

Scenarios of Innovative Science Learning in Secondary School



During the final phase of the project the girls were asked to create a Scenario of Innovative Science Learning in Secondary Schools.

So What Does this Mean?

When planning this part of the project the girls should:

- Create a fictional scenario, invented by themselves
- It will be based on what they had experienced during the phases 'Feeling Science and Science in Real Life'
- It could be something that is not restricted by reality but what they would hope to experience in the future

Questions the Girls Asked When Planning the Scenario:

- Where does the activity take place?
- Who is involved in the activity?
- Why is the activity relevant and important?
- How is the scenario cross-subject?
- How is the Science activity organised?

What Ideas did the Girls Create?

The ideas that the girls came up with were:

UK Team - A classroom based around the planets and Solar System

The girls wanted to create a learning environment that was attractive to both girls and boys and moved away from a conventional classroom. The design included:

- Bean Bags
- Trampoline Floor
- A Moon
- Hanging Chairs
- Workshop

The girls felt:

- In the long run students will be having more interesting and fun lessons which they will then remember in their future life.
- As the lessons are more fun and interesting it will help the student engage with lessons which will then help them to remember.
- If we enjoy the science lessons in school it will encourage us to go and get an employment or attend a university/college within the STEM based subject.



Greek Team - Co-create an Escape Room

The Greek Team wanted to improve girls' motivation towards STEM. To do this the teachers tried to engage them by co-creating an escape room.

The Girls researched the project and realised that there are four basic steps to develop the room:

- Create a setting
- Think of some highlights of the game
- Create a story
- Set the puzzles and riddles

The team concluded that there was an overall positive change in their attitude towards STEM



Italian Team - An Essencial Lab

The girls decided to design a chemical lab for the production of essential oils from natural plants of their territory and playing with the words “Essence” and Essential” they decided to name it “Essencial Lab”.

They thought that this lab could be attractive for girls and young women because it works on perfumes and it is eco-friendly as it respect the environment using solar panels, water recycling systems, biomass recycling systems.

The activity of the lab deals with school subjects like chemistry, math, geography, biology. In order to make the lab realistic, they searched on the web the technical and scientific instruments they need to produce essential oils and the typical Mediterranean plants to derive the oil.

To design the structure of the lab, first they drew sketches on the paper, and then they used the software sketchup to create it effectively.



Catalonian Team - Study of Application of Art in Different Subjects

The Catalonian team's project was based on the Research Work of our School Institut Guillem de Berguedà: FROM MINERAL TO ROMANESQUE ALTARPIECE by Sara Vima, who was awarded in EU Contest for Young Scientists (EUCYS).

The work was related to art, science and nature. The author gave permission to use her studies in order to do an activity for their class.

The girls used minerals, which are found in a Baritine Mine situated in Coll de Pal. The minerals were made into pigments and these were used to create artwork based on interpretations from medieval real pictures.



Slovenian Team – Eco Battery

The team had learned about the theory behind batteries through physics and chemistry. They would then have time to assemble the battery out of material that was given. The girls experimented with different metals and found out which worked the best.

When they managed to get an electric current they then tried it out with an LED light.

Findings

- What is a battery and what kind of a reaction is happening inside.
- Students talked about their findings.
- Then the lessons conclude with ecology finding, because recycling batteries is very important for the environment.

Turkish Team – Tides

The girls from Turkey came up with the idea to understand more about the tide though creative drama.

The benefits of this would include:

- Indication of tide
- Explain the causes of the tide
- Current news on the tide

Lithuanian Team – Types of Soils Dominating in Pasvalys

The Lithuanian team looked and classified the different types of soils. They then looked at the use of soils in everyday life and explored which are best for making certain products.

By looking through a magnifying glass they came up with the conclusion “Soil is made up of particles of stone and other materials like dead plants, insects and air”.



From this investigation the team identified the soil that is most suitable for making pottery.

The girls then came up with a business plan for making and selling their products that they would make during Art lessons. The work would be displayed in public places and sold during a local fair.



Conclusions

The many ideas from the teams show that creating something from the ‘norm’ can still be informative and although not all are gender sensitive it proves that thinking outside the box will engage students no matter what their gender is.

See the Presentations:

<u>UK Team Presentation</u>	 Final Powerpoint - IO3.pptx
<u>Greek Team Presentation</u>	 GR PRESENTATION OF ESCAPE ROOM.p
<u>Italian Team Presentation</u>	 ITA_ESSENCIAL LAB.pdf
<u>Catalonian Team Presentation</u>	 IO3_Art and Science Catalonia Team.ppt

<u>Slovenian Team Presentation</u>	 Science class presentation - Ekob
<u>Lithuanian Team Presentation</u>	 Presentation _Properties of the Sc
Turkish Team Presentation	 IO3-Turkey (1).docx