

# CONNECT

Inclusive open schooling  
with engaging and  
future-oriented science

## GOOD PRACTICES

Description for the site:

### Title: Landscape and Renewable Energy Sources (RES)

This good practice presents an open school education initiative for the European CONNECT project, developed by Tinos High School and Professors Evangelos Pavlis (PE04.05), Sofia Hapidis (PE05) and Pelagia Kyriakopoulou (PE86) from (17/01/ 2022 to 27/05/2022). Scientists participated in the activities:

- Dr. Dionysios Papachristou, Special Advisor to the Energy Regulatory Authority (RAE). His contribution was about describing the role and importance of Renewable Energy Sources.
- Dr. Evangelos Pavlis, teacher at Tinos High School (PE 04.05), Teacher at EAP in landscape matters. His input was about its meaning, functions, dimensions and values
- Landscape.
- Dr. Mousis Mylonas, Emeritus Professor of Ecology, University of Crete. His advice was about the concept, functions and value of the Ecosystem.

Supported by Dr. Georgios Panselinas Coordinator of the CONNECT Educational Informatics Project who provided information and guidance. This practice was presented at an event organized by Tinos High School at the Spiritual Center of the Holy Foundation of Evangelistria on Thursday 25 May 2022 at 19.00: [Members - CONNECT \(exus.co.uk\)](#) (alternatively '[Landscape & Renewable Energy' \(Connect\) – TINOS HIGH SCHOOL \(sch.gr\)](#))

**Care:** The students dealt with the issue of the integration of RES in the landscape, a real problem that occupied the students of Tinos in view of the massive installation of wind turbines in the landscape of Tinos. The students who participated in the activities were twenty-eight (28), 14-year-old students of the 2nd Class of the High School.

**Know:** The students used knowledge about the role and importance of RES considering their rational integration in landscapes and ecosystems, considering their functions and value.

The skills the students practiced were:

- question processing,
- data analysis,
- discussion of claims and evidence,
- drawing or drawing conclusions,
- familiarity with the ways and stages of conducting a research,
- familiarity with techniques for searching, evaluating and presenting information through a variety of sources,
- development of collaboration, creative expression and presentation skills.



**Do:** At the end, students put their knowledge into practice by doing field research. A 2-day Educational Visit was made to the landscape of the paths of Andros (in collaboration with KPE Korthiou). The program of the visit included group work in and outside the field, namely:

Practical-Experiential Part: hiking, information, observation, photography, exploration and activities, landscape experience with all the senses.

In detail, the practical-experiential part contained:

- Observation and recording of field characteristics
- Familiarity with the space through all the senses
- Perception of space through various games
- Identification of species of flora (mainly) and fauna
- Map reading
- Completing worksheets
- Presentation of the habitats of Andros and the most important historical stations
- Discussion about the needs of the people who created the landscape of Andros.

Creative Part: recording of valuable elements and problems of the landscape and ecosystem, discussion related to threats and proposals for better management. The result was a group presentation of the results of all work groups through a powerpoint work, which was presented by student representatives at an event organized by the High School of Tinos at the Spiritual Center of the Holy Foundation of Evangelistria on Thursday 25 May 2022 at 19.00, in which they took part and their parents/guardians. The presentation emerged from the discussions with the scientists in the context of the "learn" section and from the practical-experiential part of the training which included filling in worksheets (of the KPE), individual notes and group discussions.

The parents/guardians of the students who participated in the CONNECT program were informed about its content both in person (those who visited the school) and electronically with frequent messages describing the activities. This ensured as active an involvement as possible

them in the whole project (a fact that helped to cultivate the scientific capital). The results of their program were presented extensively at a live event organized by the school.

**Conclusions on Open Schooling:** The action was not embedded in the curriculum, but indirectly related to it. It was useful and innovative as it related to the development of knowledge, skills and attitudes (as discussed below). Open schooling can also be useful for other teachers because it can combine knowledge and apply it in the field (eg identifying and valuing natural and cultural wealth of an area)..

