INTELLECTUAL OUTPUT 03

SCENTIFIC CREATIVITY

4 Creativities Project
№2019-1-BG01-KA201-062354

INTRODUCTION

The aim of FCREATIVITIES project is to improve the teachers' abilities to generate a creative education, leading to the creation of students who are able to think, analyze and solve daily problems. We *will develop new scientific skills* and competencies through the incorporation of new proposals, spaces, methodologies, and resources that will increase the students' ability, creativity and the skills for innovation. These activities will be used *with 10 to 12 years old students,* promoting their motivation and creativity. The activities will be composed for *six working activities* which will contain the different activities that we will elaborate with our students.

With the **scientific creativity** promotion we will improve the thinking capacity of our students and the ability to go from basic notions to more complex ones; they will learn to resolve problems in a real situation; they will practice the construction of their own learning; they will train their **deductive capacity** and this will take them to create strategies and solutions of their own and they will get better with their physical environment and their appreciation from different spaces, shapes, parts and the group in general. Scientific creativity will take place inside the classroom through scientific experiments workshops.

Scientific activity will be **boosted through observation, manipulation and research.** That will lead students to discover their immediate environment. Experimental and research activities will offer students the opportunity for learning in an independent and significant way.

Title of the experiment

Name of the experiment:

Heart of the future

Description and application in everyday life

*Describe the experiment and its **practical application** in everyday life*

The method of modeling is a classical method of teaching, which is extremely suitable for studying difficult and abstract learning content in natural sciences. The development of a model is a complex and lengthy process that requires prior in-depth study and understanding of different aspects of the modeled object.
Through the models one can understand the essence of the studied objects, the learners to express their understanding of what they have learned, to explore and create.
Modeling affects the motivation and activity of students and increases their independence.
The activity consists of various models of the heart that mimic its role as an organ in the human circulatory system. Recyclable materials are used for this purpose (paper, rubber, styrofoam, cardboard, plastic, nylon, textiles, etc.)

Knowledge of the properties of the materials used (transparency, permeability, flexibility, rigidity, elasticity etc.), provides an opportunity to look to the future: which of them could be used to solve health problems, related to the heart. Students can present data (from the Internet and other sources) on the use of materials in medicine for the treatment of heart disease (artificial hearts, 3d printed hearts, etc.)

To stimulate the creative expression of students, the presentation of the models can be done in the form of a competition called "Heart of the Future". A moral or material prize can be awarded to the best models.

Appendix №1: Evaluation card of the models.

Aims

Please list the objectives you want to achieve…

1. Applying the knowledge about the properties of materials and the knowledge about the structure and work of the heart.
2. Development of creativity and precise thinking
3. Develop problem-solving skills
4. Creative expression of the students
5. Individual presentation and teamwork.

Steps we must follow

Detailed description *of the different steps to carry out the experiment…*

Divided into small work teams, students will take on the role of researchers in the laboratory "Heart and Health". The task of each team will be to make a heart model from different recyclable materials to imitate the heart.
 Preliminary preparation is required, which includes:
1. Construction of an image of the object: (through a diagram, drawing and other symbols)
2.Choosing suitable materials for the heart model.(at home)
Then follows:
3. Making the model following the blueprint. Here you can be an artist.
4. To find out if the model is successful, answer the following questions:
Did they like our idea? Did you learn anything new from the model? Is it well made? What is applied in everyday life?
The model that most accurately mimics the heart as an organ of the human circulatory system will be declared the "heart of the future" and will find application in solving problems related to heart health.

Materials needed

In order for the teacher to be prepared for the proper implementation make a list of all needed materials and resources needed.

The materials that can be used to create the model are:
paper, plastic, nylon, textile, rubber, styrofoam, sponge, cardboard and others.

You will need scissors, glue, needles, threads and other tools of your choice to assemble the model.

Tips

If you have any recommendations for the teachers, please share them here. Please include any measures that must be taken to carry out the experiment safely!

1. The teacher could set the modeling for homework and the presentation should be at school.
2. The students can also work independently.
3.The activity is recommended for students aged 11-12.
4. When using materials and tools (such as scissors, needles, etc.)
to observe the measures for safe work.

Evaluation card

Model name	
Name of the student (s)	
Criteria to evaluate the model Evaluation card	*Evaluation card*
1. Scientific reliability	
2. Creativity	
3. Practical application	
4. Aesthetic and technical design	
5. Competent presentation of the model	
TOTAL NUMBER OF POINTS	Maximum number of points - 20

* Note: Each model is evaluated according to each of the applied criteria.
Minimum score for criterion - 1 point, maximum - 4 points.

Evaluator:
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