

# QUALIFIED GENERATION WITH STEAM



Funded by  
the European Union

## Transnational project activity - staff meeting



*Stredná priemyselná  
škola stavebná -  
Építőipari  
Szakközépiskola,  
Konkolvho 8,  
Hurbanovo*



The first transnational project mobility of staff is directly related to the priorities and goals of the project and is based on the needs of individual project partners. Mobility participants had the opportunity to meet other colleagues from different EU countries, share different teaching strategies, methods, approaches and examples of good STEAM practice. The participants took part in a number of interesting workshops organized by the host organization - the University of Crete. An important part of this mobility was also the creation of STEAM material in accordance with the national curricula of the partner countries. Fulfilling the ideas and visions of the EU, tolerance and respect for other cultures, improving digital skills and language competence are also an important part of projects within the Erasmus + program. The added value is also the European dimension of the project in the form of exchange of examples of good practice, networking, communication, acceptance of cultural and religious differences.

# WHAT IS STEAM?

## INTEGRATION OF STEAM TO THE CURRICULA

### **Presentations on the role of STEAM**

During the first day we learned about the role of STEAM in teaching/learning environment. We discovered the path of STEAM and how to integrate it in our everyday teaching/learning practice. The host team presented the insight into STEAM.



### **Digital tools in STEAM.**

The second part of the workshop was dedicated to different digital tools used in STEAM. It showed the numerous ways of implementing digital tools in order to integrate STEAM method. The highlight of the presentation was the display of concrete tools and their examples in the real project. They varied from simpler ones to more advanced. Each school or participant could find a valuable inspiration for their teaching practice.



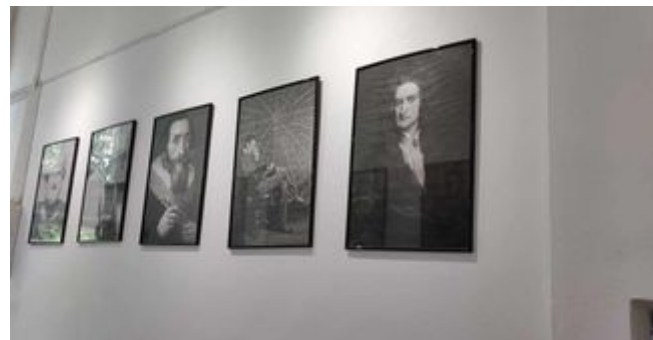


# WHAT IS CODING?

*Introducing SCRATCH*

## WORKSHOPS AND ACTIVITIES ON STEAM

The following day was about hands-on experience with different STEAM activities. We learned some basics of CODING from our Greek experts. We were slowly, gradually scrutinising our educational system and trying to find most suitable ways for STEAM integration into curriculum. Every country, every educational system works in a different environment. We have different backgrounds, different starting points but similar goals. Seemingly we are thriving to give our students the best education possible. According to recent studies, STEAM education leads to better understanding of sciences, it improves the technical and digital skills. However, safety rules and balance in combining digital learning and using paper books create a welcoming environment for both parties, students and teachers.



# IMPLEMENTING STEAM INTO CURRICULA

## Presenting outcomes of the workshops

After three fruitful days full of inspiration, endless talks and sharing ideas we were trying to deliver the outcomes of the meeting. Although the Slovak educational system is facing serious problems and we are standing on the verge of another reform, we are trying to provide the best education possible under these circumstances. Regardless of numerous inconsistent strategies and new promising reforms we stay consistent in what we do.



