Carbon Act
Learning Scenario Template
<What can we do?>

By <Martina Cindrić>

Title

What can we do?

Author(s)

Martina Cindrić

Abstract

This LS will educate students about the difference between weather and climate. They will observe climate change and its impacts, effects on all of us. They will critically reflect on solutions and then participate in direct actions towards sustainable development. Throughout the Learning Scenario, students will develop a sense of environmental responsibility and empathy for nature and the species affected by these changes. They will develop the skills necessary for living in the future.

Keywords

Climate change, effects, recycling, gardening, greenhouse

Introduction

Carbon Act aims to bring about wide-ranging impact on climate change and sustainability education by developing a set of exemplary practices and guidelines that will support teachers in their education activities and influence policy and research at a structural level.

Carbon Act's activities include:

- Desk research into existing climate change initiatives, and development of a curriculum analysis for introducing climate change into schools.
- Co-development of learning scenarios on the topic which will feed into an online catalogue and MOOC for large-scale implementation in countries across Europe.
- Development and running of a MOOC, a set of videos, a competition, and a final report, meant to ensure participation of schools and institutions interested in bringing climate change to STEM teaching and strategies at the school level.

Overview

SUMMARY	
SUBJECT(S)	English, math, science, Information and Communication Technology (ICT)
TOPIC(S)	Add here the climate change topics that your Learning Scenario addresses.
AGE OF STUDENTS	8-10
PREPARATION TIME	1 to 2 hours to explore the Learning Scenario and the materials.

SUMMARY	
	1 to 2 hours to modify/translate the worksheets or the online materials to the needs of the class.
TEACHING TIME	4 to 5 didactic hours (45 min each).
ONLINE TEACHING MATERIAL(S) USED	climate change https://cfs.climate.esa.int/index.html#/stories?globe=SI148.81I-43.17I23840000I0.00I0I0II videos: https://www.youtube.com/watch?v=WkvPdUtYhX8 https://www.youtube.com/watch?v=EuwMB1Dal-4 effects: https://www.youtube.com/watch?v=HsAUGbUgx6Y Green house effects: https://www.youtube.com/watch?v=SN5-DnOHQmE cloud of words https://wordart.com/ posters https://www.canva.com/ choice board https://app.magicschool.ai/tools/choice-board rubric maker https://app.magicschool.ai/tools/rubric-generator
OFFLINE TEACHING MATERIAL(S) USED	paper, cardboard, glue, cotton swabs, skewers, foil, computers, planting plants

License

Integration into the curriculum

This Learning Scenario can be integrated into the national curriculum as an interdisciplinary project in the lessons of Sciences, ICT (Information and Communication Technology) and Language.

Aims

At the end of the Learning Scenario, students will be able to:
- Understand the threats climate change poses
- Propose actionable solutions, demonstrating and sense of environmental responsibility.

Outcomes

In this Learning Scenario, students will gain more knowledge about climate change. Students will improve their critical thinking and technical skills, develop a greater understanding and care for the environment and living creatures, and enhance their ability to solve problems.

As a result, they will create practical materials like posters and greenhouses to visually express their understanding of environmental topics.

Pedagogical Strategies

- Integrating technology
- Project-based learning
- Real- world applications
- Digital literacy
- Critical thinking
- Collaboration

Green Competences

Indicate below which of the 12 GreenComp your Learning Scenario addresses (for more information, refer to pages 12-15 here):

Area: Embodying sustainability values
☒ Valuing sustainability
☐ Supporting fairness
☒ Promoting nature
Area: Embracing complexity in sustainability
☐ Systems thinking
☒ Critical thinking
☒ Problem framing

Area: Envisioning sustainable futures
☒ Futures literacy
☐ Adaptability
☐ Exploratory thinking
Area: Acting for sustainability
☐ Political agency
☒ Collective agency
☒ Individual agency

STEM Strategy Criteria

In this Learning Scenario, the following STEM elements and criteria are addressed. You are expected to address at least **one criterion per element**, providing details for all that apply. To know more about the STEM Strategy Criteria, see here.

