Student worksheet

Lab Lava!

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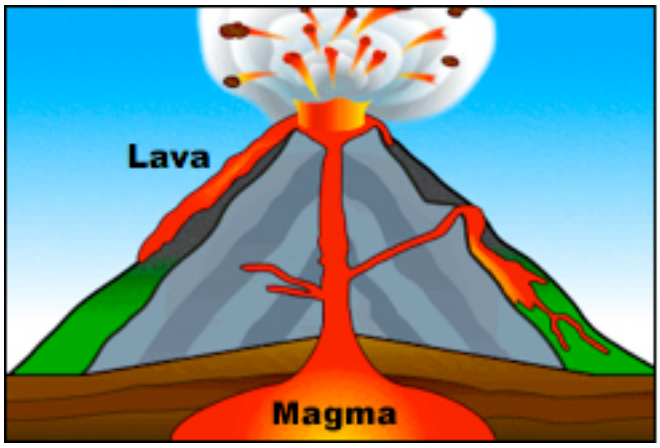
Lava in the Lab

Introduction



Magma is rock that has been heated up so much underground that it has melted.

When magma flows out of the ground from volcanoes it is called lava. Lavas can be very sticky and slow-flowing or runny and fast-flowing.

We can find out why some lavas are runny and others are sticky by carrying out experiments. We cannot bring real lava into the laboratory because it is too hot (it may be hotter than 1000oC).

Treacle is a liquid like lava and the viscosity (runniness) of both these liquids can be changed in similar ways. So, we can carry out laboratory experiments on treacle and then use these to understand how lavas flow.

Your Mission

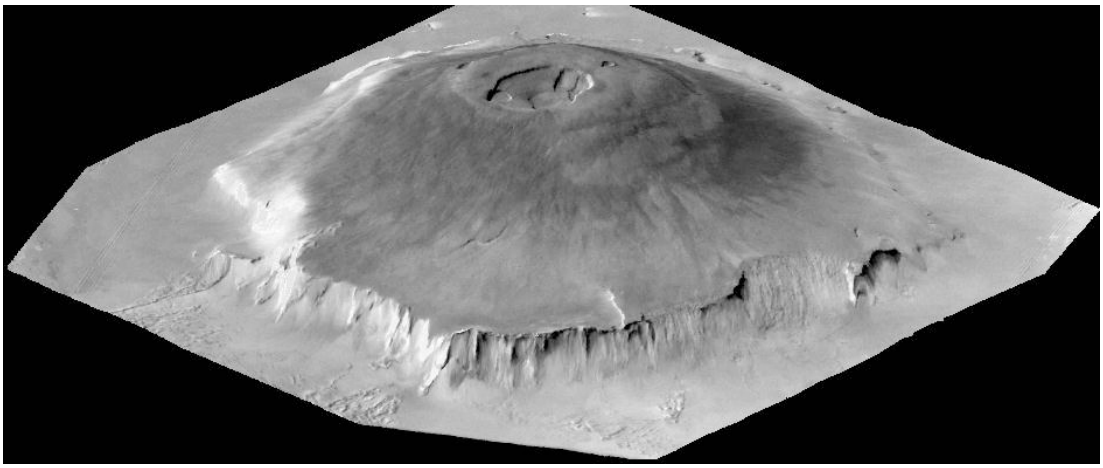
Design an experiment to change and measure the viscocity (runniness) of treacle.

1. Plan your treacle investigation using the student worksheet.
2. Carry out the investigation by following your plan. Clean up afterwards
3. Record your results and to plot them on a graph
4. What did your investigation show. Were your first ideas right or wrong?
5. Could your investigations have been done better? How?

   Volcanoes on Mars often cover large areas of the planet's surface.
6. Do you think the lava that created these volcanoes was runny or sticky
7. Martian volcanoes also reach great heights – more than three times higher than the tallest volcanoes on the Earth!

Does this fit in with the type of lava you thought created the volcanoes? If not, how do you think these volcanoes got to be so high?

8. Tell the rest of your class about your investigation and your results.



Olympus Mons – the Highest Volcano on Mars and in the Solar System.

This Volcano is 27 km High and 550 km across (the distance from Cardiff to Dundee)

Lava in the Lab: Plan a Treacle Investigation

I plan to change the viscosity (runniness) of treacle.

a) I could make it less viscous (more runny) by:

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b) I could make it more viscous (less runny) by:

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In my investigation, I am going to make the treacle more/less viscous by:

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I plan to change the viscosity in steps by:

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I plan to find out how viscous the treacle is at each step by:

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I will need the following apparatus and materials:

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Lava Flows from Kilauea, Hawaii, October 1999

When the apparatus to test the viscosity of treacle is set up, it will look like this:

I will plot the results of my investigation in a table like this:

I will use the results from the table to plot a graph like this:

I think my results will show that:

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