

**Developed Learning Scenario**  
**“Climate Change: «Radio emissions»”**



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## 1. Learning scenario title / Short description

*In a sentence or two give the title of the learning scenario and a short description*

Research on the greenhouse effect and design of a radio tribute to its parameters, under the title: “**Climatic Change: «Radio emissions»**”

## 2. Level of education / Students’ age group

*Refer to the age group (s) or level of education that the scenario aims at.*

The current scenario can be used with students in Upper Secondary Schools and specifically in the Projects of 2<sup>nd</sup> Grade, but it can be adapted for students in Chemistry and Biology classes, in 2<sup>nd</sup> Grade, but also in other Grades of Lower- and Upper Secondary schools, as it relates to an environmental problem approached in an interdisciplinary manner. The aims can be adapted according to the student’s age.

## 3. Subject Areas

*Refer to the subject area (s) that the scenario deals with.*

Biology, Chemistry, Language (oral and written expression), Social and Political Education, ICT, Music.

## 4. Web radio type

*Describe the type of the web radio broadcast to be followed (e.g. interview, reportage, debate) and if it is going to be recorded or live.*

Recorded debate.

## 5. Duration

*Refer to the length of the learning scenario in hours/teaching periods.*

The educational scenario requires six (6) teaching hours.

## 6. Goal

*Describe the general goal of the scenario referring to both the curriculum and the web radio context.*

Students understand the natural phenomenon of the greenhouse effect, the factors that contribute to its exacerbation, they realize its impact on the world climate, on natural ecosystems and on human societies. Also, to distinguish the greenhouse effect from the ozone hole. They are mobilized to participate in the radio show they are going to design, which is going to be broadcasted by the European School Web Radio of NESTOR.

## 7. Aims

*Describe the expected students’ learning outcomes in relation to the curriculum subject area(s), digital skills and transversal skills aims. Please note that aims related to the web radio production should also be incorporated.*

### a. Subject Knowledge Aims

*Describe what the expected students’ learning outcomes in relation to the curriculum subject area aims.*

In reference to the subjects of Biology, Chemistry, Language, Social and Political Education, ICT, Music, students are expected to:

- describe and interpret the natural phenomenon of the Greenhouse Effect,
- realize the value of the natural phenomenon of the Greenhouse Effect for the conservation of life on earth,
- mention the main greenhouse gases that are responsible for the Greenhouse Effect and their origins,

- identify the human activities responsible for the increase of greenhouse gases,
- correlate the exacerbation of the Greenhouse Effect with one of the greatest environmental problems in our time, climate change,
- identify and analyze the impact of global warming on biodiversity of the planet and on human societies,
- be capable of making judgments and taking decisions about important environmental problems,
- propose ways of minimizing environmental problems,
- adopt attitudes that contribute to the solution of environmental problems,
- be informed about the measures and adjustments that are implemented by societies at an international level in order to reduce greenhouse gases and also about their power to make a difference as citizens,
- form a dialogue text, suitable for a specific communication context,
- be able to respond critically to acoustic stimuli and provide suitable answers,
- learn the basic production principles of a web radio broadcast,
- select the appropriate soundtrack for a radio broadcast.

#### b. Digital Skills Aims

*Describe what the expected students' learning outcomes in relation to the use of digital technologies.*

Students are expected to:

- practice in using ICT as tools and learning resources (search for information on the internet), as thinking, expression, communication, work and collaboration tools, in person or from a distance.
- develop collaborative learning skills by creating material to be presented through applications that allow sharing,
- practice in recording their texts and editing the recording using a recording software program (Audacity),
- create a multimodal text using multimedia as well as an interactive online presentation.