**The change/innovation was supported by:**  School management  school association/network  Local government  Other: \_\_\_\_\_

**Student results:** The students showed interest in the thematic subjects of the program, submitted questions and participated in discussions. They took into account what the scientists conveyed to them and a relationship of trust was cultivated. This was reflected in the results of the action. Notably, there were also examples of relatively weak students showing great interest in the collaborative method and field





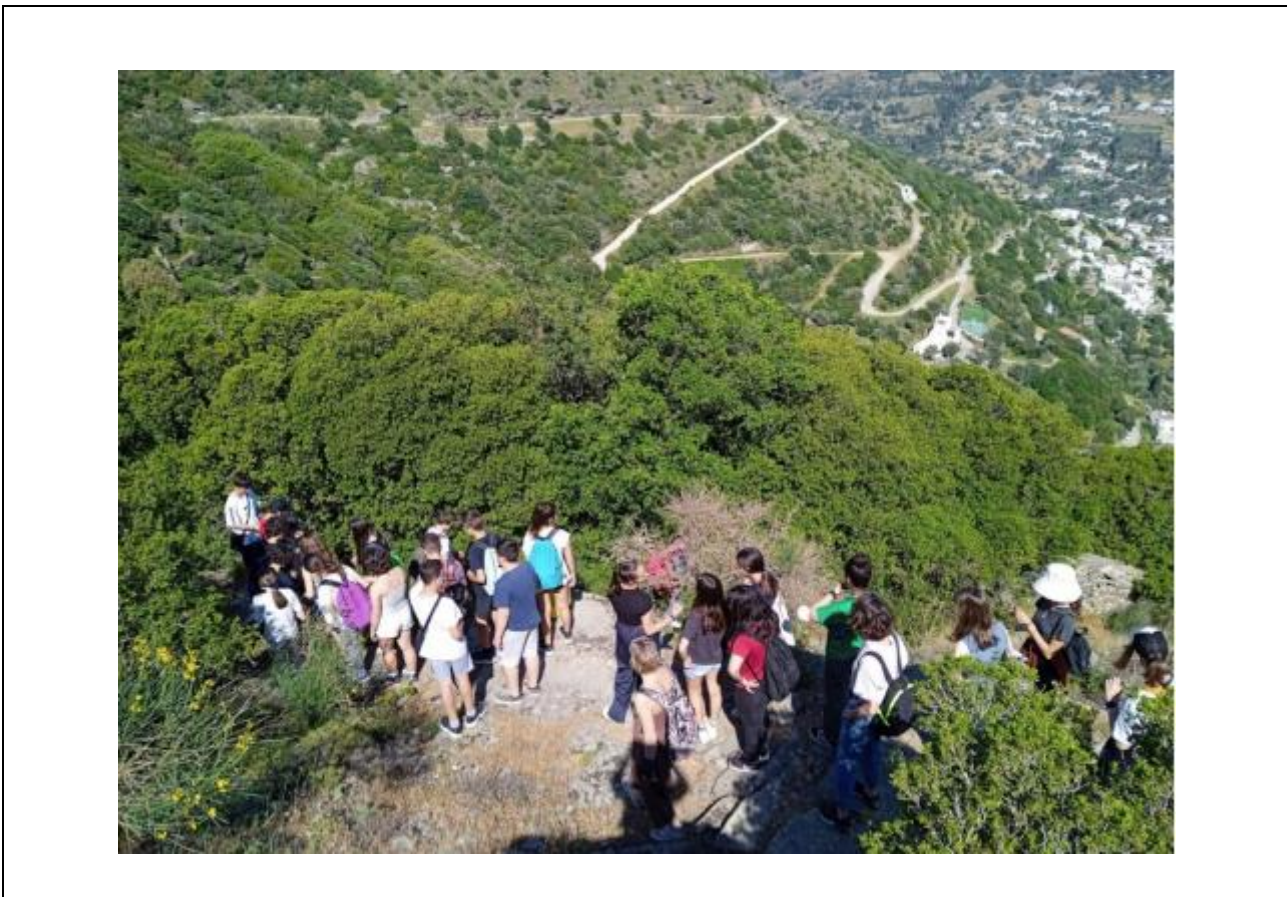
research and taking initiatives. They responded with particular enthusiasm to the educational visit (outside the island), which was an important motivation for their activation at all levels of thinking and action.

**This practice contributed to the increase of:**

engaging families with sciences  involving girls in science  raising awareness among students about careers in the natural sciences

Please specify: Parents participated in the collection of questionnaires for the student survey. The girls actively participated in the mapping and literature review and in general all students showed a special interest in digital maps and the contribution of geomorphological terrain to road construction.

