

**KA1 ERASMUS+ COURSES FOR HEADMASTERS, TEACHERS AND SCHOOL STAFF**  
**BOOSTING SCIENCE EDUCATION AT SCHOOL**

**Developing Scientific Inquiry at school: A training course for teachers on the inquiry-based science education approach, hands-on experiments and cooperative learning**

**Presentation**

It is increasingly more important in the modern education system to find engaging and effective ways to teach all sorts of scientific subjects to students, in order to promote their interest and improve their understanding of natural phenomena and current everyday life events. This training course will discuss the potentials of the inquiry-based science education (IBSE) approach and show how to apply it to real cases in the classrooms.

**Objectives**

The main objective is to provide the participants with the skills to develop an inquiry-based approach to scientific questions in the class, along with hands-on experiments and cooperative learning.

The participants are expected to be able to integrate/complement - or even replace totally - the traditional method of teaching science with the IBSE approach, which has been proved to be more effective and motivating, characterized by cooperative learning among students and non-competitive ways of organizing the class. IBSE creates a productive learning environment in which students put themselves to test and help each other.

A focus on hands-on experiments with cheap and easily-available materials (often recycling wastes) will make the method applicable by every teacher in every school, and will promote a respectful attitude towards environmental issues.

The course will also give the attendants valuable tools for improving students' scientific communication skills, allowing them to fix concepts and to communicate science clearly.

**Target groups**

-All science teachers and operators of the educational system with an interest in science and technology subjects;

-High schools of any kind (e.g. scientific/technical or humanity oriented) and level (i.e. from primary to secondary).

**The Trainers**

All trainers are members of The Science Zone (TSZ), a cultural association for scientific communication and outreach based in Rome. All trainers have a university

degree in scientific subjects (e.g. Mathematics, Physics, Biology, Biotechnology), many of them work as researchers, teachers, and they are all experienced scientific communicators, with a specific interest in promoting the IBSE approach.

**Language of the course**

English

**Programme**

**Day 1 — 4 hours**

1. Introduction to IBSE: a brief discussion of its origin, historical development and theoretical foundations
2. Comparison between the traditional method and the IBSE approach
3. IBSE: levels of inquiry
4. Creation of teamworks and practical examples

**Day 2 — 4 hours**

1. Phase 1 of IBSE: Engage / 2. Phase 2 of IBSE: Explore
3. Phase 3 of IBSE: Explain / 4. Phase 4 of IBSE: Elaborate
5. Phase 5 of IBSE: Evaluate
6. Focus on hands-on experiments, working with materials and developing cooperativeness

**Day 3 — 4 hours**

1. Example of converting a traditional science activity into an inquiry-based one
2. Practical session I: Using IBSE to replace/complement the traditional method
3. Practical session II: Building an inquiry-based scientific path in teamwork

**Day 4 — 4 hours**

Practical session on a real educational environment: application of IBSE on the field: hands-on exploration of a scientific topic and elaboration in the class of the contents and construction of an interactive exhibit for the other students of the school

**Day 5 — 4 hours**

Visit to an Italian school. Networking moments to establish new partnerships Meeting with teachers and students

### 1) Fees

<p>Course fee: <b>350,00 €</b> (VAT included) <b>70,00€</b> administrative support Total: <b>420€</b></p>	<p>It includes:</p> <ul style="list-style-type: none"><li>- Preparation for the course</li><li>- Tuition</li><li>- Training materials</li><li>- Administration costs</li><li>- Organizational costs</li><li>- Visit to a school, Institution or Association involved in EU projects</li></ul>
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