



COSMOS is a Horizon 2020 project that aims to foster Open schooling in science education. Cosmos started this January and involves 12 dedicated partners from 7 countries, including higher education institutes, ministries, NGO's and science centres. The project will run over three years, including two rounds (school years) of implementations in close collaboration with primary and secondary schools across Europe.

## Partners' meeting in Karlstad

On 14-15 June 2022, the second consortium meeting was held in Karlstad, Sweden. The participants discussed the COSMOS framework and terminology related to open schooling transformation, and finalized the preparation phase of the first six months of the project. During the autumn of 2022, phase 2 will start with initiation and implementation of the work with schools (primary and secondary), higher education institutions, science organisations, etc.



## Socioscientific inquiry-based learning approach

'Wildlife populations plummet by 69% on average since 1970' is the WWF's stern warning about the state of our planet. [The Living Planet Report 2022](#) calls for urgent and collective action to protect our environment and build a better future for our wildlife and our planet, but how do we do that? As science educators, how do we support young people in learning how to implement appropriate action in relation to such socio-environmental issues? Socioscientific inquiry-based learning (SSIBL) is a teaching approach that can help us address these issues.

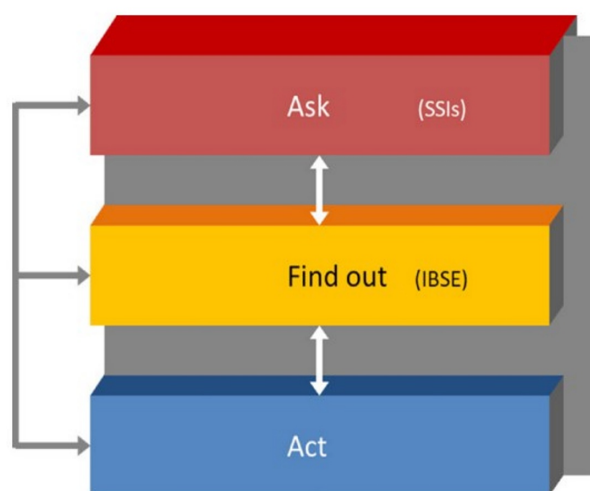
SSIBL, previously developed by the EU-funded [PARRISE](#) consortium, aims to promote science *in, with* and *for* society. SSIBL brings together key lines of

research in science education from socioscientific issues-based education, inquiry-based learning and action-oriented learning in order to support young people's meaningful science learning and their development as active citizens of their communities.

Within educational practice, SSIBL consists of three stages: first, placing the learning of scientific concepts into a socioscientific context, relating science ideas to students' personal interests and everyday life, and encouraging them to **ASK** authentic questions about these science ideas that are personally relevant to them. These questions are open-ended, involve participation by multiple stakeholders, and are aimed at solutions which help to enact change. Second, SSIBL engages students in personally relevant inquiries where they can **FIND OUT** answers to their questions engaging in social and science inquiries. Third, students consider solutions to the issues raised in

their questions and investigations and **ACT** accordingly as part of their learning.

Within the COSMOS project, we are aiming to use SSIBL as a way of bringing together learners, teachers, scientists, community leaders, parents, and other relevant stakeholders to support the teaching and learning of science that is relevant and of benefit to all involved. We are interested in looking at how community engagement can be facilitated through this approach and how schools can open up to their communities through science education.



### ASK - Socioscientific Issues (SSIs)

science topics with implications to society (e.g., COVID-19 pandemic, climate crisis). These issues are used to make science **personally relevant** to students, who raise questions about SSIs they would like to investigate.



### FIND OUT– inquiry-based science education

Students engage in **investigations** to answer their questions



**ACT** - Students take **appropriate action** as a result of their learning

*The pedagogical stages of Socioscientific inquiry-based learning ([Science and Society in education](#), 2017)*

## Openness of schools – How open can we become?

Identifying school openness attributes is critical for determining the kinds of COSMOS interventions and change

processes that are compatible with each participating school. To map the relationship of schools with their environment, in the COSMOS project we built a tool to reflect on the openness of schools. By having a school scale itself on different dimensions, we can both summarize the current

situation and clarify what the school itself would like to work on in terms of its own relationship with society. In the upcoming weeks, we will conduct this exercise with all of our partner schools.

## COSMOS partnership with schools

In the first stage, COSMOS operationalized the Open schooling framework and developed an evaluation toolbox. Since this summer, **partners**

**have invited schools to work closely together on innovative science curricula** to open up schools to their community. Currently, COSMOS partners and teachers are working collaboratively on adapting science curricula that include argumentation and decision-

making tasks, that require the students and community members to critically reflect on values, and their ethical responsibility to their communities, and to take action accordingly.



*COSMOS partners cooperate with primary and secondary schools in various cities of 6 countries (Sweden, UK, Belgium, the Netherlands, Portugal and Israel)*

## Teacher Professional Development (TPD)

TPD, in COSMOS, concerns the pedagogical capacity building of the educational teams of the participating schools. In COSMOS, these school teams will select authentic socio-scientific issues (SSI) that are relevant for the school community, around which they will design and implement learning units in science classes. Unique to COSMOS, this process, which is led by the teachers, will be conducted as a community-of-practice that includes the school team and other community members connected to the socio-scientific issue.

Toward this end, capacity building, in the context of COSMOS, is about developing a deep understanding of the

COSMOS approach, which integrates learning in and as a community and implementing SSIBL (Socio-Scientific Inquiry-Based Learning) as the pedagogical framework guiding the development and implementation of the learning units. Capacity building, in COSMOS, aspires to cultivate an open-schooling mindset and identity of the teachers, which is a prerequisite for making open schooling part of the school's organizational culture.

COSMOS TPD is organized around three 'conceptual components' or steps: (1) Social learning in and as a community; (2) SSIBL pedagogy and how to implement this, in the context of COSMOS, in a community of practice; (3) Deep reflection on the process. All three conceptual components/steps combine theoretical and practical aspects.

The TPD process in COSMOS may be conducted in three areas of participation: as a community of schools, for example, the participating schools in a country (or even schools from different countries); with the individual school team; and with individual teachers.

Some guiding principles of COSMOS TPD include:

- Tailoring to the specific school context. This includes the openness attributes of the school that emerged from the openness assessment and the teachers' needs (incoming and along the process) in each school.
- Co-construction in collaboration with the school's educational team

These ideas were presented and discussed in the partners' meeting in Karlstad.

## Newsletter

10/2022

### **COSMOS – Creating Organisational Structures for Meaningful science education through Open Schooling for all**

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