Lesson plan

# Title

Earthquakes

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# Abstract

With the help of geoparks as educational tool, this lesson plan shows the emergence of earthquakes and their effects on nature with the help of geoparks as educational tools.

# Keywords

UNESCOGlobal Geoparks, Geography, Geology, Physics, Earthquake, Raising public awareness

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# Summary table

|  |  |
| --- | --- |
| *Subject* | Geography, Physics |
| *Topic(s) within the subject* | 1-Eartquake  2-Geoparks |
| *Key real-life topic* | Formation of earthquakes and their effects on nature, possibilities of defence |
| *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://en.wikipedia.org/wiki/Earthquake>  <https://www.who.int/health-topics/earthquakes#tab=tab_1>  <https://www.facebook.com/watch/?v=1203594999980082>  <https://youtu.be/xlWoMlaTjQo> |
| *Offline teaching material* | ● Computer and Projector  ● Regular paper and pens  ● Whiteboard |

# Integration into the curriculum

The teachercombinestwosubjects (geography, physics), inthelesson he/sheteachestheformation ofearthquakes, themethodology of theirobservation and theirconsequencesinourimmediateenvironmentinthegeoparks.

# Aim of the lesson

By the end of the lesson, students will understand what signs they need to pay attention to, how to make their own measuring instrument, and how to prevent serious consequences.

# Outcome of the lesson

Students create their own seismograph in groups and present the results of their collecting work on the damage, observations, and applicable protection in their immediate environment (geopark).

# Trends

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

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

# 21st century skills

Thislessonplanincludes a number of activitiesthatwillhelpstudentstodevelop 21st centuryskills:

• The lessonincreases CREATIVITY. Studentscomeupwithnew, originalideasfordefense - UsingWakelet

• Collaboration: theseismograph is createdbyworkingingroups

• The lessondevelopscommunicationskillsasstudentsdiscussideas

# Activities

|  |  |  |
| --- | --- | --- |
| Name of activity | Procedure | Time |
| Introduction | Thissectiondiscusses a specialcase of wavemotion. The nature of thetopic is suitableforindependentorsmallgroupprocessing, orshortpresentations. The lessonarousesthoughtsbyaskingquestions and presenting a homemadeseismograph. Whatcomesto mind aboutthisobject? Whatcouldit be? Whycould I bringitintheclassroom? Whatcanitmean? Whycanit be important? |  |
| Activity 1: | Processing of newmaterial, discussionaboutearthquakes and volcanoes, and correctbehaviorincase of an earthquake.  Basedon a text, theylearnabouttheorigin of earthquakes, thetypes of shockwaves, themeasurement of earthquakes, and theireffects. | 15 min |
| Activity 2: | The groups of studentsprocesstheearthquakeoccuredinthe Bakony-Balaton UNESCO GLobalGeopark and carry out collectingworkusingthe internet.  <https://hvg.hu/itthon/20110131_foldrenges_magyarorszag>  <https://hu.wikipedia.org/wiki/1985-%C3%B6s_berhidai_f%C3%B6ldreng%C3%A9s>  Aspects of analysis:  Whatexactlyhappened? Whatcausedtheaccident? Whatunexpectedeventsoccurred? Whatdamageoccurred?  Searchingforinformation:  Searchthe internet and mark wheretherehavebeenearthquakesinthelast 24 hours!  Couldtherebe no earthquakeontheplanetatall?  Before an earthquake, animalsbehavestrangelyasiftheyanticipate an impendingearthquake. What is theexplanationforthis? InwhichUNESCO Global Geopark and whenwasthelast major earthquake? | 25 min |
| Activity 3 | Creating an own seismograph:  <https://www.iris.edu/hq/files/programs/education_and_outreach/aotm/8/1.SeismographModel-Lahr.pdf> | 20 min |
| Assessment | Creating a kahoot test  <https://create.kahoot.it/course/307e96ab-ace1-4557-a73b-f315616b902d> | 10  min |
| Feedback | Creating a word cloud and its evaluation (WordArt) |  |

# Assessment

**50% TEACHER ASSESSMENT:**by a quiz will be conducted at the end of the lesson. The comparison of the learning will be base for the assessment.

**40% PEER ASSESSMENT**: evaluation based on searching for information, creativity and complexity

**10%**evaluation of word cloud

# Student feedback

*The groups make a reflection on the effect of the lesson on them.This can be done by using text, posters or any application.The assessment shall include that:*

*- how important you feel today's material is,*

*- how useful today's class was*

*- what knowledge was lacking,*

*- what are your plans for the future?*

# About

This Lesson plan is prepared for VR@Geoparks project.