ELEMENTS AND CRITERIA	HOW IS THIS CRITERION ADDRESSED IN THE LEARNING SCENARIO
INSTRUCTION	
Personalization of learning	
Problem and project-based learning (PBL)	
Inquiry-Based Science Education (IBSE)	Students were presented with climate change and its impact on life on Earth. They critically reflect and create representations, posters of what they can do.
CURRICULUM IMPLEMENTATION	
Emphasis on STEM topics and competencies	
Interdisciplinary instruction	Teaching is interdisciplinary across various subject curricula.
Contextualization of STEM teaching	Teaching is interdisciplinary across various subject curricula. Teaching is connected with practical activities and real-life experiences (recycling, planting a garden).
ASSESSMENT	
Continuous assessment	Assessment typology where students are examined continuously.

ELEMENTS AND CRITERIA	HOW IS THIS CRITERION ADDRESSED IN THE LEARNING SCENARIO
	After the video, they will create a poster and a word cloud about what we have learned. In the end, they will take a knowledge quiz.
Personalized assessment	
PROFESSIONALIZATION OF STAFF	
Highly qualified professionals	We will include and collaborate with STEM expert.
SCHOOL LEADERSHIP AND CULTURE	
Inclusive culture	We will share our work on the school web page which is public and people will share our final video.
CONNECTIONS	
With parents/guardians	Parents will be included in our work. They will do gardening with us.
With other schools and/or educational platforms	We will collaborate through educational platforms with other school.
With universities and/or research centers	
SCHOOL INFRASTRUCTURE	
Access to technology and equipment	We have access to the technology (computers, digital boards, tablets…)
High quality instruction classroom materials	

Activities

Describe here in detail all activities during the lesson and the time they require. Remember that your learning scenario needs to relate to climate change. If you are using any external documents, please scroll to the end of the document and add them to the Annex. Add more rows to the table if needed.

NAME OF THE ACTIVITY	PROCEDURE	TIME

NAME OF THE ACTIVITY	PROCEDURE	TIME
Lesson 1 *Understanding what is weather-climate*	*Watching videos about climate change.* *Students are prompted to orally respond to specific questions related to each video.* *https://cfs.climate.esa.int/index.html#/stories?globe=SI148.81I-43.17I23840000I0.00I0I0II* *videos:* *https://www.youtube.com/watch?v=WkvPdUtYhX8* *https://www.youtube.com/watch?v=EuwMB1Dal-4* *You can make questions after each video with tool in Magic school AI: (Annex 1)* *https://app.magicschool.ai/tools/youtube*	*45 min*
Lesson 2 *Effects of climate change*	*https://www.youtube.com/watch?v=HsAUGbUgx6Y* *Create cloud of words in digital tool. We will check what we learned.*	*45 min*
Lesson 3 *Predict the consequences of climate change*	*In a plenary session, the teacher will facilitate a discussion where teams exchange their findings, discuss the consequences of temperature rise etc. The teacher will support the conversation and clarify any misunderstandings or confusion.* *Green house effects:* *https://www.youtube.com/watch?v=SN5-DnOHQmE* *Learn about renewable energy sources like solar, wind, and hydropower. Discuss how these can help reduce greenhouse gas emissions and slow down climate change.*	*45 min*
Lesson 4 *What can I do?*	*Create a digital poster (Canva) showing the effects of climate change, such as melting glaciers, rising sea levels, and extreme weather events. Encourage the student to research and include information about how these changes impact the environment and living things.*	*90 min*

NAME OF THE ACTIVITY	PROCEDURE	TIME
	Students evaluate the posters. They are solving a quiz.	
	Create a choice board of ideas (activities) for students with MagicAI.	
	Students give a feedback on project.	
Practical activities	*Start a recycling program in the classroom. Have the student help collect and sort recyclable materials like paper, plastic, and aluminum. Discuss how recycling reduces waste and conserves natural resources.*	
	Create a houses of recycling materials.	
	Garden: planting plants (parents will help)	
	Making a video and share it on school web site.	

