 

 Lesson plan

# Title

 How Do We Know the Climate Is Changing?

# Author

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# Abstract

This lesson plan uses geoparks as educational tool to show the climate change effects on nature

# Keywords

UNESCO Geoparks, Geography, Geology, Climate change

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# Summary table

|  |  |
| --- | --- |
| *Subject* | Geography((Earth, Rocks, Volcanoes, Fair chimneys), Chemistry(Minerals),Biology (Fauna,flora,fossils) |
| *Topic(s) within the subject* | 1-Climate Change2-Geoparks |
| *Key real-life topic* | Geoparks as recorders of climate change effects on rocks, soil,trees,water resourses etc. |
| *Age of students* | *14-15 years old* |
| *Preparation time* | *60 minutes* |
| *Teaching time* | *2 class hours (80 minutes)* |
|  | *List here all the links of online tools, applications and support documents that you will use during the lesson, such as: Padlet, Kahoot, Canva, etc.*[*https://quizlet.com/latest*](https://quizlet.com/latest)<https://padlet.com/ozlemdundar_sau/ppqqgp4tell5c3ic><http://www.europeangeoparks.org/><https://twinspace.etwinning.net/99176/home><https://en.wikipedia.org/wiki/European_Geoparks_Network><https://www.youtube.com/results?search_query=orogenesis><https://www.youtube.com/results?search_query=minerals><https://drive.google.com/file/d/1KTUOd3JMa_xway4SZd9r6XkWykuufS_D/view?usp=sharing><https://drive.google.com/file/d/1PRpAu9cY4Alfq4S1GkKUzfmX2rK_Tc9z/view?usp=sharing><https://www.youtube.com/watch?v=EAmmUIEsN9A>  |
| *Offline teaching material* | ● Computer and Projector● Regular paper and pens ,scissors,crayons● Blackboard ●Printed images(minerals,flora,fauna,) |

# Integration into the curriculum

The teacher combines two or three subjects ( in social sciences, geography, chemistry) to teach students climate changes effects in real life, in our nature (Geoparks)

# Aim of the lesson

At the end of the lesson students will learn they will understand the climate change harms on nature and will get awareness on sustainability of geoparks

# Outcome of the lesson

The students will work in groups to prepare a poster about climate change that harms our nature and environment(Geopark)

# Trends

Lifelong Learning: The awareness of climate change and geoparks sustainability will last lifelong

 STEM: Increasing the focus on Science, Technology,Engineering, Maths

# 21st century skills

This lesson plan comprises several activities that help to achieve the skills defined as 21st century skills:

● The lesson will enhance **CREATIVITY.** Students will produce new original ideas fort the poster

● **Collaboration:** they will work in groups to prepare posters.

● **Critical thinking** skills: they will explain why Geoparks have to be sustained and understand the role of climate to live in peace with our nature

● The lesson will also enhance their **communication** skills because they will discuss on layout and concept of the POSTER

# Activities

|  |  |  |
| --- | --- | --- |
| Name of activity | Procedure | Time |
| Introduction | The students will learn about climate change and past geological disasters in Geoparks.The activities in the lesson will promote awareness of geological hazards.Students will learn about minerals, fauna, flora of geoparks and will make comparisons on extinct animals endemic plants.They will think about sustainability of geoparks and will be geopark ambassadors for their geoparks in their country. |  |
| Activity 1: | A survey of readiness at the beginning of the lesson will be conducted to asses their knowledge about geoparks,geology.Here is the questions in the following link:[**https://drive.google.com/file/d/1jjvC638poKQqksDuGEAxPZ4p6XV56RcO/view?usp=sharing**](https://drive.google.com/file/d/1jjvC638poKQqksDuGEAxPZ4p6XV56RcO/view?usp=sharing)Brainstorming: A question about climate change: How Do We Know the Climate Is Changing? | 15 min |
| Activity 2: | Students review the printed papers (Prepared by teacher) about \*minerals\*animals\*plants. After the review they think about the minerals, animals and endemic plants and they categorize them.Power Point presentations about minerals, flora and fauna in UNESCO KULA GEOPARK (See above link 6 and link 7)to see the closest real life places as protected areas to observe climate changes Then students will find the pictures of animals,flora, fauna,soil,water resources by making comparisons on extinct animals,decreasement water levels of lakes and rivers, erosion in the mountains ,desertification,erosion of rocks | 25 min |
| Activity 3 | Students watch to the10 min video of Greta Thunberg about “School Strike for climate(see online resource 10 above) and they give their opinion (oral or writing) about the videoAfter the video students discuss on the needs of a legal regulation for protecting geoparks as heritage of mankind in 4 groups.  | 20 min |
| Assessment | **PEER ASSESSMENT and TEAM WORK:** CLIMATE CHANGE POSTERStudents will work in groups and each group will have necessary materials (i.e Pen, Paper, crayons )and they will create their own poster about climate change. Then posters will be evaluated by their peers. Most voted poster will be winner.**TEACHER ASSESMENT**: A quiz prepared in quizlet:At the end of the team work the quiz will be conducted to students.(see also below )<https://quizlet.com/_8t2hea?x=1qqt&i=35vep0>The questions are :1-Which one is not in the EGN (European Geopark Network)?a) Courel b) Novahrad c)Madonie d) [Jingpohu](https://en.wikipedia.org/wiki/Jingpo_Hu_Lake)2-Please find the on which one is not in flora of KULA Geopark? a)Thyme b) Sage c) mint d)camomilla3- What is the most abundant mineral in the Kula geopark? a)Boron b) Mercury c) Calcite d) Iron pyrite4-Please write a short paragraph about how we can decrease the effects of climate changes on geoparks?**HOMEWORK:** Identified at student feedback section(See also below) | 20min |
| Feedback | Teacher will ask the students to write a short abstract to explain their poster as well as what were the strengths and weaknesses of their own poster.Homework contains the following questions in the section “Student feedback” |  |

# Assessment

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[**https://drive.google.com/file/d/1jjvC638poKQqksDuGEAxPZ4p6XV56RcO/view?usp=sharing**](https://drive.google.com/file/d/1jjvC638poKQqksDuGEAxPZ4p6XV56RcO/view?usp=sharing)

**%50 TEACHER ASSESSMENT** by a quiz (Prepared on quizlet)will be conducted at the end of the lesson. The comparison of the learning will be base for the assessment.

**%30 PEER ASSESSMENT** by the POSTER: the poster will be assessed via peer assessment

**%20 HOMEWORK** (explained in the section “Students feedback”)

# Student feedback

After the lesson, the teacher will ask the students to write a short abstract to explain their poster as well as what were the strengths and weaknesses of their own poster.

As homework, teacher asks the students to answer the following questions via a Google Form:

1. A. The activities of today's lesson were interesting and engaging 1 2 3 4 5
2. B. I think working with a team was useful 1 2 3 4 5
3. C. Communicating and collaborating in the team was easy 1 2 3 4 5
4. D. The instructions I received to carry out my task were easily understandable and clear
5. E. I now have a better understanding of the climate change effects 1 2 3 4 5
6. F. I am planning a trip to UNESCO KULA GEOPARK with my family 1 2 3 4 5
7. 1 2 3 4 5

1 - I strongly disagree;

2 - I disagree;

3 - I neither agree nor disagree;

4 - I agree;

5 - I strongly agree.

# About

This Lesson plan is prepared for VR@Geoparks project.