#### c. Transversal Skills Aims

*Describe what the expected students' learning outcomes in relation to transversal skills being developed through the learning process.*

Students are expected to:

- express their opinions, prior knowledge, perceptions and experiences concerning the presented environmental issues and, finally, make assumptions and predictions,
- use various information resources (printed and digital), evaluate their content, gather and assess suitable data, confirm or reject their initial assumptions,
- develop collaboration and interaction skills to achieve cognitive goals,
- develop their critical ability and creative thinking,
- cooperate and exchange opinions with their fellow students and the teacher, in order to reach a conclusion,
- present their products, argue about the value of individual and collective effort to curb the Greenhouse Effect and propose suitable action,
- develop acoustic skills,
- express themselves emotionally through the recording process and music choices,
- share their experience with students from other schools while listening to the broadcast and communicate with them afterwards via an online platform, jointly comment, criticize, encourage them for similar action,
- develop a positive attitude towards personal choices which contribute to reductions in greenhouse gases and mitigation of the climate change impact.

### 8. Relevance to the School Curriculum

*Refer to the subject areas and give a short description on how they are covered.*

The proposed scenario is part of the Biology, Chemistry, Language (oral and written expression), Social and Political Education, Music and ICT curriculum.

Biology: interaction between man and environment - environment's natural balance. Study of the Greenhouse Effect on the environment and human societies.

Chemistry: definition and description of the Greenhouse Effect. Distinguish the Greenhouse Effect from the Ozone Hole.

Language: production of written and oral language, development of critical ability and creative thinking to enrich their vocabulary by searching for new terms and their importance, practicing communication skills against an audience of students along with the pedagogical use of the internet (information management: identifying and using data and information relevant to the topic, uploading the recorded show on a blog).

Social and Political Education: students act as responsible citizens and inform other students, in their country as well as abroad, about the extent of the problem, at least as far as Europe is concerned.

ICT: recording and audio editing.

Music: students choose the appropriate musical sounds and pieces for the show.

## 9. Prerequisites / Prior Skills and Knowledge

*Describe what kind of skills and knowledge the students' need to have prior the learning scenario.*

The students will be able to work collaboratively in groups, be familiar with new technologies, use the computer as a learning tool, in particular for seeking information from internet sources. Also, students will be able to use a word processor in shared workspaces like Google Docs.

## 10. Brief description

*Give a short description on the students' expected learning outcomes, main activities and learning approaches to be followed.*

The main new knowledge of this unit refers to students' ability to understand and produce speech. It also aims at communication practice, reading loud in the appropriate style and communicating creatively with other students during the broadcast. The collaborative work, sharing experiences related to knowledge, developing ideas, finding and constructing knowledge, critically processing data from various resources, the ability to resolve problems related to the environment by conducting debate and the ability to make decisions, they are all used as techniques and are fully exploited in the educational process within the work plan.

At first, it is necessary to explore the knowledge and alternative perceptions of students on the Greenhouse Effect. It is likely that cognitive conflicts will appear after processing the questionnaires they complete. The participating students search in internet and bibliographical sources, write down the new knowledge in the form of questions and answers and then write dialogues which are going to be used in a radio show. They take on roles, decide the structure of the show, practice in using sound editing and recording tools and record their own radio show. By implementing the specific teaching practice, we attempt to motivate students to learn, search and handle information in order to build knowledge, finally – to the extent possible - to change their attitude towards the environment.

## 11. Assessment

*Give a short description on the assessment approaches to be followed referring to both formative and summative assessment.*

Assessment of students' work is done by both students and teacher based on the fulfillment of the initial aims and objectives, the way the team operates in collaborative frameworks and express their emotions (satisfaction, difficulty, fun) during the training scenario.

The evaluation of students' work is in three forms: initial, formative and summative.

A. Initial: detects students' prior knowledge on the Greenhouse Effect and the ecological dimension of the problem.

B. Formative: takes place during the activities 2 and 5 according to students' participation in them, the reliability of the selected information and the suitability of the dialogues with regard to the mode of articulation and the context they want to share. The direct listening and the listeners' reviewing and criticism enable students to seek more valid and reliable data, correcting their oral skills and improving the structure of their radio show before they record it.

