Creating an ECO online Natural Fit Virtual Programs to Prepare Students for boostIng 21st century Skills 4 the Future (UNITY)

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STE(A)M-focused PBL for transferring 2021st skills for fighting against climate change

LESSON PLAN 7:

Saving Energy for climate change

Presented by Fthia in Action team

Lesson procedure:

Date:	__/__/____
Teaching staff:	**Mr/Mss/Ms**
Term:	**2022-2023**
Week:	**1**
Year Level:	**Primary/low secondary (6-15 years old)**
Time/length	**1 hour.**
Key Learning Area:	**Use of soft skills for climate change and blending interdisciplinary subjects, including science, math, art and social studies**
Topic/focus:	**Understand how saving energy helps climate purposes.**
Lesson Name: Use of smart and simple ideas in energy saving and transferring STEAM skills	
Foreseen Outcomes: At the end of this lesson, students will be able to: ✔ understand the roles and importance of saving energy for climate change, ✔ communicate with public authorities, persuading them for saving energy, ✔ run small-scale campaigns, relevant to saving energy, ✔ design posters and brochures, relevant to environment issues, ✔ improve their social skills, including group communication, interaction and discussion,	
Lesson Description: This lesson shall demonstrate what energy is, why we need it, how it helps us in our everyday lives, what we can do to save energy at our house/classroom, how saving energy helps the environment. At the end the students make an easy do-it-yourself--DIY light bulb which glows in the dark (as a depiction of saving energy at night)	
Pre-requisites to this lesson plan (not applicable):	

Length (Lesson procedure):

This lesson will take 1-hour, which also includes interdisciplinary learning.

Depending on how to implement the planned lesson, the teacher shall need some materials, including videos, comics , cardstock, glue, cotton balls, aluminum foil and paint that glows in the dark. The teaching staff shall follow the following steps to implement the lesson successfully:

Step 1. Lead in:

Teacher greets the students, and asks what they know about saving energy. After collecting the feedback from the students, the teacher asks for groping in accordance with the students' learning intelligence and or learning style. Here, teacher group students as:

- ✔ Group A: 2-3 students, having science learning interest/intelligence/capability/style
- ✔ Group B: 2-3 students, having technology learning interest/intelligence/capability/style.
- ✔ Group C: 2-3 students, having engineering (creativity) learning interest/intelligence/capability/style.
- ✔ Group D: 2-3 students, having art learning interest/intelligence/capability/style.
- ✔ Group E: 2-3 students, having math learning interest/intelligence/capability/style.

Note: As grouping the students, the number of students can change according to the class-size.

Lesson standard:

The lesson is standardized around STEAM-focused PBL for transferring 2021st skills for fighting against climate change. Here, we focus on the role of saving energy. Through creating and performing, the students will understand how saving energy equals saving the environment. Regarding this, a future plan of energy saving is proceeded.

Common Core State Standards:

The teacher shall connect and correlate the lesson with the national syllabus and or program, which shall incorporate the lesson with the national program.

Enduring Understandings:

The students will understand the core ideas and philosophy of saving energy. The learning outcomes of the lesson shall be used by the students in their future careers. Besides, the lesson is connected with following areas:

- ✔ soft skills development,
- ✔ interdisciplinary learning,
- ✔ blended/hybrid learning,

The lesson will also answer the following questions:

- ✔ Is the lesson transferable for skills development?
- ✔ Can it be teachable over and over again?
- ✔ Does it connect to real-life issues?

Essential Questions:

- ✔ What are the connections of saving energy with STEAM skills?
- ✔ What are the connections of saving energy with PBL?
- ✔ How can saving energy lead to transfer soft skills?

Before the lesson implementation, the teaching staff shall brainstorm the above questions with the colloquies at the same school.

Case section:

The teacher shall follow the following steps:

Step 1. Creation of the case:

Energy is a limited resource in the world. As a demonstration lesson the teacher shall use visuals, posters, videos, etc. Then, the teacher asks the following questions to the students who are grouped in ‘’**Step 1. Lead in**’’. Each question is asked to the students who are grouped from A to E.

Questions for group A (Science-minded students):

- ✔ If you design an energy saving plan how would it be?
- ✔ What kind of energy can be saved?
- ✔ Why do we want to save energy?

Questions for group B (Technology-minded students):

- ✔ How would you add technology in saving energy?
- ✔ What aspects of technology would you use to benefit in saving energy?
- ✔ What technological design would you use, to create a saving energy light bulb?

Questions for group C (Engineering-minded students):

- ✔ Where can you use saving energy plans?
- ✔ Who would you work with to create a saving energy plan?
- ✔ What static design would you use in creating a saving energy light bulb?

Questions for group D (Art-minded students):

- ✔ Can you design a poster to activate people into saving energy?
- ✔ Can you compose a song for sharing it?
- ✔ What campaign would you run to increase saving energy?

Questions for group E (Math-minded students):

- ✔ What kind of measurements would you use to discover how much energy is consumed?
- ✔ What calculation would you use?
- ✔ How do you calculate the cost of not saving energy?

The teacher first elicits the answers and then leads to the students taking actions and making a simple light bulb that glows in the dark from thick paper and other materials.

Skill focus:

During the lesson, Cognitive Skills, such as decision making, problem solving, creative thinking and interpersonal skills will be the focus.

Content:

Building knowledge on saving energy through STEAM-focused PBL approach.

Assessments:

The teacher will use summative assessments employed in this lesson to gauge student learning.

Evidence of Student Learning:

Students' learning evidence will be the quotes, graphics, pictures, prototype, song, posters etc. that they improved during the lesson.

Texts/Resources:

Teacher uses the needy sources for the implementation of this lesson: The resources/texts are to be created by the teacher (Please see the annex 1 attached under the lesson plan, which are to be used for this lesson).

Learning Activities:

A series of tasks the student will engage in over the lesson. The activities are based on what students need to understand and be able to do for the performance and are aligned to the defined standards ''**Saving energy for climate change**'' and the essential questions defined under '' **Case section''**

Practice:

Teacher will deeply explain the negative effects of climate change and the roles of energy saving in protecting the environment and its limited resources. Here, the teacher shall elaborate or describe the lesson using these prompts provided).

The teachers shall create a flexible learning environment for the students. Here, the teacher uses:

Warm-up: ask about the questions and make the students ready for learning for the topic-specific subject.

Practice: The teacher sets-up demonstration/modeling (I do-we do-you do)
Studio/Rehearsal/Workshop (students engage in creating/planning/refining).

Clean-up: During the procedure, the teacher walks around the class and observes the students on what they need and control. If the students have questions, the teacher answers them.

Suggested Extensions:

- ✔ The students can make a plan in saving energy inside the classroom.
- ✔ The teacher may help the students to make their own documentary about energy saving.