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LESSON SCENARIO - Topic: The fiery breath of the Earth

COMPLETION

- 90 minutes

BASE PROGRAM

- Stage IV, expanded range of Liceum ogólnokształcące

SCOPE OF CONTENTS

- **IV.R.** Acquisition, processing and presenting information based on various sources of geographic information, including ICT and Geographical Information Systems (GIS).

A student gets information and develops and improves skills of geography, using all available (including the latest) sources of information, direct measurements and observations; he can select and process information for the presentation of selected issues.

DETAILED EDUCATIONAL PURPOSE

SPHERES OF EARTH AND LITHOSPHERE

IV R.5.5 He characterizes the main internal processes leading to diversification of the Earth's surface - volcanism, plutonism, crustal movements, tectonic movements (Paleozoic, Mesozoic, Cenozoic) and consequences

Content of the class also refer to the specific requirements of the base programme of geography at the third level of education:

III. 3.5. Student gives the main features of the construction slab of the lithosphere; he shows the relationship between the structure of the lithosphere and the occurrence of volcanic phenomena and earthquakes.

OBJECTIVES OF THE LESSON - student:

- discusses the basic assumptions of the theory of lithosphere plate tectonics;
- explains the causes of the occurrence of volcanoes on the border of the lithospheric plates;
- formulates the relationship between the occurrence of earthquakes, geological age of the areas, the borders of the lithospheric plates, volcanic phenomena;
- explains the origins of volcanoes located away from the edge of the lithospheric plates;
- shows the impact of volcanism on the environment and human economic activity;
- assesses the living conditions and human activities in areas of seismic activity;

- works individually and in a group;
- improves interpersonal skills while working in a group.

KEY SKILLS DEVELOPED DURING THE LESSON

- the ability to use knowledge of a scientific nature to identify and solve problems;
- the ability to communicate in the native and a foreign language;
- the ability to efficiently use modern ICT;
- the ability to search, filter and critically analyse information;
- the ability to identify own learning needs and learning;
- the ability of teamwork.

METHODICAL ORGANIZATION OF THE LESSON

- **strategy of teaching and learning** – problematic and operational
- **methods and techniques of teaching and learning** – **flipped teaching**, working with source material, the use of online resources, ICT, project, practical (design of experiments)
- **forms of work** – group, individual
- **cognitive course of the lesson** – deductive

TEACHING RESOURCES

STUDENT MATERIALS –

The list of sources to read **before class**

- Examine the map of seismic events
<http://earthquake.usgs.gov/earthquakes/map/> / or
<http://www.emsc-csem.org/#5w>
- Examine the map of lithospheric plates
http://wiking.edu.pl/upload/geografia/images/swiat_plyty_litosfery.gif
- refer to the material available in English on the Khan Academy:
<https://pl.khanacademy.org/science/cosmology-and-astronomy/earth-history-topic/plate-tectonics/v/plate-tectonics-evidence-of-plate-movement>
- Repeat the information contained in Nowa Era – Oblicza Ziemi p. 182 to 226 and Vademecum Nowa Era – Teraz matura – p. 128 to 154
- Worksheets for group work (**Annex 1 - 4**)
- Instructions for presentation methods that will be used by the students to perform tasks (**Annex 5**)

MATERIALS TO BE USED IN THE LESSON

- worksheets for individual student work in the classroom (**Annex 6**);
- models of volcanoes;
- computer with internet connection;
- multimedia projector, screen wall (multimedia board);
- various sources of geographic information: Nowa Era - OBLICZA GEOGRAFII 1 p. 182 – 226, films and animations available online

PREPARATION FOR THE LESSON

- a week before the planned class, the teacher introduces students to their subject;
- the class is divided into 4 randomly selected groups;
- each group chooses a leader who will guide its work. Leaders draw the topic for the project (work sheet). The groups prepare the issues for the creative presentation (8-10 minutes) in the chosen form (Power Point presentation, Prezi, photo gallery, interactive map, poster, mind map).

COURSE OF THE CLASS

1. **The organization** – the teacher performs organizational tasks, introduces the topic, presents the objectives.

2. **Execution**

- students present the results of their work groups (8 - 10 minutes) – answer questions from the audience
- during the presentation of the group work, each student individually completes the work sheet prepared by the teacher (**comment of the teacher** - in the worksheet there are tasks that are related to the scope of work of each group - **Annex 6**)
- after the presentation of the effects of the group work, students complete if necessary the correct information and formulated conclusions;
- the teacher answers the questions and validates individual worksheets - he analyses with students the task the solution of which is questionable.

3. **Summary**

- Students carry out self-assessment and evaluation of the group work (factual correctness of the message, the type of sources of information, quality, creativity, execution of tasks, visual effects, the contribution of individual students)
- demonstration of models of volcanoes outside of school (**for security reasons**) - the effects of explosions

4. **Homework** – solve secondary school certificate type tasks on the topic of the class on the website CKE

http://www.cke.edu.pl/images/EGZAMIN_MATURALNY_OD_2015/Materialy/Zbiory_zadan/Matura_Zbi%C3%B3r_zada%C5%84_Geografia_cz_I.pdf

5. Evaluation - "unforced round"

(comment of the teacher - eager students comment freely on the carried out class)

LITERATURE

(all materials available on 16/02/2016)

1. http://www.ceo.org.pl/sites/default/files/EWP/davBinary/sposobnik_internet.pdf
2. <http://www.ceo.org.pl/pl/koss/news/aktywizujace-metody-nauczania>
3. <http://www.oeiizk.waw.pl/joomla/index.php/ze-swiata-edukacji/265-e-podreczniki2016>
4. <http://wanda.oeiizk.waw.pl/WebQuest/4/wulkany%20swiata.html>
5. <http://ed.ted.com/lessons/how-tsunamis-work-alex-gendler#review>
6. <http://ed.ted.com/lessons>
7. <http://www.cke.edu.pl/index.php/egzamin-maturalny-left/egzamin-w-nowej-formule/23-egzamin-maturalny/347-materialy>

