



www.SciLMi.eu

Meta-Scientific Literacies
in the
(Mis-)Information Age



Co-funded by
the European Union





EduNet Europe

TOGETHER FOR EDUCATION

Maria Steger

Managing & Academic Director
EduNet Europe gGmbH

Project Manager
Erasmus+ Teacher Academy SciLMi

steger@edunet.eu

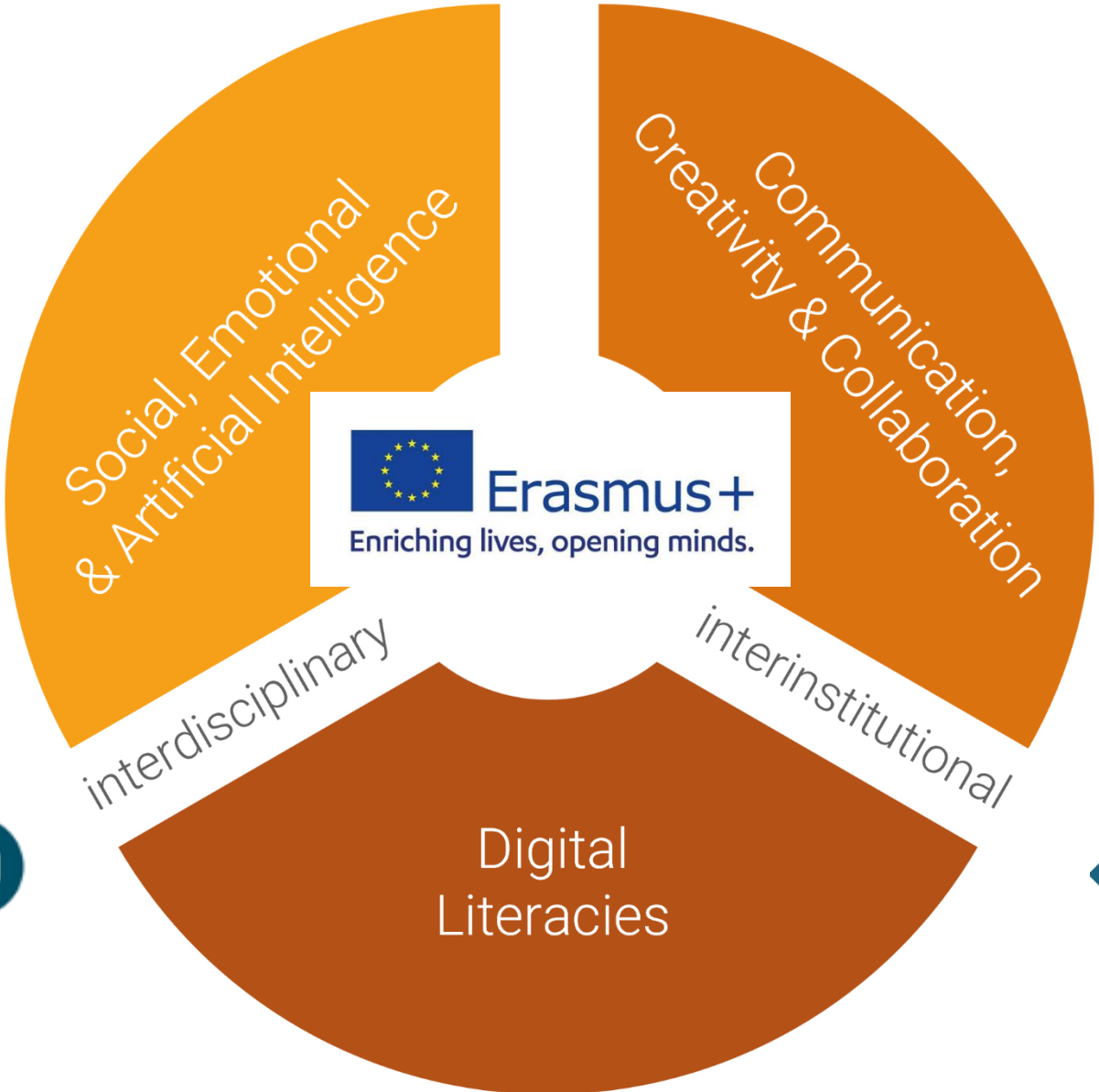


Today's
Challenges

EMPOWERING
TEACHERS

Tomorrow's
Opportunities

Erasmus+ Projects & Teacher Trainings





www.SciLMi.eu

Meta-Scientific Literacies
in the
(Mis-)Information Age



Co-funded by
the European Union





Consortium

Cross-
