



STEAM Project

UNESCO Global Geopark: **Water, Life and Sustainability**

Main school subjects involved

Earth Sciences / Geography / Chemistry / Biology / Physics / Mathematics / Technology /
Engineering / Economics / Urban Studies / Arts / Global Perspectives

Aimed at

students between 7 and 18 years old

Participant Schools

TBD	TBD	TBD	TBD	TBD

Supporting Organizations

STEAM Practices
Advisor



Lesvos Natural
History Museum
(Greece)

Organizational
Endowment



International Schools
Association - ISA
(Switzerland)

Academic
Advisor



Aegean
University
(Greece)

School term:

October 2026 - April 2027

Introduction

UNESCO Global Geoparks provide exceptional environments for understanding the connections between the Earth, water, life and human communities. Water shapes landscapes, moves through rocks and soils, creates springs, rivers and wetlands, supports biodiversity, influences settlements and agriculture, and has inspired cultures, traditions, architecture and artistic expression throughout human history.



Through the theme **Water, Life and Sustainability**, students will explore water from **scientific, environmental, geographical, technological, mathematical, social, cultural and artistic perspectives**. According to their age and interests, they will be able to investigate topics such as groundwater and the water cycle, rivers and wetlands, coastlines, **thermal and mineral springs**, water chemistry and quality, biodiversity, climate change, sustainable water management, agriculture, cities and human settlements, as well as the representation and significance of water in **art, photography, design, architecture, literature and local cultural heritage**.

By combining observation, research, experimentation, creativity and international collaboration, the project will allow students of different ages and academic interests to approach a common global theme from different perspectives and to understand how water connects **our planet, living systems, communities and cultures**.



Project Development & Collaboration

Learning Objectives

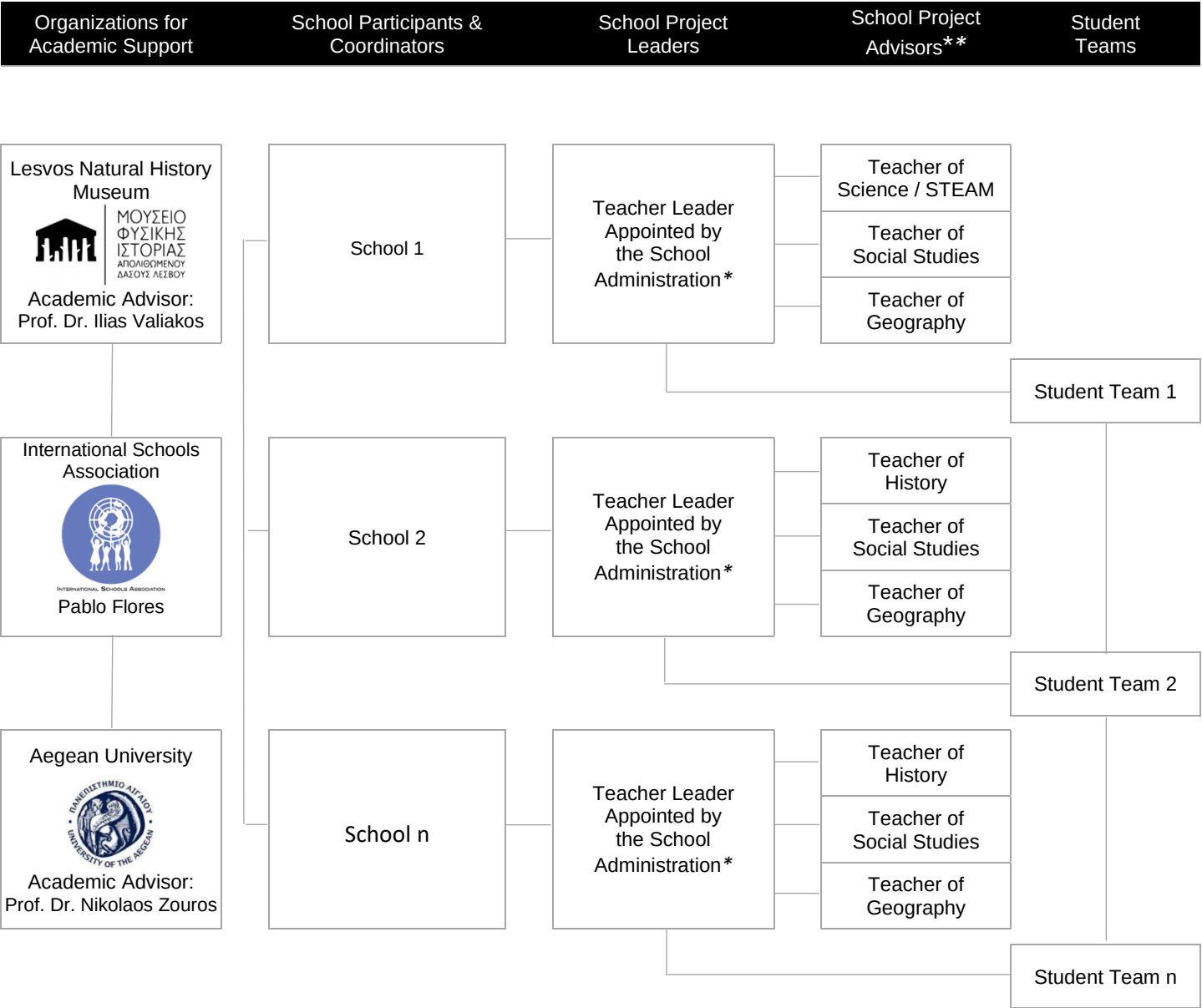
This school project aims to provide students with an interdisciplinary learning experience that combines knowledge, practical investigation, creativity and international collaboration.