**Select the most relevant photo related to your initiative (which will be public and published under an open license) to represent the practice.**



**ABOUT THE CONNECT PARTNER that supported the school**

ORGANISATION

Regional Directorate of Primary and Secondary Education of Crete (RDE)

COUNTRY

Greece





Όνομα συνεργάτη	Georgios Panselinas
Implementation period	Starting date: 17/01/2022 Ending date: 27/05/2022

#### ABOUT THE TEACHERS PARTICIPATED

SCHOOLS	Gymnasium of Tinos
TEACHERS names (for Good Practices' Certificates)	Evangelos Pavlis Sofia Hapidi Pelagia Kiriakopoulou
Gender	M & F
SUBJECT (Natural Sciences, Physics, Chemistry, Biology...)	Geography, Skills workshops
How many subjects were used in open schooling?	No lessons were used. Only some indirect references were made to them.
Title of open school education resource used	During the program, educational materials were produced by the trainers on landscape and renewable energy. The discussions were based on the existing (updated) scientific literature on landscape and ecosystem issues, as well as on RES issues. Curriculum material was not used (there were only some indirect references to link to the activity the knowledge that students gained from school).
Type of learning scenario of science activities (structured or open scenario)	Open Scenario
Curriculum modules	The sections relevant to the topic were: - Geography: Module 2 – The Natural Environment of Europe (geomorphological, climatic and ecological dimension of the landscape), Module 4 – The Economic activities of Europeans (productive, functional, socio-economic and experiential dimension of the landscape, landscape and tourism) - Skills Workshops: Thematic Module "I take care of the Environment".

#### ABOUT THE STUDENTS PARTICIPATED

Class	2 <sup>nd</sup> Gymnasium
Age (average)	14 years old
Number of students participated that concluded the educational scenario	28
Number of students who completed the educational scenario of scientific activities	28

#### SCIENTISTS PARTICIPATED:

Name	Dr Dionisios Papahristou
Field	Renewable Energy Sources, Special Consultant of Energy Regulatory Authority
Name	Dr Evageos Pavlis
Field	Landscape and Rural Geography, Teachers (SEP) at EAP (Master's "Art-Cultural Heritage Development Policies")
Name	Dr Moeses Milonas
Field	Ecology and Ecosystems, Emeritus Professor of Ecology, University





## QUESTIONNAIRE

### 01. How have you (teachers) used open educational resources? Could you describe what you did in your lessons?

#### Student activities with scientists:

The students posed many interesting questions to the scientists, several of which they had prepared in their groups. A discussion followed, often bringing up other related questions. During the discussion, photos (mostly) and videos were shown.

#### Student activities with their families:

The parents of the students who participated in the CONNECT program were informed about its content both in person (those who visited the school) and electronically with frequent messages describing the activities. Some students told us that they were talking to their parents. Also, the results of their program were presented extensively in a live event organized by the school.

### 02. How have your students used the CONNECT resources? Do you have (or could describe) samples of better scientific actions (for our site/rewards)?

#### Any examples of what the students prepared?

PowerPoint presentation.

The presentation emerged from the discussions with the scientists in the framework of the "learn" module and from the practical-experiential part of the training which included completing worksheets (of the KPE), individual notes and group discussions.

#### Slide? Poster? Video?

(Add an image if possible)









### 4. Συμπεράσματα/ Προτάσεις

#### Προτάσεις

1. Ο αριθμός και το μέγεθος των ανεμογεννητριών πρέπει να εξαρτώνται από την κλίμακα του τοπίου (αν η κλίμακα είναι μικρή, τότε οι μεγάλες ανεμογεννήτριες θα υποβαθμίσουν το τοπίο). Οι ανεμογεννήτριες πρέπει να τοποθετούνται με μέτρο και με βάση έναν χωροταξικό σχεδιασμό...
2. Δημιουργία νέων τρόπων αποθήκευση ενέργειας
3. Αξιοποίηση συνδυασμών Ανανεώσιμων Πηγών Ενέργειας όπως βιομάζα, κυματική, υδροηλεκτρική και ηλιακή ενέργεια, γεωθερμία.