Disciplinary
Team

Objective

Context
&
Mission

Results

Meta-
Scientific
Literacies
Framework

Offer

Teacher
Trainings



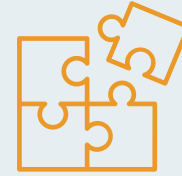
Consortium

Cross-
Disciplinary
Team



Objective

Context
&
Mission



Results

Meta-
Scientific
Literacies
Framework



Offer

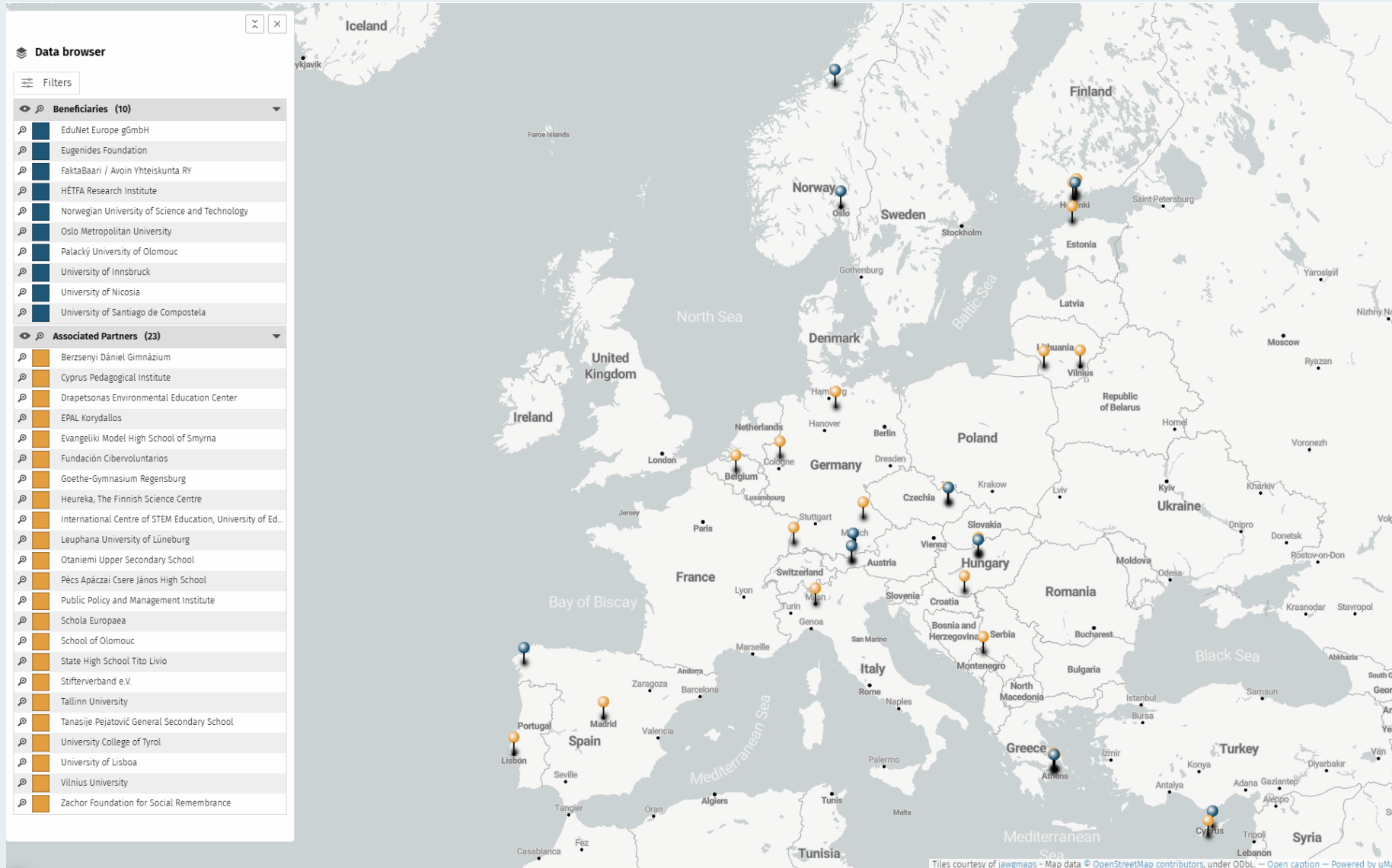
Teacher
Trainings

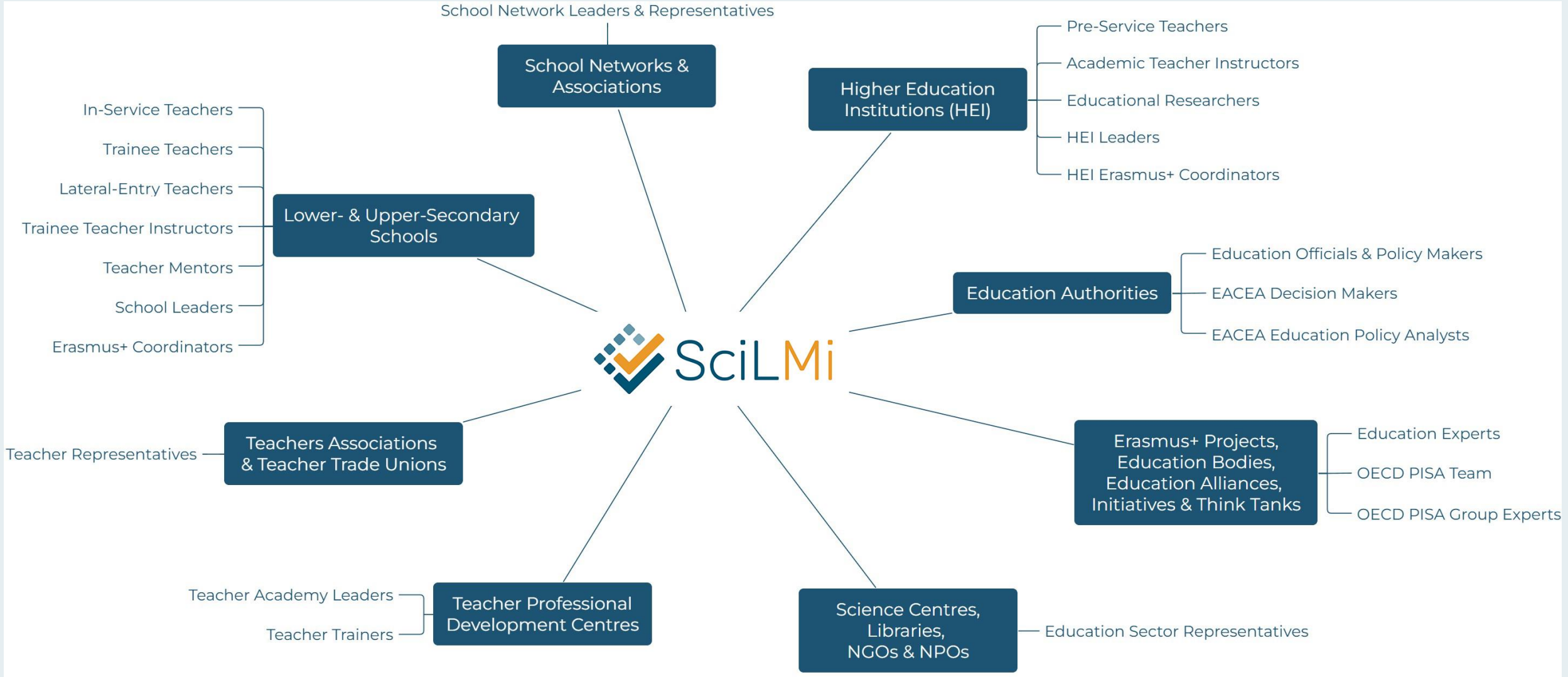


Co-Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.



Palacký University
Olomouc







Consortium

Cross-
Disciplinary
Team



Objective

Context
&
Mission



Results

Meta-
Scientific
Literacies
Framework



Offer

Teacher
Trainings

Digital Transformation

Clicks are changing
the world.



Digital Transformation



Digital Transformation

Avoid chemical ingredients.
Natural ones are much better
for your health!

Eating sea lettuce will prevent you from getting COVID-19.

Getting vaccinated will kill you!

Do you know how you can find
out if you have been infected by
SARS-CoV2? Just hold your
breath for ten seconds. If you
can't, you have caught the virus!

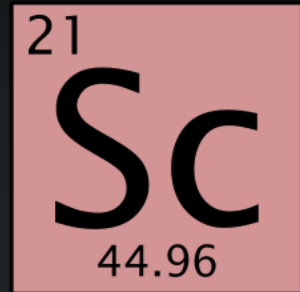
Climate change is a hoax.

