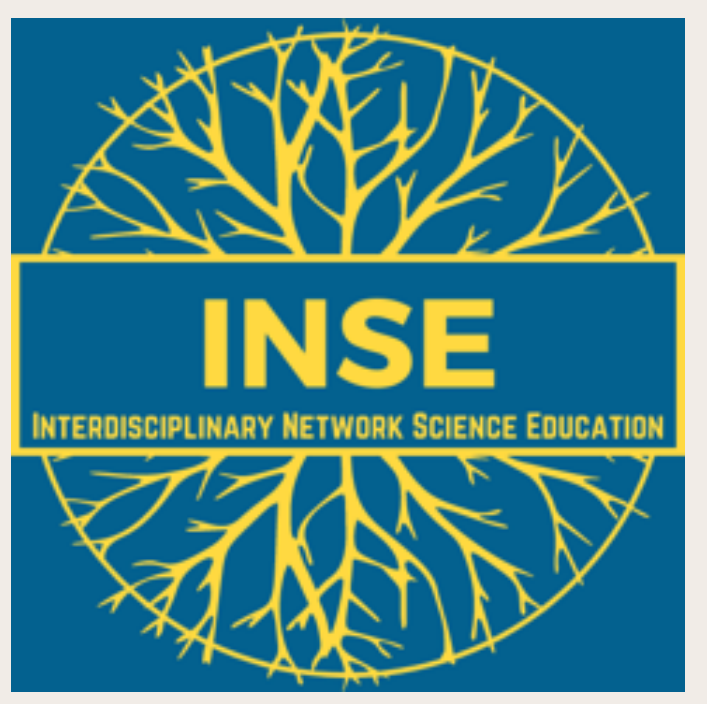


# Fostering Science Literacy: The Interdisciplinary Partnership INSE in Action



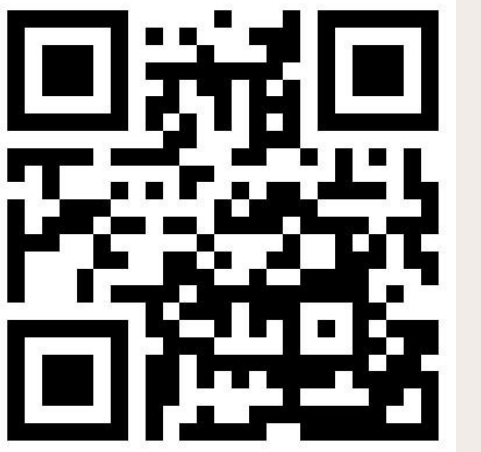
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## INSE - Interdisciplinary Network for Science Education Lower Austria

### What's the problem?

High level of science skepticism in Austria

- ❖ 38 % rely more on common sense and less on scientific studies

■ 1 I completely agree ■ 2 ■ 3 ■ 4 ■ 5 I completely disagree



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- ❖ Limited trust in science
- ❖ Low interest in science
- ❖ Poor understanding of how science works

### Our approach?

Joining efforts

- ❖ Establish **interdisciplinary network** of partners from different research disciplines, education, schools, and administrative authorities & expand it
- ❖ Develop **teaching tools for science education**, bring them to schools and test them
- ❖ Use innovative forms of **science communication**
- ❖ Develop joint research proposals

### Our aims?

Improving science literacy

- ❖ Raise school student's and the public's understanding of science
- ❖ Correct misconceptions about science
- ❖ Promote science education at schools
- ❖ Strengthen the belief in the benefits of science
- ❖ Foster contact between science and schools/teacher training/adult training

Core Team:



## INSE Examples of Science Education

### Primary School

Workshop Cycle "Forest of the Future"

