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PROJECT № **2017-1-PL01-KA219-038397_4**
IMAGINE YOURSELF IN FUTURE
„ПРЕДСТАВИ СЕБЕ СИ В БЪДЕЩЕТО “

PEOPLE AND TECHNOLOGIES
ENERGY (PBL Works)

REQUIRED RESULTS:
Understanding:
Energy is transformed from one type to another
Essential Issue:
What is energy?
Targets set (standards, metrics, learning objectives):

• Natural processes and phenomena - illustrates with examples the need for energy for the household and industry.
• Observation, experiment and research - describe the results of observations of objects from the unnatural nature

Students will know:

● types of energy sources
● ways of obtaining energy
● which are alternative sources of energy
• Basic principles of robot work

Students will be able to:

● recognize energy sources
● distinguish the methods by which energy is extracted
● compare the performance of different alternative energy sources
• convert energy using the robot's work

EVIDENCE AND EVALUATION:
Practical assignment:
Purpose: Energy is transformed from one type to another by exploring alternative sources
Role: Researcher, Observer, Solar Panel Expert, Architect, Innovator, Presenter
Audience: The school community - students, teachers, director
Situation: The school needs an alternative form of energy to save money
Product: A large scale model using an alternative energy source.

Other evidence: poster; meeting with an expert; solar panel monitoring made with LEGO Education parts; a test done through the Envision Play program

Standards / Criteria:

- ASK QUESTIONS.
- IMAGE USE.
- PLANNING.
- CREATE.
- IMPROVEMENT.

CURRICULUM

Learning Activities:

ASKING QUESTIONS

TIME: 30 minutes

Activity description:

1. Pupils use the Popplet application to construct their reflections and answer the following questions:

- What are the needs of our school community?

For example: more students, saving money from heating and transporting students, new desks ...

How can the school save money?

2. Students are divided into groups. Sharing their results.

3. Discussing defined needs and desires.

4. Select a problem that will be solved.

/ The school will save money by transporting students by searching for an alternative way to reduce travel costs.

Materials and resources

1. Laptops
2. Cellular phone with camera
3. Paper
4. Popplet
5. Google Slides

USE OF IMAGINATION

TIME: 20 minutes

Activity description:

1. Guiding questions by the teacher: Can the school save by reducing energy consumption? What is energy? Which are renewable energy sources? Can their energy be used?
2. Students are given the task of looking for information on the Internet:

How can people use the so-called "clean energy" through technology?

TIME: 10 minutes

Students observe a dimple model of a solar panel made through LEGO Education.

They track how solar energy is transformed into electric.

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Materials and resources:
1. Laptops
2. Cellular phone with camera
3. Google Slides
4. LEGO Education

PLANNING
TIME: 20 minutes
Activity description:
1. Working in groups, students draw a sketch of a prototype of a car with solar panels.
2. Each group prepares an explanatory note, including a list of materials, a name of the structure, etc.

Materials and resources:
1. Paper
2. Ruler, Pencil, Coloring pen
3. Laptops
4. Cellular phone with camera
5. Google Slides

CREATING
TIME: 45 minutes
Activity description:
Students are divided into two groups.
Group 1 reads the LEGO Education instruction for creating a solar panel car.
Group 2 follows these instructions and creates the model of the car.

Materials and resources
1. LEGO Education
2. Cellular phone with camera
3. Google Slides

IMPROVEMENT
TIME: 15 minutes
Activity description:
Pupils discuss the process: successful, unsuccessful, completely unsuccessful activities.
Possible design corrections to improve it.

Materials and resources
1 .LEGO Education
2. Cellular phone with camera
3. Google Slides

TIME: 30 minutes
Preparing a final Google Slides presentation where students answer the following questions:
1. What was the task?
2. What design do you offer?
3. How do you plan to improve your design?
4. Was your PID useful?

Materials and resources:

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1. Prototype
2. Google Slides

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