By bringing together students from diverse cultural and educational backgrounds, the project promotes **curiosity, teamwork, intercultural understanding and the exchange of ideas**. Through the common theme of Water, Life and Sustainability, students will have opportunities to:

- Develop curiosity and motivation for sciences, technology, mathematics, arts and humanities through real-world learning.
- Strengthen teamwork, communication and collaboration with students from different countries.
- Promote intercultural understanding and respect through the exchange of experiences and perspectives.

- Understand the connections between water, the Earth, life, human societies and sustainability.
- Develop critical thinking, creativity, inquiry and problem-solving skills through research, experimentation and artistic expression.
- Connect different school subjects and disciplines to explore environmental and global challenges from multiple perspectives.
- Foster environmental responsibility, initiative and global citizenship, encouraging students to contribute ideas for a more sustainable future.

Organizational Workflow



* The school administration may appoint any teacher they consider best suited to assume the role of teacher leader for the project, representing and coordinating activities for their school. Additionally, this selection process enables the school administration to choose a teacher most relevant to the subject matter. For instance, while some schools may opt for a science teacher, others may prefer an art teacher to develop a theme related to their expertise.

** School Advisors can develop their own subprojects. For instance:

Physics, Mathematics & Technology – Students can study water flow, temperature and energy, collect and analyze data, create graphs and maps, and use digital tools to monitor and compare water-related phenomena.

Social Studies, Economics & Global Perspectives – Students can examine how access to and use of water affect communities, agriculture, tourism, economic activities and sustainable development.

Suggestions of Themes for Collaborative School Research

Within the overarching project theme, *UNESCO Global Geoparks: Water, Life and Sustainability*, each participating school may develop a specific theme according to its **students' ages, interests, curriculum and local environment**. Schools will share their work through the collaborative platform, allowing students to compare findings, experiences and perspectives across countries. Suggested themes include, but are not limited to:

- **Water, Earth and Landscapes** – exploring the water cycle, rivers, groundwater, erosion, rocks, aquifers and the role of water in shaping landscapes.
- **Thermal and Mineral Springs** – investigating their geological origins, temperature, mineral composition, geothermal energy, ecosystems and human uses.
- **Water, Life and Biodiversity** – exploring aquatic ecosystems, plants, animals, wetlands and the importance of water for life.
- **Water Quality and Chemistry** – investigating water properties, pH, minerals, pollution, filtration and other age-appropriate aspects of water science.
- **Water, Climate and Sustainability** – examining droughts, floods, climate change, water conservation and sustainable management of water resources.
- **Water, Communities and Sustainable Cities** – exploring water supply, agriculture, energy, tourism, urban development and how communities manage and depend on water.
- **Water, Culture and the Arts** – exploring how water and landscapes inspire **art, photography, architecture, literature, music, traditions and creative expression**.

