

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

2021-1-SE01-KA220-SCH-000032448

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

**LESSON PLAN 6: Recycling batteries through the understanding of
circuits and use of batteries.**

Presented by Eurasia Team

Lesson procedure:

Date:	__/__/__
Teaching staff:	Mr/Mss/Ms
Term:	2022-2023
Week:	1
Year Level:	Primary/low secondary
Time/length	4-5 hour.
Key Learning Area:	Use of soft skills for climate change and blending interdisciplinary subjects, including science, maths, art and social studies
Topic/focus:	Recycling batteries through the understanding of circuits and use of batteries.
Lesson Name: Making Toy from recycled materials and transferring STEAM skills around PBL focused.	
Foreseen Outcomes:	
<p>At the end of this lesson, students will be able to:</p> <ul style="list-style-type: none"> Identify the ways in which we use batteries in everyday life, Understand the importance of recycling waste batteries – Understand the difference between electrical and electronic waste - Realise that there is a personal responsibility for taking care of the environment - Identify, discuss and implement simple strategies to address the issue of waste batteries, electrical and electronic items <p>improve their social skills, including group communication, interaction and discussion, improve their soft skills such as design thinking, critical thinking, decision making, efficient use of resources.</p>	
Lesson Description:	
<p>This lesson shall demonstrate</p> <p>As a class, discuss pupils' experience with the disposal of waste batteries, for example:</p> <p>Have batteries been disposed of in the rubbish bin?</p> <p>Have batteries been recycled? - Where have batteries been recycled?</p> <p>The local electric shop/ a local store?</p> <p>Have rechargeable batteries been used by pupils?</p>	

Pre-requisites to this lesson plan (not applicable):

Length (Lesson procedure):

This lesson will take 4-5 hour, which also includes interdisciplinary learning.

Depending on how to implement the planned lesson, the teaching shall need some materials, including videos, comics and papers. The teaching staff shall follow the following steps to implement the lesson successfully:

Step 1. Lead in:

Inform pupils that you are going to discuss battery, electrical and electronic waste recycling in this lesson. Elicit pupils' knowledge about the following points, recording ideas on the board using a concept map. After collecting the feedback from the students, the teacher asks for grouping 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 implementing simple strategies to address the issue of waste batteries, electrical and electronic items. Ask students why it is important to recycle batteries. Give info about the following key points: 1. Most batteries are put into rubbish bins and taken to landfill sites. 2. Batteries can contain dangerous chemicals like lead, zinc, lithium and mercury. 3. When batteries are left in landfill sites the chemicals can leak into the ground. This is bad for the environment as it can cause soil and water pollution. This can be dangerous for animals and humans. 4. Recycling waste batteries is a great way to help the environment. 5. Each battery which is recycled is taken apart and the materials are used to make something new like new batteries and bicycles.

The function of batteries - Rechargeable batteries (batteries which can be used more than once) - Everyday items which use batteries for power, remote control, torch - Everyday items which use mains electricity for power e.g. a lamp, a television

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 national program.

Enduring Understandings:

The students will understand the core ideas and philosophy behind side of the rechargeable batteries and why it is important for human and universe. They realise that there is a personal responsibility for taking care of the environment and Identify, discuss and implement simple strategies to address the issue of waste batteries, electrical and electronic items.

- ✓ 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:

As a class, discuss pupils' experience with the disposal of waste batteries, for example: - Have batteries been disposed of in the rubbish bin? - Have batteries been recycled? - Where have batteries been recycled? The local electric shop/ a local store? - Have rechargeable batteries been used by pupils?

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:

Inform pupils that you are going to discuss battery, electrical and electronic waste recycling in this lesson. Elicit pupils' knowledge about the following points, recording ideas on the board using a concept map: The function of batteries - Rechargeable batteries (batteries which can be used more than once) - Everyday items which use batteries for power e.g. remote control, torch

'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 recharge batteries how would it be?
- ✓ Think about what you can do to contribute to toy recycling?
- ✓ Think about what other products could be electrical and electronic waste recycling?
- ✓ What materials are used while making recharge?

Questions for group B (Technology-minded students):

- ✓ How would you add technology in making electric and electronic waste recycling?
- ✓ What alternative methods can you think of for recycling materials into battery charging or other things.
- ✓ What aspects technology would you use and or benefit in recycled material design.
- ✓ What technological design would you use, when you recycle the materials?

Questions for group C (Engineering-minded students):

- ✓ Which tools would you use ?
- ✓ How do you make a recycling project?

Have batteries been disposed of in the rubbish bin?

Have batteries been recycled? - Where have batteries been recycled?

- ✓ Who would work with while recycling rechargeable batteries?

Questions for group D (Art-minded students):

- ✓ Can you design a poster for increasing the importance of environmental impact of recycled batteries?
- ✓ Can you compose a song for sharing it?
- ✓ How can you design an advertisement for selling recycled batteries?
- ✓ What campaign would you run for increasing the use of recycled battery your local community?

Questions for group E (Math-minded students):

- ✓ What kind of measurement tools would you use to measure products made of recycled batteries?
- ✓ How do you calculate its cost?

The teacher first, elicit the answers and then leads to the students take actions and leads to make sample designed, made of recycled batteries .(Materials can be brought by the students from their homes.

Skill focus:

During the lesson, Cognitive Skills, Decision Making, Problem solving, Creative Thinking and Interpersonal Skills will be the focus.

Content:

The content of the unit is based on the disciplinary or topic-area concepts.

Building Knowledge through learning by doing.

Assessments:

Describe the diagnostic, formative, and summative assessments employed in this lesson to gauge student learning.

Evidence of Student Learning:

Provide a list of the process documentation that you plan to acquire during the course of the lesson. These may include photographs of students engaged in learning, drafts of student work, quotes from students, interviews of students, video, etc.

Texts/Resources:

The collection of short and extended works aligned to the standards and content. Examples: sheets, plastics,used materilas,waste bateries.

all, etc.

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 Recycling batteries through the understanding of circuits and use of batteries. and the essential questions defined under “ Case section”

Practice:

Teacher will deeply explain the the roles and importance of environmental impact of recycled materilas and a result of massive consumption of products. 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.

Presentation of Work

Suggested Extensions:

Provide a bulleted list of potential next steps or subsequent learning activities that will extend the teaching and learning of arts content. Students could explore advanced topics in the area, research other artists and practitioners in the field, or develop either individual or group extensions, depending on the initial project.