Slovak team

### TASK DESCRIPTION

- students work in pairs
- they are given two pictures/drawings and a box of lego-cubes
- the task is to use the cubes to make stairs as on the right



### SHAPES

- printable material
- cardboard cuts
- wooden shapes
- online activities <https://mathigon.org/tangram>



### MATHEMATICS

- **TASK DESCRIPTION** – students are divided into teams of 3 or 4
- They are given a box of shapes ( different shapes, colours and sizes )
- **TASK:** different tasks:
  - create a shape according to the assignment or
  - use the shapes to create their own shapes in which they find 3D shapes
- **THE AIM** is to improve their creativity, teamwork, teamspirit, collaboration skills, problem solving, find recurring motifs/ornament
- **INTERDISCIPLINARY RELATIONS:**
  - Different fields of mathematics (fractals, probability, measure theory, series...)
  - Finding symmetries in engineering ( basics of rosettes )
  - Chemistry – the structure of molecules
  - English language – CLIL
  - Find periods where a rosette is a typical feature/pattern/element/ornament

# CERTIFICATION CEREMONY

## **Our feelings about the project meeting**

Before this project , days we came to a conclusion that we were not sure about what to expect. STEAM as such is not integrated in our system. However, we are trying to promote technical subjects that are based on science and digital skills. Over a couple of

we were not sure about what to expect. STEAM as such is not integrated in our system. However, we are trying to promote technical subjects that are based on science and digital skills. Over a couple of

days we came to a conclusion that STEAM should be an integral part of our study program. Hopefully, we will be able to raise awareness about the STEAM approach in our school and among all stakeholders.



## **Our reflection of the project activity**

We are absolutely positive about the outcomes of the whole project. we are grateful for this opportunity to become part of the international gathering. We achieved our goals and initiated powerful changes within the school.

Erasmus+2021-1-SK01-KA220-SCH-000087555

Qualified Generations with STEAM Education

University of Crete Staff Training – Digital Tools

This is my first training abroad. Training was a 5 day training program. The participants were from different countries. These countries were Slovakia-Türkiye-Finland-Portugal-Ireland and Greece.

During the 5-day training I received at the University of Crete, I had the opportunity to increase my STEAM skills. This situation is very significant for my country, school and me. Firstly, all participants introduced their country, education system and schools. I learned that each country has very different education system and implements. Thanks to their presentations I learned very useful and intresting informations that I will apply in my own school.

Secondly, Crete Staff presented STEAM approach and how STEAM implementations can be integrated effectively in various classroom settings. On other days, we were given the oppportunity to experince different steam implementations aplied in different lessons in university. The laboratory activities were entirely based on STEAM approach. Also all implements were very interesting.

Finally, We had a training in Scratch programming. A university personal who is an expert in his field explained Scratch programming briefly. But it could have been explained in more detailes. Because I have forced in some situations. Each group tried to solve the given problems collaboratively. Thanks to Scratch, many of my skills such as quick thinking, decision making and creativity have improved.

On the whole, Everything was great. The training was very succesful. During the training I collected many new informations, implements and ideas with Steam aproach, Scracth programming that I will use in my lessons.

20/09/2023

English Language Teacher

Bahar Tekin

Erasmus+2021-1-SK01-KA220-SCH-000087555

Qualified Generations with STEAM Education

University of Crete Staff Training – Digital Tools

Our education at the University of Crete consisted of a 5-day program. 6 countries participated in the training: Slovakia, Finland, Portugal, Ireland, Greece and Turkey.

During the 5-day training, I learned different, new and good practices in STEAM education. Countries presented sample practices implemented in their own schools. Moreover, each partner country introduced its own organizations and education systems. It was very exciting to be involved in this training. I realized that I would be more productive by applying the new teaching techniques and problem-solving skills he gave me in my own school.

We had a laboratory workshop in groups and each group took turns experiencing different activities in STEAM education. Laboratory activities were entirely based on the integration of the STEAM approach into the lessons. We received Scratch programming training and the participants were divided into groups and solved the problems. We created a roundtable discussion to brainstorm as a group, with each person collaborating with the group to try to solve the problem.

With these workshops, we improved our problem-solving skills, communication, cooperation and creativity. The workshop was very productive in terms of developing 21st century skills. The education at the University of Crete encouraged me in the practices I aimed to do.

19/09/2023

MATH Teacher

Serdar ÖCALAN



Erasmus+2021-1-SK01-KA220-SCH-000087555

Qualified Generations with STEAM Education

Crete University Staff Training – Digital Tools

The staff training last in five days. The involved countries were composed of 6 different countries and type of organizations. The countries were Slovakia-Türkiye-Finland-Portugal-Ireland and Greece. The partnership copoperation is based on schools, university, reserach center and NGO.