An injection inside the human body
with a disinfectant like bleach or
isopropyl alcohol is likely to combat
the virus.

Renewable energy can only
work when it's not cloudy or windy.



IN



Σ



$E=mc^2$

WE [MIS] TRUST

Socio-Scientific Issues

- Climate Change
- Natural Resource Scarcity
- Pandemics
- ...

controversial
science-related topics
with social ramifications

⇒ no ultimate truth,
only informed opinions





How can teachers empower *all* learners to act as **competent and effective democratic citizens** in a world flooded by socio-scientific mis- and disinformation?

PISA 2025 Science Competency 3

Research, evaluate and use scientific information for decision making and action



- Search, evaluate and communicate the relative merits of different sources of information (scientific, social, economic and ethical) that may have significance or merit in arriving at decisions on science-related issues, and whether they support an argument or a solution.
- Distinguish among claims based on strong scientific evidence, expert vs. non-expert, and opinion and provide reasons for the distinction;
- Construct an argument to support an appropriate scientific conclusion from a set of data;
- Critique standard flaws in science-related arguments using epistemic and procedural knowledge e.g., poor assumptions, cause vs. correlation, faulty explanations, generalisations from limited data;
- Justify decisions using scientific arguments, either individual or communal, that contribute to solving contemporary issues or sustainable development. (OECD 2022)

Linguistic &
Conceptual
Literacies

Evaluative
Literacies &
Critical Thinking

Digital
Information, Data
& Media Literacies

Civic &
Futures
Literacies



Diverse Range of Skills

Calls for a

Cross-Disciplinary Approach



**Meta-Scientific
Literacies**



Linguistic &
Conceptual
Literacies

Evaluative
Literacies &
Critical Thinking

Digital
Information, Data
& Media Literacies

Civic &
Futures
Literacies



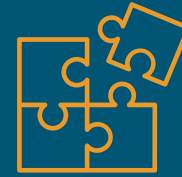
Consortium

Cross-
Disciplinary
Team



Objective

Context
&
Mission



Results

Meta-
Scientific
Literacies
Framework



Offer

Teacher
Trainings



Identify, search & preselect **information sources** on a socio-scientific issue



Evaluate the scientific and social dimensions of a socio-scientific issue to create an **informed opinion**



Analyse and select **information** on a socio-scientific issue



Exercise **civic engagement** on a socio-scientific issue



WHAT FOR Goal / Learning Objective

- **WHAT** Outcome → verbs of "external visibility" → assessment
 - a. **HOW** by doing ...
 - b. **HOW** by doing ...
 - c. **HOW** by doing ...

- **WHAT** Outcome → verbs of "external visibility" → assessment
 - a. **HOW** by ...

**WHAT FOR**

To differentiate between fact and opinion, students need to

WHAT

assess if the viewpoint is supported by arguments and if the arguments are supported by evidence.

a. **HOW**

by identifying verbal cues that indicate opinions or uncertainty.

b. **HOW**

by identifying verbal cues that indicate arguments and evidence or examples.

WHAT

verify the reliability of the arguments and evidence.

a. **HOW**

by identifying empirical evidence.

b. **HOW**

by verifying if the information is supported by reliable sources and references.



WHAT FOR

In order to identify biased information, students need to

- **WHAT** identify manipulation strategies (emotional appeal, social pressure)
 - a. **HOW** by examining the use of rhetorical devices
 - b. **HOW** by identifying sensational or emotional language

- **WHAT** identify deceptive tactics (lying, omission, fabrication, misrepresentation)
 - a. **HOW** by checking if the information presents multiple viewpoints or if it is one-sided
 - b. **HOW** by evaluating whether the author might have a motive, such as financial benefit, political gain, or fame, that could affect the objectivity of the information



Teachers need not reinvent their teaching.

- step-by-step approach to adapt their teaching and materials to cultivate selected meta-scientific literacies and to make teaching practices more inclusive
- ➔ subject-specific lesson goals remain unchanged
- ➔ meta-scientific literacies can effectively complement them and deepen subject knowledge

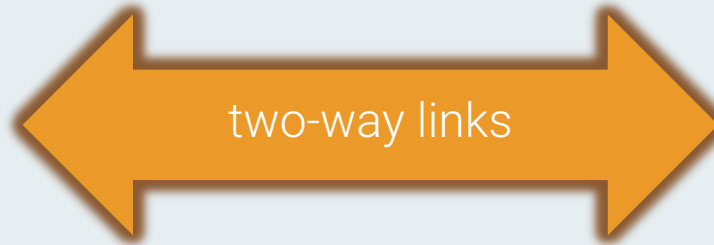


SciLMi Framework

„Wiki-Style“

4 Dimensions

- Learner Literacies
- Educator Competences
- Socio-Scientific Issues
- European Dimension



Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi



Filters

- Subject
- Subject-Specific Goal
- SSI Topics
- Methods
- Meta-Scientific Literacies
- ...