Operational Characteristics & Estimated Schedule

Time Frame	Work	Operational Characteristics
October 2026	Project Organization and Start	- Formation of the interschool group of teacher leaders and confirmation of participating schools. - Formation of student teams according to age, interests and school organization. - Introduction to the common theme Water, Life and Sustainability and selection of school/team research themes. - Agreement on the collaborative platform, communication methods and schedule. - First virtual meeting for introductions and project launch.
November 2026 – March 2027	Project Development & Collaboration	- Students develop their selected themes through research, observation, experimentation, field activities, creative work or other age-appropriate approaches. - Regular sharing of progress, experiences and findings through the collaborative platform. - Virtual exchanges between participating schools to compare perspectives, environments and results.

		- Expert lectures and educational sessions related to water, geology, life and sustainability, with topics agreed according to participating schools' interests. - Each team prepares its final contribution, which may include research, experiments, models, artwork, photography, videos, maps, digital work or presentations.
April 2027	Field Trip, Final Presentation & Closing Ceremony	- Educational field activities and visits on Lesvos Island and the Lesvos UNESCO Global Geopark. - Final collaborative presentation and exhibition of project outcomes at the University of the Aegean, Lesvos Island, Greece. - Award of certificates to participating students and teachers by the University and the International Schools Association.

Documentation of the Activities and Means of Interschool Communications

Each school team should have a “Project Activity Diary” to register details like stages, problems found, things to improve, etc. Project leaders may appoint a student that should be responsible for keeping that diary, take pictures and make short videos on the activities of the team.

Team “.....” School Activity Diary			Teacher Supervisor _____ Team coordinator _____ Team members _____ _____ _____		
Lesson #	Activity	Working reflections	Difficulties found	Suggestions	

Example of diary of activities

Keeping a diary of activities in a school project serves several important purposes. For instance, it provides a detailed record of what has been done throughout the project. Additionally, it documents the progress, milestones, and accomplishments achieved by the project team. This documentation can be valuable as a space for reflection on the project's progress. Team members can analyze what has been accomplished, what challenges have been faced, and how those challenges were overcome. This reflection is crucial for evaluating the project's effectiveness and identifying areas for improvement. Finally, the diary serves as a means of communication within the project team. Team members can refer to the diary to stay informed about the project's status, upcoming tasks, and any changes or adjustments that have been made. This helps to maintain transparency and keeps everyone on the same page.

Blogging

- Blogging in the classroom, especially throughout project work, is a great way for students to document their work and experiences.
- The blog serves as a platform upon which to post written editorials, videos, photos, how-to instructions, and more.



- This would be a great way for students to take initiative, get involved, and share their stories with others.
- Parts of this blog can be uploaded in a collaborative platform in order to share the activities with other schools participating in the project.

Collaborative Platform Engagement

- Utilization of the collaborative digital platforms for cross-school interactions.
- Scheduled virtual meetings or discussion forums to facilitate knowledge sharing, address challenges, and exchange perspectives.
- Platform serves as a repository for research materials, discussions, and updates.

Estimated Budget for the Project

Item	Provider	Aim	Total Cost (€)	Cost Distribution per School / Team
3 Lectures (50 minutes each)	Lesvos Natural History Museum (Greece)	To provide expert insights on Geoparks themes, particularly on water, geology, ecosystems and sustainability . Lecture themes will be agreed with teacher leaders according to the project needs.	€375	Costs will be distributed among participating schools according to the final number of schools involved. Participation and arrangements will be confirmed in advance.
Field Trip to Lesvos Island (Greece)	Lesvos Natural History Museum / Local Partners	To provide firsthand field experience in the Lesvos UNESCO Global Geopark and opportunities to share project findings and experiences.	To be determined	Costs will depend on the final program, number of participants and travel arrangements . Detailed information will be provided before confirmation.

** Additional activities involving costs will be organized according to the level of interest and participation of the schools. All costs and arrangements will be communicated and agreed in advance. The organizers will also explore potential grants, sponsorships and other funding opportunities to facilitate participation.*

Acknowledgement: images obtained from The Natural History Museum of the Lesvos Petrified Forest. Website: <https://www.lesvosmuseum.gr>

APPENDIX

Complementary Information and Supporting Material for the Activities

I. Useful resources

- UNESCO Global Geoparks – information and educational resources on geological heritage, education and sustainable development: <https://www.unesco.org/en/iggp/geoparks>
- Lesvos Island UNESCO Global Geopark – information on the geology, landscapes, ecosystems and natural heritage of Lesvos: <https://www.unesco.org/en/iggp/lesvos-island-unesco-global-geopark?hub=67817>
- Natural History Museum of the Lesvos Petrified Forest – scientific and educational resources: <https://www.lesvosmuseum.gr/en>
- UNESCO Digital Library – publications and educational resources related to water, environment and sustainable development: <https://unesdoc.unesco.org>
- UN-Water – information and resources on water, sustainability and Sustainable Development Goal 6 (SDG 6): <https://www.unwater.org>
- USGS Water Science School – educational resources on the water cycle, groundwater, rivers and water quality: <https://www.usgs.gov/special-topics/water-science-school>

II. Integrating STEAM concepts

Integrating **STEAM (Science, Technology, Engineering, Arts and Mathematics)** into *Water, Life and Sustainability* allows students to investigate water and its relationship with the Earth, living systems and human communities through interdisciplinary and creative approaches.