During 5 days staff training, I have met various implementations and good practices in STEAM educaion. Each partner country presented good sample implementations that is applied in their organizations. Moreover, each partner country presented their organizations and education systems.This was a great chance for me to reshape my practices and meeting colleagues from other countries open new horizons in my mind at EU level.

Crete Staff presented STEAM approach and how STEAM implementations can be integrated effectively in various classroom settings. We had a laboratory workshop in groups and each of the group experienced different activities in STEAM education. The laboratory activities were entirely based on STEAM approach integration into the lessons and one of the activities was very interesting that was about climate change and its effects to the earth. One can effectively understand how climate change effects the surface of the earth.

We had a training in Scratch programming and the participants divided into the groups to solve the given problem . As a group, we made up round table discussion for brain storming each person tried to solve the problem by collaborating with the group. With these workshop, we have developed our problem solving skills, communication, collaboration and creativity. The workshop was very fruitful for improving 21st century skills.

All in all, the staff training in Crete University met my expectations and motivate me to utilize from these activities in my daily teachings. The schedule was entirely based on the project objectives and its achievement to reach our goals in STEAM education.

19/09/2023

Multi Act STDD Organization

English Language Teacher

Pınar Girgin

Erasmus+2021-1-SK01-KA220-SCH-000087555

Qualified Generations with STEAM Education

University of Crete Staff Training – Digital Tools

Our training in Greece lasted 5 days. Participation was provided from different countries. These countries were Slovakia-Türkiye-Finland-Portugal-Ireland and Greece. During the 5-day training, we saw different practices of countries regarding STEAM. All countries presented the STEAM activities they implemented in their countries. While watching these presentations, we compared them with the practices in our own country. We saw our shortcomings. While making their presentations, countries also introduced their own education systems. After watching the country presentations, I decided to make some changes while practicing in my own lessons. In this respect, country presentations contributed a lot to my imagination.

Girit Staff explained that we can use the STEAM approach and STEAM applications in our lessons. We did activities in groups during the training. Laboratory activities were very interesting. We saw different STEAM examples in a hands-on manner through laboratory activities.

We received Scratch programming training. Participants were presented with a problem each. We worked as a group to find solutions to these problems. We exchanged ideas to solve the problem. In this way, we improved our problem solving skills.

The education at the University of Crete was very productive. It broadened my horizons to popularize STEAM application in my own country. The program they prepared was very successful. I learned a lot from this training. I will do practical work to disseminate all the information I have learned in my own country.

19/09/2023

Information Technologies and Software Teacher

HİLAL BALI

Erasmus+2021-1-SK01-KA220-SCH-000087555

Qualified Generations with STEAM Education

Crete University Staff Training – Digital Tools

We had a five-day STEAM training hosted by Greece. Six countries (Slovakia, Turkey, Finland, Portugal, Portugal, Ireland, Greece) participated in this training. There were teachers from all subjects: math, english, biology, chemistry, chemistry, physics, informatics, primary teachers. Each participating country provided information about their schools. There were public schools such as primary, secondary, high school, vocational high school and private schools. We learned about the education programs of these schools. We also watched their introductions of remarkable practices in schools. They also presented us some of these practices during the training. For example, Slovakia presented us on paper how they developed their home design model, Finland demonstrated the sound-based rangefinder sensor they use in Physics lessons. Portugal presented us how many different ways the sum of the combinations from the 0th power of 2 to the 6th power can be used in math lessons with the help of coding. Our friends introduced a coding game that can be integrated into all subjects. They also realized a sound and face scanner arduino application called halocode. All of the applications were very fun. Thanks to this training, I learned a lot about current STEAM practices in different countries and had the opportunity to compare the work done in different countries. The activities related to climate change at the University of Crete raised my awareness on this issue. I met teachers from different branches and we evaluated the curricula of the schools in our own countries. I asked them questions that I had during the training process. I had a lot of interaction with teachers both in my own country and in other participating countries. I think this situation also improved my speaking skills

19/09/2023

Multi Act STDD Organization

Secondary Math Teacher

Elif BORAN

I had a very productive and enjoyable training at the University of Crete. I learned a lot about STEAM education, saw good practice examples, benefited from the course examples offered by the partners in their fields, and had the opportunity to brainstorm with other groups. I also found the partners' course presentation examples to be very useful and the staff to be helpful, solution-oriented, and friendly.