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi

Learning Module
SciLMi



Consortium

Cross-
Disciplinary
Team



Objectives

Mission



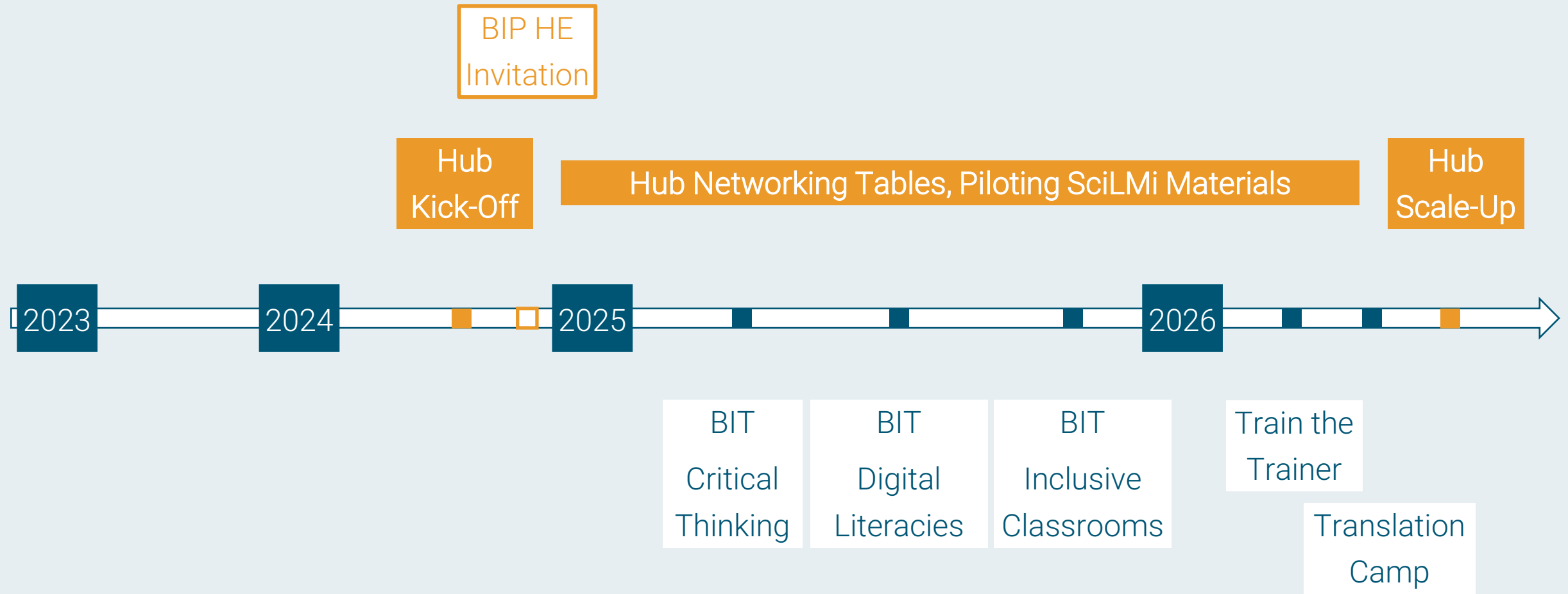
Results

Meta-
Scientific
Literacies
Framework



Offer

Teacher
Trainings





SciLMi Critical Thinking for
Effective Democratic Citizens

blended course

Santiago de Compostela, Spain

16-20 June 2025

SciLMi Digital Media and
Information Literacies

blended course

Munich, Germany

1-5 September 2025

Inclusive SciLMi Classrooms for
Effective Democratic Citizens

blended course

Nicosia, Cyprus

3-7 November 2025

SciLMi “Train the Trainer”
Multiplier Event

blended course

Palaio Faliro, Greece

20-24 April 2026



SciLMi Lesson Plans
Translation & Adaptation Camp

blended course

Budapest, Hungary

11-15 May 2026

THANK YOU
VERY MUCH
FOR YOUR
ATTENTION