Assessment
Throughout the project, formative and summative assessments are used to evaluate students' understanding and progress. Formative assessments, conducted during the project's various stages, include quizzes, observations, and questioning techniques.
Summative assessments are applied after posters and creating a houses of recycling materials.
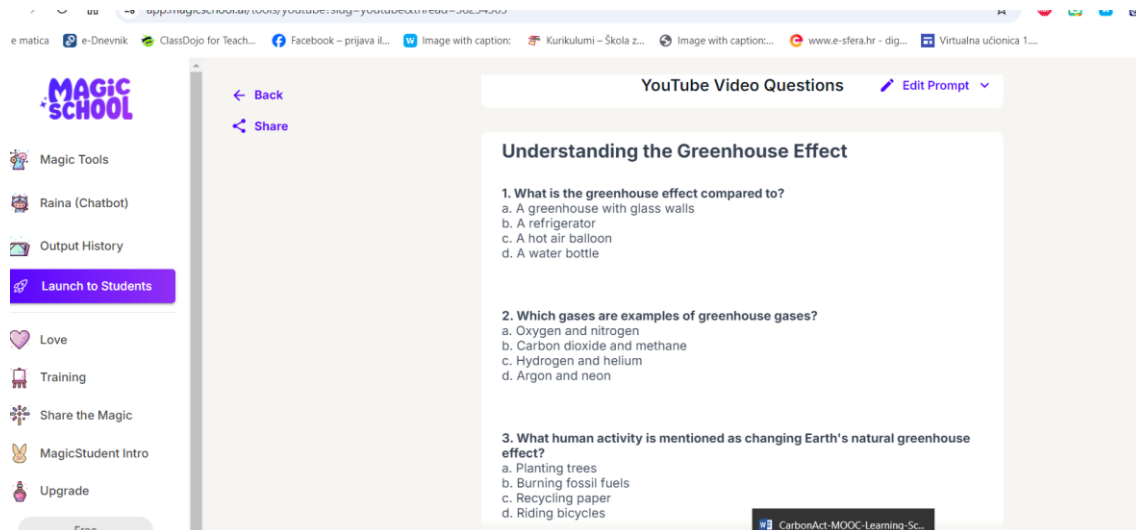
Student feedback
At the end of the project students provide feedback on their learning experience.

Teacher's remarks

Annex 1

Example of making questions after youtube videos:

ANNEX 2: QUIZZ

Climate Change and Weather: Understanding and Actions

1. What is climate change?
a. Change in the number of cars on the road
b. Change in long-term weather patterns
c. Change in the number of trees in a park
d. Change in the color of the sky

2. How can planting trees help with climate change?
a. Trees block the sun
b. Trees absorb carbon dioxide
c. Trees make the wind blow
d. Trees change color in fall

3. Which of the following is an effect of climate change?
a. More sunny days
b. Rising sea levels
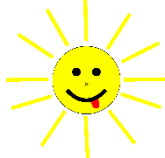c. More playgrounds
d. Fewer rainy days

4. What is the main difference between climate and weather?
a. Climate changes daily, weather does not
b. Weather is short-term, climate is long-term
c. Climate is colder than weather
d. Weather never changes

5. What is one thing kids can do to help the environment?
a. Leave the lights on
b. Use less water
c. Play more video games
d. Drive a car

ANNEX 3: Assesment form

PROJECT EVALUATION : What can I do?			
How interesting was this project?			
How helpful were the provided materials (tools, videos..)?			
How difficult was it to complete all the tasks?			
How much did this project help you understand the relations between climate and weather?			