F. Summative: a process of summary and feedback in order to evaluate the achievement of the objectives. Students write the dialogues of their show on the Greenhouse Effect, in order to inform the listeners about the European School Radio and increase their awareness on the matter. At the end, discussion follows in the plenary on the issues the radio show raises. Answering the teacher's targeted questions, the class comments on the radio show as an educational tool and evaluates its recreational function. The answers help the teacher reflect on the effectiveness of radio as an education tool and its acceptance by the students.

## 12. Technical Infrastructure

*Refer to the technical and digital infrastructure and tools needed.*

The script is implemented in a classroom with mobile laboratory or in a computer lab. Computers should have access to the internet and be updated with various generic software programs [open word-processing and presentation (Google Drive), Audacity recording software program]. All of the above software programs are open source and can be installed without any charge.

The classroom should be equipped with laptops, printer, scanner, microphone, speakers.

## 13. Classroom organisation

*Describe briefly the classroom organisation referring to the students' and teacher's role.*

The desks' layout facilitates the group-collaborative teaching method. Thus, the roles in each activity are adequate and are distributed at group level.

The class organization has two basic forms:

- working in small groups which participate in the action research in the context of Project as a school subject (searching for information and content configuration, writing of dialogues, speaking of the dialogues, providing music background, choosing actors among their classmates, recording the show)
- working as a whole (listening to the show, participating in the discussion-feedback)

The teacher creates the questionnaire which detects the students' knowledge and attitudes, locates and studies the websites that students will investigate, creates the worksheets for the group, ensures that the laboratory is working properly and smoothly, is engaged in the students' training on use of editing and recording tools. His role is, in general, to coordinate and encourage the group. He/She guides them when necessary, intervenes as a group assistant upon students' request and supports the learning process.

## 14. Description of Activities

*Describe the activities (each activity separately) as detailed as needed for a teacher to be able to implement the learning scenario. Please refer to the title of the activity, the teacher's and students' actions/role, expected outcomes, learning/classroom organisation, tools/resources/material, assessment.*

*Note: This section can also be developed using the Micro level Learning Design Template (presented in a table format).*

### Activity 1:

*Description*

"Completion of questionnaire – Detection of educational needs"

They initially fill out a questionnaire regarding issues concerning the Greenhouse Effect. The processing of the Developed Learning ScenarioTemplate

questionnaire reveals possible misunderstandings or lack of knowledge and suggests the educational needs that have to be taken into account for the design and materialization of the educational scenario.

### Activity 2:

#### *Description*

“Research – Evaluation and registration of informations”

The group of students which participate in the Project conducts research (with a structured worksheet and the support and encouragement of the teacher) on the Greenhouse Effect. Through selected online sources, books and the structured worksheet, students become aware of the different aspects of the topic.

### Activity 3:

#### *Description*

“Radio show listening”

Critical listening activity: The students listen to a radio news show and take notes about its structure, articulation and time management. Then, as a group, they discuss the structure of their own broadcast and the relevant informations, which they wish to disseminate.

### Activity 4:

#### *Description*

“Practice in digital sound editing and recording tools required for a radio show”

The teacher present the Audacity software program to his/her students and they get familiarized with its use.

### Activity 5:

#### *Description*

“Writing of dialogues – Provision of music background”

The group prepares dialogues on what they have decided to present in the radio show. A peer-review process is conducted in the script of the show and the assignment is overall supervised by the teacher. Then, the students look in the youtube for the suitable music tracks to provide a musical background to their show.

### Activity 6:

#### *Description*

“Broadcast development”

The recording begins with students’ dialogues and texts using the Audacity software program. The suitable music tracks are inserted and the necessary editing of the file is made. The show lasts 15-20 minutes.

### Activity 7:

#### *Description*

“Reflection”

All the students of the classroom listen carefully to the broadcast they created and discuss possible improvements, as well as their general impression of the implemented teaching practice. After a few days’ period, they re-complete the initial questionnaire. They go over all the answers. The teacher, through targeted questions, elicits the pedagogical benefit of the process from the students.

## 15. Material and Resources

Attach or give links to the material and resources needed for the Learning scenario implementation, such as presentations, worksheets, student guides, tests, etc.

### Bibliography and e-sources

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