- + Cultural Methods
- + Inquiry-based Learning
- + Arts-based Approach



- Fairy Tale Workshop
- Research Workshop
- Future Workshop

### Lower Secondary School

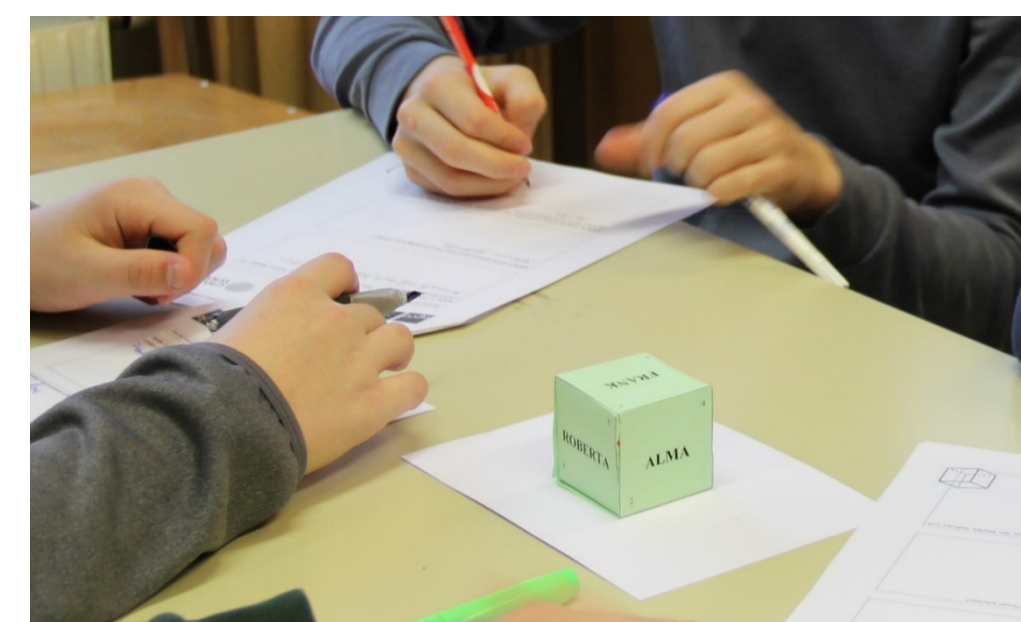
Nature of Science (NOS)

7 key aspects reflecting scientific knowledge:

- (1) tentative, (2) empirically based, (3) distinguishes between observation and inference, (4) socially & culturally embedded, (5) relies on human creativity, (6) influenced by laws & theories, (7) utilizes a variety of scientific methods.

Lederman et al., 2013

- Six interventions
- Example "Puzzle cube":

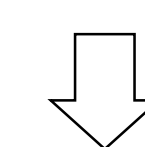


### Upper Secondary School

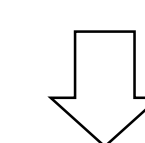
Social Sciences

Research project in groups based on Self-Determination Theory (SDT):

Research Question



Operationalization:  
study design,  
survey instrument



Survey &  
Data Analysis



### Evaluation of Activities: pre-post-follow-up control group design

Satisfaction, knowledge, attitude, behavior, and short-term system changes (Kirkpatrick and Kirkpatrick, 2006)

Views of NOS D+ Test (Lederman et al. 2002; PhysPort, 2020)

## Our Recommendations for Science Education:

- ❖ Emphasize Creative Thinking
- ❖ Focus on Problem-based and Project-based Learning
- ❖ Integrate Arts-based Approaches (STEAM/MINKT)
- ❖ Enable Active Participation
- ❖ Promote Interdisciplinarity, linking natural, social, and cultural sciences
- ❖ Start Early and Foster Lifelong Engagement
- ❖ Support Teachers with Training and Adequate Materials

**More Information:** Feldbacher, E., Sippl, C., Panzenböck, M., Jöstl, G., Eibl, D., Akbari, E., & Weigelhofer, G. (2024). Neue Wege in der Wissenschaftsbildung: Inter- und Transdisziplinarität als Schlüssel. *R&E-SOURCE*, 11(1), 75–88. <https://doi.org/10.53349/resource.2024.i1.a1228>

### We would like our network to grow and evolve!

Do you want to contribute to an improved science education?

Are you part of an initiative interested in innovative ways of science education and science communication and want to collaborate and exchange ideas with like-minded people?

Have you already developed teaching material for science education and do you want to share it?

### Get in Touch!

[www.science-education.at](http://www.science-education.at)



FUNDED AS PART OF THE RTI-STRATEGY LOWER AUSTRIA 2027