How do Volcanoes Work?

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Kia ora explorers!

This worksheet is to help you learn about volcanoes!

Start by watching this LEGO Discover video on YouTube:

https://www.youtube.com/watch?v=RJJGe0Uj9Zk

QUESTIONS:

What is the name of the tallest volcano humans have discovered, and where is it located?

Calculate:
One mile is equal to 1.609 kilometres. How tall is this mountain in kilometres?

Research:
How tall is Mount Everest?

There are about 1 500 active volcanoes on Earth. What do the following activity levels mean for volcanoes?

Active

Extinct

Dormant

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The Earth has four distinct layers. Do a little more **research** to help fill in the gaps!

Inside Layer:
The very innermost section of the earth is called the i_____ c_____. This section is _____ km thick. It is made of _____ which is _____.

Layer Two:
The next layer is called the o_____ c_____. It is also made of _____ but it is in a _____ state. This section is _____ km thick.

Layer Three:
The layer below the one we live on is called the m_____ and is _____ km thick. It is made of _____ which is _____ but flowing very slowly, like extra thick treacle.

Outside Layer:
The outside layer is called the c_____, and it is only _____ km thick. The oceans sit on top of this layer.

Find a unit converter and work out how hot the centre of the Earth is in degrees Celsius.

Draw a diagram showing a convection current:

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What is magma, and what makes it?

What is the difference between magma and lava?

Where are most volcanoes on Earth found?

Research:
New Zealand sits on two tectonic plates, and the way they move against each other causes earthquakes. What are the names of the two plates?

Research:

These plates have also created a mountain range where they push against each other. What is the name of the mountain range?

Based on its shape, do you think Mt Ngauruhoe has thick magma and explosive eruptions or runny magma and flowing eruptions?

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Do some **research** on Pompeii and the eruption of Mt. Vesuvius. Describe one of the discoveries made by researchers as they excavated the ruins.

Because of the devastation they cause, lots of towns and cities with active volcanoes have escape plans for their citizens. If you were in charge of the escape plan for a city with an active volcano, what could you invent to help your citizens escape? Consider all the challenges an erupting volcano would present, then build a model or sketch the design for your invention. Make sure to label all the helpful features!

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EXPERIMENT:

With an adult's help, build yourself a volcano! You might want to use papier mâché, which will take several days to dry, or you might choose to build it out of LEGO. An easy temporary volcano can be made from sand! Plasticine or playdough can be re-erupted lots of times!

Make sure to leave a "magma chamber" inside your volcano— this could be a cup or plastic bottle with the lid off. Don't forget to have some towels ready to clean up any mess—we recommend taking your volcano outside to test!

To get "red-hot" lava, add a couple of drops of red or orange food colouring to your vinegar before you start. When you are ready, add the vinegar and baking soda to the magma chamber and wait for pressure to build up to an eruption!