sweden Mälardalen University
- Turkey Gazi University, Hacettepe University
- United Kingdom University of Bristol, University of Leeds, University of Strathclyde



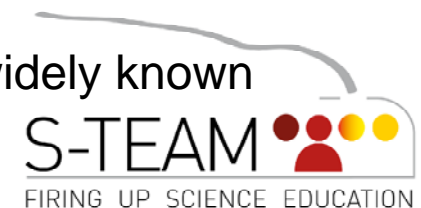
Duration of project

- The project began with a start-up meeting in Trondheim on May 7th & 8th and will take 3 years.



Work packages of S-TEAM

- **The work of the S-TEAM project is divided into 10 ‘work packages’, each with a particular function:**
 - Management
 - Policy overview - an observatory of the interaction between science and teacher education in Europe
 - Powerful learning environments: disseminating the successful SINUS programme from Germany to the other partner countries.
 - Teacher collaboration and its role in changing science education.
 - Innovative methods in initial teacher education for science teaching.
 - Professional development for science teaching
 - Argumentation in science teaching; structures underpinning talk about science in the classroom
 - Scientific Literacies: engaging with the discourses of science
 - Indicators - measuring our results
 - Media and dissemination: making sure our results are widely known



USB – work packages



WP3 Powerful educational environments for successful science teaching

WP4 Teacher Collaboration and innovative methods

WP6 Inquiry-based methods and professional development

WP7 Argumentation for teacher education in science



WP3

Implementation of German project SINUS

= project to improve science and mathematics teaching and framework for teacher professional development.

The objectives are:

- to repeat the success of the German SINUS & SINUS-Transfer programmes in all the national education contexts represented in S-TEAM
- to disseminate, test and develop SINUS modules and materials for these contexts



WP4

Teacher Collaboration and innovative methods

WP4 will promote the role of teacher collaboration and collective work

the objectives are:

- to use existing empirical research on teachers' collective work as a basis for the systematic deployment of teacher collaboration in support of innovative methods in science teaching.
- To use teacher collaboration as a means of promoting equity and working with diversity in science classrooms



WP6

Inquiry-based methods and professional development

Objectives

- to incorporate state-of-the-art knowledge about inquiry-based methods in science into effective professional development programmes for teachers, in order to improve attitudes, motivation and career choice disposition towards science for pupils



WP6



Inquiry-based methods and professional development

- USB will produce a training module on science-centred competitions (e.g. Biological Olympiad) as a way to improve and understand student motivation in science



WP7

Argumentation for teacher education in science

Objectives:

- to disseminate specialised training resources and related materials to support the teaching and learning of argumentation in science classrooms, as a component of IBST/E

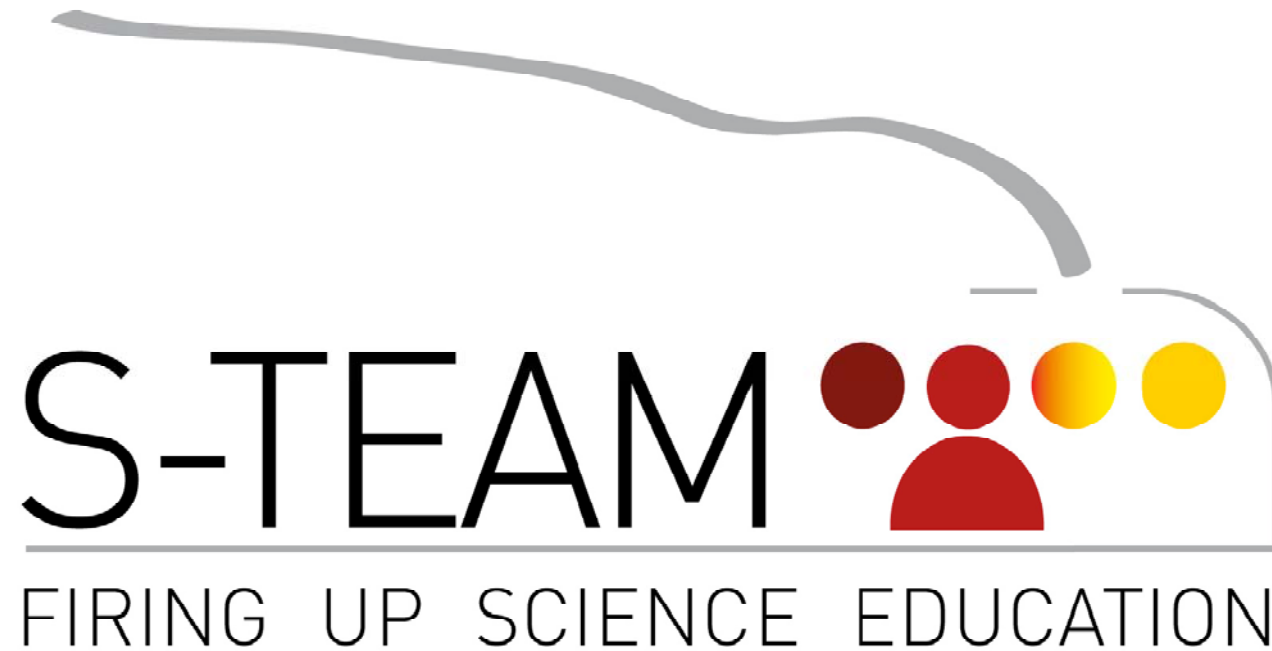


WP7

Argumentation for teacher education in science

- USB will prepare training packages for primary school mathematics courses based on the Philosophy for Children (P4C)
- programme Philosophy for Children adapted to Mathematics (P4CM) - learning of mathematics among pupils 10 -12 years of age, and stimulates their dialogical and critical thinking, by assisting them to overcome prejudices and understand mathematical concepts, in dialogue with their peers and through critical thinking.





Thank you for your attention.



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