

(S)TEAM TODAY, MAKE CHANGES FOR TOMORROW
Erasmus Plus Program KA229 – Exchange of Good Practices
Science Erasmus Program in Renewable Energy Sources
Science, Technology, Engineering and Math's STEM lessons

Duration: 2 years starting from September 2019

Participating Schools

1. Klaipeda Baltija gymnasium Lithuania
2. 4th General Lyceum of Chania Greece
3. Lykeio Agiou Ioanni Cyprus
4. Agrupamento de Escolas de Parede Portugal
5. Istituto Istruzione Superiore Santorre di Santarosa Italy

Group of teachers and Students in Lykeio Agiou Ioanni

20 students of A and B class with direction in Physics and Maths, group of teachers in Physics, Chemistry, Technology, Maths and ICT.

Summary of the Project

The Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources in the EU. It requires the EU to fulfil at least 20% of its total energy needs with renewables by 2020 – to be achieved through the attainment of individual national targets. We established this partnership with a view to raising the awareness of students about the necessity to increase the use of renewable sources of energy, which is expected to increase by 7% in the next 10 years all over Europe (RED). We want them to gain an in-depth knowledge of how these sources of energy are used, make them experiment with them through STEAM and Project Based Learning, draw their attention to benefits and drawbacks of all energy sources and provide a context for critical and creative thinking, in which sts assess, research and analyse, produce tangible outputs collaboratively.

OBJECTIVES

The project aims to set the grounds for the 5 partner countries to cooperate and share practices in the area of renewable energy resources and sustainable production and consumption through activities designed for students which are meant to:

1. develop their understanding about scientific concepts and processes in production of sustainable energy
2. develop their overall awareness about alternative sources of energy and how their usage can be enhanced
3. improve skills and competences through interdisciplinary projects in the STEM field
4. improve collaboration, team work and communication skills of students and teachers
5. develop soft skills – critical and analytical thinking, creativity – in order to foster sts' employability
6. enable teachers to share school models and practices in the areas of STEM, ICT, coding, robotics that can be transferred into their schools

7. improve self-awareness and intercultural awareness of young European citizens, as well as promoting European citizenship and EU policies in the field of renewable energy usage.

PARTICIPANTS 100 students aged 15-18 from general education highschoools and 40 accompanying teachers of English, IT, Physics, Science etc.

RESULTS

- presentations about renewable energy sources and statistics and trends from the 5 partner countries
 - posters for campaigns encouraging European citizens to use solar energy more.
 - presentations about alternative building systems
 - models of buildings using alternative types of insulating materials
 - simulations of power plants
 - STEM projects
- anemometers, wind vanes, solar cookers etc.
 - research data and conclusions
 - simulations/models of sustainable cities

Teachers will produce exchange reports in which we will include data measuring the quality of the activities, the impact of the activities on participants, pictures and videos taken during the exchanges. Other deliverables: Europass mobility documents, initial and final evaluation forms, feedback forms, self-assessment sheets, student observation sheets, participants' testimonials, dissemination platforms, eTwinning communication platform, project final brochure "STEM ideas for highschool".

METHODOLOGY All of our activities will be implemented by a wide range of innovative teaching methods both in and outside of school, incorporating: Critical thinking, digital competence, collaboration and team work, communication skills, personal and social responsibility and metacognition.

IMPACT

- Increased participation among young people in society
- Students, their families and teachers gain a more environmentally friendly lifestyle by being critical of how their energy is produced
- Students and teachers develop personally and professionally
- Enabling young people to explore the possibility of influencing local, national and European policies and decision making processes concerning energy production
- Empowering young people while at the same time teaching them the skills of dialogue, compromise and diplomacy when working with external stakeholders
- Providing an active contribution to social capital through the promotion of renewable energy sources which boasts of quality and cost effectiveness

Through project activities, the school will promote its image in the local community as an institution that prepares students for the future and aligns to the 21st century needs. The cooperation with local community will improve through partnerships and agreements with local experts and businesses in energy field. Local authorities will be invited to attend some of the

project activities, which will lay the basis for future cooperation among local institutions in other projects related to renewable energy or similar. The schools will acquire/develop a European dimension, which shows openness and flexibility to the ever-changing world of education.

Training for students and teachers

NEW DATES AFTER COVID PANDEMIC SITUATION

Code	Approximate Date	Description	Country	Participants
C1	November 2019	Traditional and alternative sources of energy. Bioenergy	Lykeio Agiou Ioanni, Limassol, Cyprus	5 students of each participating school and 20 students from Cyprus school which will host the students from participating schools.
C2	July 2021	Wind Energy and STE(A)M	Agrupamento de Escolas de Parede, Portugal	5 students and 2 teachers from Cyprus
C3	September 2021	Solar Energy and STE(A)M	4th General Lyceum of Chania, Crete, Greece	5 students and 2 teachers from Cyprus
C4	May 2021	Water energy and STE(A)M	Klaipeda Baltija gymnasium, Klaipeda, Lithuania	5 students and 2 teachers from Cyprus
C5	October 2021	Sustainable energy in future – designing smart, green city models	Istituto Istruzione Superiore Santorre di Santarosa, Torino, Italy	5 students and 2 teachers from Cyprus

Preparation for students and teachers – timetable for whole 2 years (from September 2019 – June 2020)

All students and teachers that will take part to the program must know that:

- They must have good knowledge of English language since the whole program will be in English language
- The students will host a student from other countries in C1 training in Cyprus for a week
- The students will be groups of 5 students from our country preparing some research for each seminar and taking part in National Competitions and Conferences so to have a good dissemination of the results of the program.

September to November 2019: Whole preparation of the project and preparation for the meeting in Cyprus – Traditional ways of energy and Bioenergy.