### 03. How well did the science action learning scenario resources meet your needs?

#### Example related to the school curriculum:

The school's resources and media as well as modern technology and communication (ICT) tools were used. Our meetings took place in the Informatics and Natural Sciences Laboratories. The subject of the action was related to part of the educational material of the B High School Geography course and the Skills Workshops included in the school curriculum. Specifically:

- Geography: Module 2 – The Natural Environment of Europe (geomorphological, climatic and ecological dimension of the landscape), Module 4 – The Economic Activities of Europeans (productive, functional, socio-economic and experiential dimension of the landscape, landscape and tourism)
- Skills Workshops: Thematic Module "I take care of the Environment"

#### Students involvement:

The students participated by asking the scientists questions, several of which they had prepared in their groups. A discussion followed, often bringing up other related questions. During the discussion, photos (mostly) and videos were shown.

#### Student interest and confidence in science:

There was a special interest of the students in the thematic subjects of the program and trust was cultivated between scientists and students. Everyone involved had a positive response to the idea and helped at all stages of its implementation. The students, in particular, were motivated to contribute themselves to something so important for their school and found it very interesting and creative and responded with particular enthusiasm to the educational visit (off-island), which was an important motivation to activate them in all the levels of thought and action. There was excellent cooperation from all and the parents of the students were especially helpful in this.





#### 04. How easy or difficult it was to use the science action learning scenario resources?

##### Issues related to materials, procedures, pressure from the interaction with the curriculum:

The difficulties had to do with the choice of times for the programs as they had to be held outside the program timetable, which was difficult for students and teachers. There was a large - and extra - workload related to the organization of talks/discussions, educational visit, as well as the preparation of presentations at events. In the above it should be taken into account the multitude of responsibilities of the teachers (who undertake to carry out the various programs on a voluntary basis) and that all the actions were carried out during the pandemic (covid).

Also, ways could be found to financially cover the accommodation and transport of students and teachers in cases of field research (educational visits).

In addition, ways should be found to financially cover the accommodation and transportation of students and teachers in cases of field research (educational visits), as students and teachers themselves bear the costs for actions supervised by the Ministry of Education and Culture and related to education in the context of Grade B.

We believe that perhaps the communication, cooperation, support and encouragement of the teachers serving in school units (who plan and prepare the programs on a purely voluntary basis) with the competent teachers of the offices that coordinate these programs could be improved more...

#### 05. What were the benefits of implementing the science action learning scenario for your students?

##### Describe the results of the students in their scientific actions related to:

KNOWLEDGE	Field research, RES, Landscape, Ecosystem: Concepts, functions, importance and values
SKILLS	Processing questions, analyzing data, discussing claims and evidence, drawing or drawing conclusions, getting to know the ways and stages of conducting an investigation, developing ways of combining knowledge and information, becoming familiar with techniques for searching, evaluating and presenting information through a variety of sources, development of collaboration, creative expression and presentation skills
ATTITUDES	Cultivating environmental and landscape awareness, cultivating interest in scientific issues, encouraging the use of science to address contemporary challenges and to resolve issues arising at global, national and local levels.

#### 06. What have been the challenges of using educational science activity scenarios for your students?

##### Main challenges faced by students (Please select all that apply):

- Difficult...
- Long duration...
- Boring...
- Other (Please specify):** The challenges had to do with the choice of hours conducting the programs





as they had to take place outside the program timetable, which was difficult for students and teachers. More incentives could be given... The educational visit played an important role for the students as an incentive, which we thought to add (all at our own expense). It could be included in the program, ensuring some financial relief.

#### 07. What activities worked well with the curriculum?

##### What helped the children achieve the learning objectives:

For the students, the educational visit played an important role as motivation, but also as experiential training in the field. The main teaching techniques used were the collaborative method, brainstorming, Project Based Learning and problem solving.

#### 08. What activities did not work well with the curriculum;

##### Anything that could be done differently or avoided:

More incentives could be given to students and teachers... Also, the educational visit and the presentation of the results should be done a little earlier so that it was not so close to the four-month competition period and especially the exams. This, however, also depends on the availability of the scientists involved.

#### Submission:

1. Please save the file in the following format: **YEAR MONTH DATE COUNTRY SCHOOL** (e.g. 20220326GR1stPrimarySchoolHeraklion. docx )
2. Please send this form to CONNECT Panel: <https://tinyurl.com/Connectbestpractices2022>

