

Eruption!

Teacher notes

Education in Chemistry

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The study of volcanoes and geological processes is present in key stage 3 (rock cycle) and key stage 4 chemistry (composition of Earth's early atmosphere). While not often thought of as part of chemistry proper, the study of volcanoes can provide fertile opportunities for higher level questioning and probing learning at all ages.

This worksheet has a few different activities for you to try with your classes. Which activity you decide to use depends on the scheme of work you are following at key stage 3 and which topics your students have learned.

1. Key word storyboard

This activity summarises the process by which a volcano erupts and vents carbon dioxide into the atmosphere. Students must write sentences between keywords where there is an arrow. They should use words from the box to ensure they are constructing sentences that are appropriate to high quality science communication. Students should aim to use each word at least once, and you can turn it into a competition, awarding one point for each time a key word is used – but only if used correctly! This is an excellent opportunity for students to digest the passage and improve their scientific writing.

Example sentences:

The **magma** rises to the surface resulting in the **pressure decreasing**.

Carbon dioxide is released deep down within the Earth, whereas **sulfur dioxide** is released higher up.

2. Viscosity experiment

This activity allows students to engage with the concept of viscosity and process data related to it. You could also use honey solutions of different proportions to demonstrate the principle.

3. Volcanologists

Inspired by events occurring a few years ago in Italy, this activity should be used as a way of helping students digest the text as well as engage with the role of scientists in public policy. Teachers should note that science does not always provide us with clear answers but can give us indications. A helpful video about the actual events can be found here: <https://www.youtube.com/watch?v=zYZDSjA93HA>

Other year groups

When thinking about applying this material to other year groups, it is worth tying in to the composition of the Earth's early atmosphere. An excellent research project for key stages 4 and 5 would be to look at the solubility of gases in water, and how it decreases with temperature, in contradistinction to the solubility of solids in water, which (generally) increases with temperature.