I learned about different STEAM implementations and good practices from partner countries.

I learned about the STEAM approach and how it can be integrated effectively in various classroom settings.

I participated in a laboratory workshop where I experienced different activities in STEAM education.

I received training in Scratch programming and solved problems in groups.

I had the opportunity to improve my problem-solving skills, communication, collaboration, and creativity.

The staff training at the University of Crete met my expectations and motivated me to utilize what I learned in my daily teachings. The schedule was entirely based on the project objectives and its achievement to reach our goals in STEAM education.

I am very impressed by the following aspects of your training:

The diversity of participants: The training involved people from 6 different countries, representing a variety of organizations, including schools, universities, research centers, and NGOs. This diversity of perspectives would have been a great asset for learning and collaboration.

The focus on practical skills: The training included a variety of hands-on activities, such as laboratory workshops and Scratch programming training. This would have helped me to develop the skills and knowledge that I need to implement STEAM education in my own setting.

The emphasis on 21st century skills: The training helped me to develop important 21st century skills, such as problem-solving, communication, collaboration, and creativity. These skills are essential for success in the modern world.

I will be able to use what I learned to make a positive impact on STEAM education in my own country.



## **Qualified Generations with STEAM Education**

### **Crete University Staff Training – Digital Tools**

I am grateful for the opportunity to study with teachers from many nations during 5-day project in Crete.

I considered how I could implement the Steam activities held throughout the program into my lessons. We questioned our educational methods and learned new ways to teach more effectively. Even though the experiments in the laboratory were not related to my English lessons, they attracted my attention and I have learned new things.

On the other hand, even though this was my first time using Scratch, I enjoyed it so much that I decided to create a game for language acquisition in my lessons. The main drawback was that when teaching Scratch, it was implemented a bit rapidly, as if everyone knew what they were doing. Instead of everyone doing it with their own teammate, it would be better if it was done by mixing groups and explained in more detail. Still I have learned lots of information from the teacher.

However, Even if we were adult teachers, I would want to start the day with Energizers so that we could communicate sufficiently and get to know each other. Of course, everyone's sincerity and effort to contribute something to each other was a great point as well.

Despite the fact that I was a new teacher, I was pleased that everyone listened attentively and with supporting looks during the lecture. The host institution was extremely compassionate and courteous. It was one of the most incredible experiences I've ever experienced.

As Türkiye team, Thank you for everything !

**English Language Teacher**

**Büşra Nur Okumuş**

**22/09/2023**

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Qualified Generations with STEAM Education

Crete University Staff Training – Digital Tools

During the 5-day training I received at the University of Crete, I had the opportunity to increase my STEAM skills, see good practice examples on site, and benefit from the course examples offered by the partners in their fields. Thanks to their presentations, the partners increased my motivation by helping me realize my own strengths and improvable aspects of the institution.

I had the opportunity to brainstorm between groups at the SCRATCH workshop. In this way, we realized that a problem can be solved through more than one algorithm, and that in some problems there are commands that need to improve the SCRATCH application. I think the SCRATCH training provided was effective.

The partners' course presentation examples were very useful. Although the information provided about the education systems was very interesting to me, I had the opportunity to compare it with the education system in my own country.

The helpfulness, solution-oriented and friendly nature of the University of Crete staff is one of the factors that make the education productive for me.

This training, which also contributed to my language development and gave me the opportunity to get to know the country's culture closely, was very productive.

19/09/2023

Multi Act STDD Organization

Aslıhan GÜLLÜ

Math teacher