

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

*2021-1-SE01-KA220-SCH-000032448*

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

**LESSON PLAN 1:**

**Effects of climate change**

*Presented by  
IC TONIOLO, Italy*

### Lesson procedure:

<b>Date:</b>	__/__/__
<b>Teaching staff:</b>	Mr/Miss/Ms
<b>Term:</b>	2022-2023
<b>Week:</b>	1
<b>Year Level:</b>	8th grade
<b>Time/length</b>	5 hours
<b>Key Learning Area:</b>	<b>Use of soft skills for climate change and blending interdisciplinary subjects, including science, math, art and social studies</b>
<b>Topic/focus:</b>	<b>Learning about the effects of climate change.</b>
<b>Lesson Name:</b> Learning about the effects of climate change and the Sustainable Goal 13: Climate Action.	
<b>Foreseen Outcomes:</b>	
At the end of this lesson, students will be able to:	
<ul style="list-style-type: none"> <li>✓ understand the roles and importance of the effects caused by the climate change,</li> <li>✓ design posters and brochures, relevant to some of the environmental issues arisen,</li> <li>✓ improve their social skills, including group communication, interaction and discussion,</li> <li>✓ to be aware of the Goal 13 and why it has to be achieved.</li> </ul>	
<b>Lesson Description:</b>	
This lesson shall show students what are the effects of the climate change and what environmental problems can cause, what some governments are doing to tackle the problems, what we can do as citizens, what is Goal 13.	
Pre-requisites to this lesson plan: to know the key words in English about environmental problems and what they mean. These issues should already be discussed in a Science lesson in the students' mother tongue.	

### Length (Lesson procedure):

This lesson will take 5 hours, which also includes interdisciplinary learning.

The teaching shall need digital devices to make students watch videos individually or all together, paper, colored pens to produce their works.

### Step 1. Lead in:

The teacher asks if students know the main effects of the climate change through videos. Then, students are divided according to their 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 effects of climate change the Goal 13. Through creating and learning, the students will understand what are the main effects of climate change and what they can do as citizens to solve them. They will be also aware of the Goal 13 “Climate Action”.

### Common Core State Standards:

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

### Enduring Understandings:

The students will understand the core ideas and philosophy behind recycling. The learning outcomes of the lesson shall be used by the students in their future lives. 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 the effects of climate change with STEAM skills?
- ✓ What are the connections of the effects of climate change with PBL?
- ✓ How can the study of the effects of climate change transfer soft skills?
- ✓

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

### Case section:

The teacher shall follow the following steps:

#### Step 1. Creation of the case:

The effects of climate change are evident everywhere in the world. The teacher will show images of floodings, droughts, extreme weather conditions due to the climate change happened locally and in the world in the last years. Then, the teacher will ask 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):

- ✓ What are the causes of a flooding, an earthquake, a drought?
- ✓ What are causes of deforestation?
- ✓ What would be the effects of a drought in your area? What would happen to the fauna and flora?

#### Questions for group B (Technology-minded students):

- ✓ Can climate disasters be avoided thanks to technology?
- ✓ What aspects of technology would you use to stop climate disasters?
- ✓ What technological design do you imagine could be used to limit/prevent climate disasters?
- ✓ What’s the connection with the Goal 13 of the Agenda 2030?

#### Questions for group C (Engineering-minded students):

- ✓ What would you build to stop a flooding?
- ✓ What would you build to solve the problems of droughts?
- ✓ What products can you make to help the bad effects of climate change?
- ✓ What’s the connection with the Goal 13 of the Agenda 2030?

#### Questions for group D (Art-minded students):

- ✓ Can you design a poster showing the worst effects of the climate change?
- ✓ Can you record a fake interview with climate change activists like Greta Thunberg?
- ✓ What campaign would you organize to make people aware of the bad effects of the climate change in your local community?

#### Questions for group E (Math-minded students):

- ✓ What’s the percentage of floodings, droughts, earthquakes in the local area and in the world?
- ✓ Is this percentage increased or decreased in the last 10 years?
- ✓ Can you show graphs of the present local and world situation?

The teacher first elicits the answers providing materials and links to articles and then leads to the students to make a product of their thoughts (a recorded interview, a digital poster, a graph, a prototype).

### 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 the effects of the climate change through STEAM-focused PBL approach.

**Assessments:**

The teacher will use summative assessments of the final products.

**Evidence of Student Learning:**

Students' learning evidence will be the graphics, posters, prototypes that they have made during the lessons.

**Texts/Resources:**

Please see the annex 1 attached to the lesson plan, which are to be used for this lesson.

Video to show and image:

[https://media.pearsoncmg.com/curriculum/intl/it/newlab/9788883395789B/gg13/#!/activity/9387990/section/section\\_9387993](https://media.pearsoncmg.com/curriculum/intl/it/newlab/9788883395789B/gg13/#!/activity/9387990/section/section_9387993)

**Image:** [https://www.un.org/sustainabledevelopment/wp-content/uploads/2020/07/E\\_infographics\\_13.pdf](https://www.un.org/sustainabledevelopment/wp-content/uploads/2020/07/E_infographics_13.pdf)

Materials/Ideas for group A : <https://besafenet.net/hazards/drought-and-desertification/>

Materials/Ideas for group B: [https://www.un.org/actnow?gclid=EAIaIQobChMIotHf5tav-AIVIJBoCR0BLAINEAAYASAAEgIV0PD\\_BwE](https://www.un.org/actnow?gclid=EAIaIQobChMIotHf5tav-AIVIJBoCR0BLAINEAAYASAAEgIV0PD_BwE)

Material for group C: <https://earth.org/green-tech/>

Material for group D: <https://www.youtube.com/watch?v=JiJqnfYgT6s>

Material for group E: <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>

**Learning Activities:**

A series of tasks will engage the students in the lesson. They will read and study the material suggested in order to reply to the questions. Then, each group will create its own product. It could be a poster, a video, an infographic. The activities are based on the driving questions assigned for each group.

**Practice:**

Teacher will deeply explain the negative effects of climate change showing images and videos.

The teacher will be assured that students know the specific words related to the environmental problems tackled.

Students are assigned the driving questions and asked to discuss them and find a solution. The teacher monitors and gives advice.

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

Wrap-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 will answer them.

Students share their work to the class.

**Suggested Extensions:**

- ✓ The teacher may discuss other bad effects of the climate change.
- ✓ The teacher may invite students to read more about this topic and gather more information to deepen it.