LAVA FLOWS
ACTIVITY SHEET

2017 YEAR OF RISK

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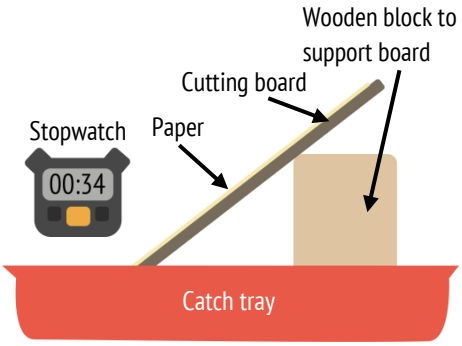
Lava is molten rock that is erupted from a volcano. Some volcanoes erupt lava that is very runny and can flow over large distances but others produce lava that is very sticky and can't flow very far at all.

The 'stickiness' of a liquid is known as its viscosity. The more viscous a liquid is, the stickier it is and the slower it will flow down a slope.

YOU WILL NEED:

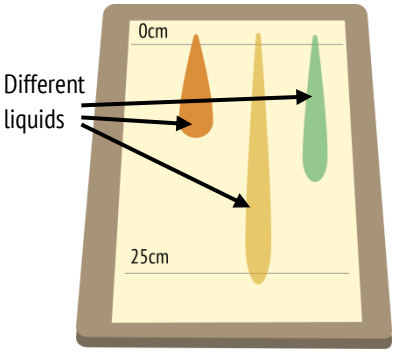
- Cutting board/ baking sheet
- Liquids of different viscosities (e.g. water, oil, washing up liquid, chocolate sauce, honey)
- Support for cutting board (e.g. wooden block)
- Paper
- Catch tray to catch liquids
- Graph paper
- Stopwatch

TASK: LAVA VISCOSITY (work in groups of 2 or more)



Using a ruler, draw a horizontal line at the top of your paper and label it 0cm - this will be your start line. Measure 25cm downward from this line and draw another horizontal line labelling it 25cm - this will be your finish line.

Stick your paper to your cutting board using masking tape and set up the board in a catch tray as in the diagram opposite.



Choose your first liquid and spoon a tablespoon of it at the top of your paper on the start line. At the same time start your stopwatch and measure how long it takes for the liquid to reach the finish line. Do this for all of your liquids and repeat each test 2 times so that you have 3 measurements for each liquid. Record your results in the table.

Liquid	Time taken 1	Time taken 2	Time taken 3	Mean time taken

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Plot your results below as a **bar graph** using the mean time taken on the y axis and the type of liquid on the x axis.

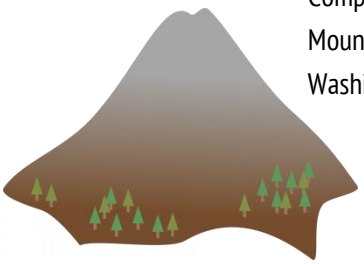
Which of your liquids was the **most viscous**?

Which of your liquids was the **least viscous**?

Look at the two volcanoes below. Based on the experiment you have just done, do you think the lava flows that created these volcanoes were **viscous** or **not very viscous**? Write your answers in the boxes.

Shield volcano e.g. Mauna Loa, Hawaii

Composite volcano e.g. Mount St. Helens, Washington



When volcanoes erupt they tend to either explode violently with huge clouds of ash and gas or the erupt gently with flowing rivers of red hot lava.

Will a **more** or **less viscous** lava cause an explosive eruption?

Will a **more** or **less viscous** lava cause a gentle eruption?