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| **Project ID: 2021-1-CZ01-KA220-SCH-000034484**    **COURSE FOR ENVIRONMENTAL EDUCATION**  *e-Modules: Teaching Learning activities and their technology enhanced material set to develop*  ***DISCLAIMER***  *Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.*  **COURSE AUTHORS**   |  |  | | --- | --- | |  | Martyna Florkowska-Kardasz, Justyna Pająk-Jaroszewska |   **COURSE SHARING LICENSE**   |  |  | | --- | --- | | Une image contenant symbole, cercle, capture d’écran, Graphique  Description générée automatiquement | You are free to:   * Share — copy and redistribute the material in any medium or format for any purpose, even commercially. * Adapt — remix, transform, and build upon the material for any purpose, even commercially. | | | |
| **MODULE 3** | | |  | | --- | | **NATURE AND CLIMATE CHANGE** | |
| **PART 3** | | **Greenhouse gases** |
| **Lesson 2** | | **What are the sources of greenhouse gas emissions?** |

**SUMMARY**

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# 1. COURSE TIME, TARGET AND TOPIC

* **Age of target students:** 15+
* **Teaching time:** 1 hour
* **Disciplines:** art, foreign languages, design and technology, ecology, biology
* **Title:** What are the sources of greenhouse gas emissions ?

# 2. COURSE OBJECTIVES

## Competences promoted in this lesson:

* Communication in foreign languages competency
* Artistic competency
* Learning to learn competency
* Social and citizenship-related competencies

## Lesson objectives:

• The students develop an understanding of greenhouse gases and their sources while engaging in a hands-on activity to create a calendar or mini model that represents a world with controlled greenhouse gas emissions.

• The students are able to identify sources of greenhouse gas emissions and explore potential solutions.

# 3. LEARNING – TEACHING PROCESSES

There are 5 activities in this lesson:

1. **ENGAGE:** revise the definition of greenhouse gases and their impact on the natural environment

2. **EXPLORE:** students list the sources of greenhouse gas emissions, watch a video, if there is time, do the Internet research

3. **EXPLAIN:** inform the students about the task – creating a mini model/calendar and present its aims and outcomes, group division, task assignment

4. **EXPLORE:** the students make a mini model or a calendar presenting the world with controlled greenhousegas emissions

5. **EXTEND:** discussion on the importance of controlling greenhouse gas emissions, connecting the student-created calendars or models to real-world initiatives and policies aimed at reducing greenhouse gas emissions

# 4. EVALUATION

The evaluation is described in the last part of document.

# 5. DOCUMENTS

### ENGAGE

1. The teacher asks students to recall what they know about greenhouse gases and their impact on the environment.
2. The teacher briefly reviews the major greenhouse gases (CO2, CH4, N2O, etc.) and their sources.
3. The teacher introduces the lesson objective: to explore and understand sources of greenhouse gas emissions and to create a visual representation of a world with controlled emissions.

### EXPLORE

1. The class is divided into small groups and asked to list common sources of greenhouse gas emissions, such as transportation, energy production, deforestation, agriculture, and industrial processes.
2. The students are asked to discuss each source in detail, emphasizing the impact of human activities on greenhouse gas levels.

### EXPLAIN

### CREATE A MINI MODEL OR CALENDAR PAGE

1. Task explanation: each group will create either a calendar or a mini model that represents a world with controlled greenhouse gas emissions. For a calendar page: each month can represent a different aspect of emission reduction, and students can illustrate or describe specific actions. For a mini model: Students can create a visual representation of a sustainable world using art supplies, such as markers, cutouts, and collage materials.

### EXPLORE

1. Working on the task. Each group is to present their creation to the class, explaining the choices they made in depicting controlled emissions.

**EXTEND :**

1. Discuss the importance of taking action to control greenhouse gas emissions and how small changes can contribute to a more sustainable future
2. The teacher asks the students to connect the student-created calendars or models to real-world initiatives and policies aimed at reducing greenhouse gas emissions
3. Ask the students to summarize the task by asking them what the role of individuals and communities in promoting sustainable practices is.

**EVALUATE**

Evaluation of the students is based on their participation in discussions, creativity in creating the calendar or model, and their ability to connect the activity to real-world efforts in controlling greenhouse gas emission. Students’ engagement is to be graded with the highest mark.