- **Science:**
 - Explore the **water cycle, groundwater, rivers, thermal springs, ecosystems and biodiversity**.
 - Investigate age-appropriate aspects of **water chemistry, temperature, minerals, pH and water quality**.
- **Technology:**
 - Use digital tools to **collect, record and compare environmental data**.
 - Create digital maps, presentations, videos or interactive resources related to water environments.
- **Engineering & Design:**
 - Explore **water filtration, irrigation, drainage, water conservation and renewable energy**.
 - Design models or solutions for **sustainable water use and management**.
- **Arts:**
 - Explore water through **drawing, painting, photography, sculpture, music, literature and design**.
 - Investigate how **rivers, springs, seas and landscapes** have inspired artistic and architectural expression.
- **Mathematics:**

- Measure and compare **temperature, rainfall, water consumption, volume, flow and other water-related data**.
- Represent findings through **tables, graphs, percentages, statistics and maps**, according to students' age level.

III. Principles and concepts

Students can explore:

- **Water Cycle & Earth Systems:** The movement of water between the atmosphere, land, oceans and underground systems.
- **Geology & Water:** Relationships between rocks, soils, aquifers, groundwater, springs and landscapes.
- **Water & Life:** The essential role of water in ecosystems, biodiversity and human life.
- **Thermal & Mineral Waters:** Geological processes, geothermal heat, minerals and their relationship with human activities.
- **Water Quality & Pollution:** Natural and human factors affecting water quality and aquatic environments.
- **Climate & Water:** Rainfall, droughts, floods and the effects of climate change on water resources.
- **Water & Human Communities:** The role of water in settlements, agriculture, energy, industry, tourism and everyday life.
- **Water, Culture & Creativity:** Relationships between water, history, architecture, traditions and artistic expression.
- **Sustainability & Global Responsibility:** Water conservation, responsible use of natural resources and sustainable development.

IV. Examples of classroom activities

The following activities are examples and may be adapted by teachers according to students' age, curriculum, available resources and local environment.

A) Exploring Water Quality

Objective: To observe and compare characteristics of different water sources.

1. Collect or identify water samples from different available sources.
2. Observe characteristics such as color, clarity and temperature.
3. Depending on age and available equipment, investigate **pH, mineral content, hardness or other water-quality indicators**.
4. Record and compare findings with other participating schools.

B) Build a Water Filter

Objective: To explore filtration and sustainable water management.

1. Examine how different natural materials can filter water.
2. Design a simple filter using age-appropriate materials.
3. Observe and compare the water before and after filtration.
4. Discuss the difference between **filtration and making water safe to drink**.

C) Water Through Art

Objective: To explore water and landscapes through creative expression.

1. Observe a river, spring, wetland, coastline, thermal area or another water environment directly or through images.
2. Discuss its colors, forms, movement, sounds and relationship with the surrounding landscape.
3. Create **drawings, paintings, photographs, sculptures, poems, music or digital artwork** inspired by the environment.
4. Share and compare artistic interpretations among participating schools.

D) Mapping Our Water

Objective: To understand the relationship between water, geography and communities.

1. Identify important local **rivers, springs, lakes, wetlands, coastlines or thermal waters**.
2. Locate them on a physical or digital map.
3. Investigate their relationship with landscapes, ecosystems and nearby communities.
4. Compare maps and findings with partner schools in other countries.

E) Thermal Springs Investigation

Objective: To understand the relationship between geology, thermal and mineral waters.

1. Identify a thermal or mineral spring locally or through a UNESCO Global Geopark case study.
2. Investigate where the water comes from and why it may be warm or mineral-rich.
3. Older students may compare **temperature, geology and chemical characteristics**, while younger students may explore the phenomenon through drawings, models or simple demonstrations.
4. Examine how thermal waters relate to **nature, energy, tourism, culture and sustainable development**.

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