

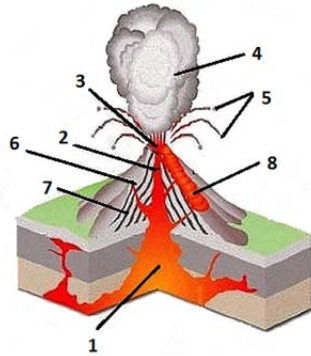
SCENARIO WITH CLASS OF GEOGRAPHY
"OUR LITTLE ETNA" - BUILDING MODEL VOLCANO, FLOWING WITH LAVA

1. Watching a video for example "Volcanoes and earthquakes," or any other on this subject.
2. Check knowledge about volcanoes - doing the tasks of **Appendix 1**
 - ex.1. Completing the legend to the drawing depicting a cross-section of the volcano.
 - ex.2. Crossing out the wrong words in the text , so that it contains just real information.
 - ex.3. Adjusting the term to the description.
3. Validation of the tasks performed.
4. Divide students into three task groups.
5. Implementation by each group a model of volcano.
6. Getting to know three ways to perform "chemical lava" -
Appendix 2.
7. Implementation of the experiment using the methods of obtaining the "Artificial lava" in particular groups and save observation.
8. Decide, according to which recipe, the flowing mixture is the most similar to a real stroke of lava from the volcano.
9. Conducting in groups attempts of "eruption" by made volcano.
10. Using the record of a chemical reaction - **Appendix 3** - giving answers to the following questions:
 - What chemicals are the product of a chemical reaction?
 - Are any of the compounds generated during the chemical reaction comes out of a real volcano during its eruption?
11. Summary of activities.
12. Tidying the working positions.

APPENDIX 1.

ex.1. To the image of the cross section of the volcano follow the legend, using the following deadlines for the construction of the volcano:

chimney volcanic, lava, fire magma, volcanic ash and gases, crater, older cover lava, volcanic bombs, parasitic cone.



ex.2. Cross out misspelled words so that the text contained the correct information.

1. The cause of the movement lithospheric plates are convection **currents** / **jet streams**.
2. In the **zone rift** / **subduction** of the lithosphere plates move closer together, and one of the plates slides under the other. Delving into the plate due to temperature rise is melted. The molten rock feeds the fire of magma forming in this **zone volcanoes** / **cratones**.
3. In the **zone rift** / **subducted** lithosphere plates move away from each other, a widening gap filled with lava.
4. Thrown into the air fragments of lava in the form of bombs and ashes
we call volcanic material **piroclastic** / **plutonic**.
5. **Eruption** / **vulcanization** process volcanic eruption.

ex.3.Do specified terms fit their description:

1.crater	A. The liquid product of volcanic activity
2. lava	B. Canal, which bring out volcanic products
3.magma	C. recess on top of the volcanic cone, volcanic chimney outlet
4. chimney	D. A lump of solidified lava ejected during volcanic explosion and falling to the ground
5. volcanic bomb	E. hot melt rock material located in the depths of the earth

APPENDIX 2.

"Methods for generating artificial lava".

Method 1.

Materials needed: vinegar, baking soda, red food coloring, jar, a teaspoon.

The manner of conducting experience:

Add 2 tablespoons of baking soda into a jar, then pour vinegar combined with the dye.

Method 2.

Materials needed: vinegar, baking soda, red food coloring, a few drops of dishwashing liquid, spoon, a jar.

The manner of conducting experience:

Add 2 tablespoons of baking soda into a jar, then pour vinegar combined with a dye and dishwashing liquid.

Method 3.

Materials needed: vinegar, a few drops of dishwashing liquid, baking soda, red food coloring, spoon, a jar.

The manner of conducting experience:

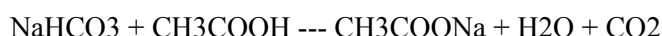
Add 2 teaspoons of baking soda into a jar and pour heated / warm / vinegar combined with a dye and dishwashing liquid.

NOTE

The bottle - "chimney volcanic" cannot get any material from which it is made of volcanic cone, it must be dry and clean - add 2 tablespoons of baking soda and using a funnel, pour the warm solution: vinegar + food coloring + dishwashing liquid .

APPENDIX 3.

The chemical reaction used in the creation of "lava".



Explanation:

NaHCO₃ - sodium bicarbonate

CH₃COOH - acetic acid

CH₃COONa - sodium acetate

H₂O - Water

CO₂ - carbon dioxide

Worksheet groups:

"Our little Etna" - building a model volcano from which lava flows.

The composition of the group:

.....

1. Your task is to make volcanic cone using salt mass, from which comes out "lava" and to check which way is the most effective to stroke "lava".
2. At the beginning check your knowledge of volcanoes and do the task of Appendix 1.
3. With the help of a teacher check the correctness of completed tasks.
4. Build a model volcano.
5. Make familiar with methods of preparing "artificial lava" - Appendix 2.
6. Perform experiments using the first, then a second and finally the third way and write down your observations.
7. Assess, according to which recipe, the flowing mixture is the most similar to a real stroke of lava from the volcano.
8. Carry out groups trying to "eruption" made volcano.
9. Using a record of chemical reaction - Appendix 3 – answer the following questions:
 - What chemicals are the product of a chemical reaction?
 - Are any of the compounds generated during the chemical reaction comes out of a real volcano during its eruption?

Teaching aids and materials needed for classes:

- Vessel to prepare a mixture
- water
- funnel
- Spoon / mixing /

- Baking soda
- 10% vinegar
- Dishwashing liquid
- Red dye
- Plastic bowl
- The mass of salt / $\frac{1}{2}$ kg flour and $\frac{1}{2}$ kg of salt and stir to combine with the water / - possibly other material for the volcanic cone
- Plastic bottle on the chimney volcanic / slightly cut from the top /
- Plastic tray / as the base of the volcano / filled with eg. sand, earth, plant twigs, moss, etc.
- Paper towel