P1: Local Activities Partners announce approval in the schools and establish the project teams, with clear duties and responsibilities assigned. Meetings are organized to discuss the project. The team establishes an action plan and responsible persons to implement it

P2: Partnership activities - GR creates Twinspace - LT organizes 3 management meetings with contact persons to discuss the project, renegotiate duties and establish methodology for selection and LTTAs - IT creates dissemination plan - LT creates implementation, monitoring and evaluation plans - Initial evaluation tools are discussed and tasks are distributed - Initial evaluation is applied

P3: Visibility The project details are presented to teachers and students in the target group Project spaces are included on School websites Erasmus+ spaces are designed / updated in the school

P4: Selection of participants for C1. Every school prepares for C 1mobility. Start Theme 1: Traditional and alternative sources of energy. Waste management. Bioenergy. Topicrelated preparations – research, collection of data, STEM projects at schools.

P5: Dissemination Partners create common dissemination platforms – Facebook, Instagram, LinkedIn

P6: Project Logo. Each partner announces project logo competition in respective schools.

P7: Preparation for C1 - CY students initiate eTwinning forum - practical arrangements are made - online coordinator meeting to discuss the agenda Linguistic, cultural, pedagogical preparation for C1 participants.

C1: Meeting in Cyprus: Traditional and alternatives sources of energy. Waste management, Bioenergy.

P8: Dissemination - CY shares dissemination materials to partners - dissemination platforms are updated - local teams meet with participants to evaluate the exchange and the impact - workshops with students in the target group - participants disseminate the content and results of C1 in their schools and local communities – presentations, articles etc. - home students and participants finalise the STEM projects similar to C1 projects and post them on eTwinning

February to May 2020: Preparation for the training in Portugal – Wind Energy

P9: Preparation for C2 - PT students initiate eTwinning forum - practical arrangements are made - online coordinator meeting to discuss the agenda Linguistic, cultural, pedagogical preparation for C2 participants.

P10: Selection of participants for C2. Every school prepares for C mobility. Start Theme 2: Wind energy and STE(A)M. Topicrelated preparations – research, collection of data, STEM projects at schools.

C2: Training for Students in Portugal – March – Wind Energy and STEAM.

P11: Dissemination - PT shares dissemination materials to partners - dissemination platforms are updated - local teams meet with participants to evaluate the exchange and the impact - workshops with students in the target group - participants disseminate the content and results of C2 in their schools and local communities – presentations, articles etc. - home students and participants finalise the STEM projects similar to C2 projects and post them on eTwinning

June to October 2020: Evaluation of 1st year and Preparation for the training in Crete – Solar energy and STEAM

P12: Evaluation Online meetings of partners for evaluation of Year 1 Adjustments of Year 2 activities

P13: Selection of participants for C3. Preparation for C3 - GR students initiate eTwinning forum - practical arrangements are made - online coordinator meeting to discuss the agenda

P14: Preparation for C 3. Start Theme 3: Solar Energy and STE(A)M. Topicrelated preparations – research, collection of data, STEM projects at schools.

C3: Training for Students in Crete, Greece – Solar Energy – alternative – renewable sources of energy and STE(A)M

P15: Dissemination - GR shares dissemination materials to partners - dissemination platforms are updated - local teams meet with participants to evaluate the exchange and the impact - workshops with students in the target group - participants disseminate the content and results of C3 in their schools and local communities – presentations, articles etc. - home students and participants finalise the STEM projects similar to C3 projects and post them on eTwinning

November 2020 to February 2021: Preparation for the training in Lithuania – Water Energy and STEAM

P16: Preparation for C4. Selection of participants for C4. Linguistic, cultural, pedagogical preparation for C4 participants - LT students initiate eTwinning forum - practical arrangements are made - online coordinator meeting to discuss the agenda

P17: Preparation for C 4. Start Theme 4: Water Energy and STE(A)M. Topicrelated preparations – research, collection of data, STEM projects at schools.

C4: Training for Students in Klaipeda, Lithuania – Water Energy – alternative – renewable sources of energy and STE(A)M

P18: Dissemination - LT shares dissemination materials to partners - dissemination platforms are updated - local teams meet with participants to evaluate the exchange and the impact - workshops with

students in the target group - participants disseminate the content and results of C4 in their schools and local communities – presentations, articles etc. - home students and participants finalise the STEM projects similar to C4 projects and post them on eTwinning

February – May 2021: Preparation for the training in Italy (Torino) Sustainable energy in future – designing smart, green city models

P19: Preparation for C5. Selection of participants for C5. Linguistic, cultural, pedagogical preparation for C5 participants. - IT students initiate eTwinning forum - practical arrangements are made - online coordinator meeting to discuss the agenda

P20: Preparation for C 5. Start Theme 5: Sustainable energy in the future – designing smart, green city models. Topic-related preparations – research, collection of data, STEM projects at schools.

C5: Training for Students in Italy, Lithuania – Sustainable energy in future – designing smart, green city models

P21: Dissemination - IT shares dissemination materials to partners - dissemination platforms are updated - local teams meet with participants to evaluate the exchange and the impact - workshops with students in the target group - participants disseminate the content and results of C5 in their schools and local communities – presentations, articles etc. - home students and participants finalise the STEM projects similar to C5 projects and post them on eTwinning

June – August 2021: Final evaluation preparation of the final report

The last months of the project will be a holiday time for students. They will be encouraged to use eTwinning forums and keep in touch with each other. The coordinators in each partner school will focus on analysing if the objectives of the project will have been met by that time (using success indicators), do final budget calculations, focus on dissemination and preparing the final report.

P22: Evaluation of Year 2 Application of final evaluation form Collection of data and reporting to coordinator

P23: All partners collect data for final reports

P24: LT submits relevant results on EPRP Partners start submission of final reports.