

Climate – extended package

Guide with lesson plans

Download educational materials described in this guide from:

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Climate – extended package

Methodological guide

Title	CLIMATE
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Students' age	15+
Level of education or type of school	Upper Secondary School
School subject	Physics, Mathematics
Short description of content	
<p>Understanding the concept of climate</p> <p>The general public is familiar with the notion of weather conditions, commonly known as "weather", and weather forecasting on a few days scale. The weather is characterized by several atmospheric parameters of which the best known are the temperature, the wind and the precipitations. The weather can vary greatly from one day to another or from one place to another, even if the two places are close enough. We say that weather is very heterogeneous temporally and spatially.</p> <p>The climate represents meteorological weather but averaged over long periods, typically at least 10 years. The climate is much less heterogeneous than weather, temporally and spatially. On average, we can see several typical climatic zones, strongly dependent on the sunshine: tropical climates to polar climates and temperate climates to medium latitudes. Meteorological observations and models show that the climate has warmed up over the last 5 decades.</p>	
Concept and learning outcomes	
<p><u>The student knows:</u></p> <ul style="list-style-type: none"> • Notion of infrared radiation • Notion of greenhouse effect • Notion of radiative balance 	

The student understands:

- Exchange of energy

The student can:

- Understand the mechanisms involved in the Earth's radiative balance

Elements of educational package (created in ERIS)

1-Guide	Guide for teachers
2-Presentation	File pptx. This file includes the 3 movies indicated below
2a-Climate - movie	Movie based on presentation
3-CLIMATE-text	Text of the tutorial for this package
4-Kahoot_answers	Answers to the Kahoot (see next)
5-Kahoot test	https://play.kahoot.it/#/?quizId=3ae33a71-5de1-42d1-837e-ad31639f0f06
Not created in ERIS	These 3 movie are silent, explanation should be provided by the teacher
6- Movie on Climate	Movie https://youtu.be/FGB3mEIl1ms How we build a model
7- Movie on Meteo	Movie https://youtu.be/O6mplf_VCPo Difference between meteorology and climate
8- Movie on Simulation	Movie https://youtu.be/MKDYsITrQcl Results of simulation

Additional materials for teachers (websites links, science articles, etc.)

No

Lesson 1

Subject: Climate and greenhouse effect

Lesson plan for "Climate" – extended package

Subject	Climate and greenhouse effect
Duration	1h00
Materials/Preparation	
Smartphone Infrared remote control, similar to those used for TV	
Lesson flow	
Must follow the steps indicated in the tutorial	
Homework	
No	

In order to conduct the lesson, it will be necessary to provide:

- a multimedia projector for presentation, a computer for groups of 2-3 students;
- a modern remote control and cell phone (photos);
- no printing for the student all necessary documents are in the package and can be viewed on the computer;
- Internet link (kahoot).

Expected educational goals of the lesson:

The general aim and the detailed objectives are consistent with the objectives of the "Climate" education package.

We propose to follow the indications provided in the "Climate" presentation (no. 2).

Lesson procedure:

Lesson procedure:

1. Start of the lesson, organizational activities, attendance list check.
2. Start ppt file of the presentation "Climate" (No 2)
3. During the presentation indications are provided in ppt file to show movies (on YouTube):
 - a. <https://youtu.be/MKDYsITrQcl>
 - b. https://youtu.be/O6mplf_VCPo
 - c. <https://youtu.be/FGB3mEIl1ms>
4. Kahoot if internet available, or traditional test (No. 5) - (Test with answers (No. 4).