STE(A)M IT STORIES OF IMPLEMENTATION

Title of your Story

Choose life!

Name of the Author(s)

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The Learning Scenario Implemented

Add below the link to the learning scenario you implemented in your class. The link must directly point to the resources on Scientix Repository and STE(A)M IT Website.

http://www.scientix.eu/resources/details?resourceId=28404

http://steamit.eun.org/more-light-less-lighting/

The Implementation Context

*Briefly describe the context of your implementation, specifying what subject(s) you chose to implement the learning scenario in, how those subjects relate to STEM careers, what was the students' age(s), the size of the group, previous familiarity with real life scenarios, what real-life questions did you choose to address, etc. We aim to gather stories of **classroom implementation**, so the context must appropriately reflect this. (maximum 300 words).*

After the successful implementation of our own learning scenario "The pollution and the greenhouse effect: The Earth is crying, Let's protect it" which led to increase students' interest in science and understanding the importance of caring for the environment for our quality of life and our health, the theme of light pollution was our natural choice for the second phase of the STE(A)M IT project.

The light pollution is less understood by people because it seems that light is not a bad thing. But exactly this perception allow us to treat the subject the way that we can highlight the way our life and the behaviour of humans, plants and animals is influenced by light.

We have chosen the following subjects:
- **Physics**: Energy in electric circuits, Luminous flux, Light intensity, Illuminance, from electric power to light power, Illuminance, and solid angle

- **Chemistry**: Photochemical reactions
- **Biology**: Sunlight and the skin

Due to the age of the students we chose to implement the project (14-15 years). Although the students are in the previous year of secondary education and, in June 2021, they will have a very difficult national exam for passing in high school, we were glad to find that all students who were involved in this project last year participated with interest and were very open- minded for its second phase. In conclusion, we had a number of 25 students divided in five groups, all of them being familiar since last year with learning through didactic scenarios that treat real life problems such as:

- Use of light: Light pollution, light and energy
- Is the night sky a dark sky?
- Can we catch the energy of the sunlight for anything?
- Which type of light is preferred for health?
- What is the optimal use of light during the night?

The Narrative

What did you do? Describe how you used the selected learning scenario in your teaching. For example, what was the structure of the lesson activities; did you make any adaptations to the resources? Did you include any online activities in the implementation? (maximum 200 words).

Because the students' age from the class where we implemented the project is 14-15 years old, we simplified the contents of physics, giving up the topic of light polarization, and also, the photometric quantities were introduced simplified because their previous knowledge didn't allow us to approach them using the sphere geometry.

Also, the art lessons were modified and we gave up Art History and Art Design due to the young age of our students. So, we asked students to illustrate this topic and their concerns about the inappropriate use of light and their effects on health through drawings, posters, advertising clips and short essays. Some of their works participated in the "Climate change 2021" Art Competition for teenagers, organized for the third consecutive year by "Carano 4 Children" Association. We used the resources presented in the annexes of the Learning Scenario " More Light. Less Lighting" .

We appreciated a lot the work of the Italian team coordinated by Carmelita Cipollone and we found it as a very useful resource we can use again for another group of older

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students.

The Collaboration Process

How did the collaboration with other teachers go? *Please, describe how was working together with the other teachers and what was the approach to carry out the lesson(s). (maximum 150 words).*

Our team was very united, even if the conditions were inappropriate, because of the pandemic situation and especially because we studied online almost all the school year. We divided the tasks so that each of us was able to know what to do. Every time we could, we met and discussed the problems we faced. It was a real team work!

Learning Outcomes

What did you achieve? *Describe the main learning outcomes you achieved with the implementation of the Learning Scenario. Tell your reader about anything that supports your case for achieving these learning outcomes. For example, students' view, or any other evidence[1] that illustrates the benefits and impact of using this Learning Scenario? (maximum 300 words)*

We mostly achieved with the implementation of the whole scenario, but we had to adjust it at the age and the level of understanding of our students who are up to 15 years old. So, we could not talk about subjects like architecture or light polarization, but we focused on other subjects like the actions of the sun rays over the skin. And we realized that the students were very interested in finding out how to take care of their skin. We also had a very big help coming from a former student, who is now a doctor specialised in dermatology and who made very good and useful presentations.

Teaching Outcomes

What did you, as a teacher, get out of teaching with a STE(A)M IT Learning Scenario and resources? *How did the usage of the STE(A)M IT Learning Scenario go? What should teachers and students watch out for to make effective use of a Learning Scenario created to support the integrated STEM approach? Please also describe your experience in collaborating with teachers of other subjects. What was different from traditional teaching? What advice would you give to another teacher planning to implement the same Learning Scenario about the achievement of the desired learning outcomes? (maximum 300 words).*

As we said before, we worked as a real team and each of us knew what to do and how to combine our work in order to form a unit.

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[1] Remember to refer to the point 6 of the guidelines.

Challenges

> ***Did you face many challenges?*** *If yes, how did you address them? Tell us more about your implementation issues, obstacles (practical or in relation to your school's organization/resources/environment), communication and planning issues, lack of knowledge, attitude towards STEM, etc. What did you do to overcome these challenges? (max. 200 words)*

We had some problems related to the lack of time , but overall, the project was a success in our point of view.

For the next year, Mrs Ciurea Isabela, the Physics teacher of our school, proposed an optional course , " Learning sciences in an integrated way", based on learning scenarios created by the teachers involved in the Ste(a)m_It project .

Thank you!