



# VOLCANOES KNOWLEDGE ORGANISER



## Overview

- Volcanoes are very deep holes in the top layer of our Earth's surface (the crust).
- These holes allow magma, hot ash and gases to escape from under the Earth's surface.
- Volcanoes may look like mountains or small hills, depending on what type they are.
- Most volcanic eruptions are caused by tectonic plates moving towards each other, which can cause violent eruptions. These eruptions can be disastrous for living things that are nearby.
- Volcanoes can be described as active, erupting, dormant, or extinct.



Lava streaming down Anak Krakatoa (Indonesia) during an eruption in 2018.

## Well-Known Volcanoes

<b>Mauna Loa</b>		Mauna Kea is a dormant volcano on the island of Hawaii. Its peak is 4,207m above sea level, however the volcano is mostly underwater. From the sea floor it is 10,211m, the tallest mountain in the world.
<b>Mount Vesuvius</b>		Mount Vesuvius is a stratovolcano about 9km east of Naples in Italy. It is mainly known for its eruption in 79CE that destroyed the Roman city of Pompeii. More than 1,000 people are thought to have died.
<b>Mount Fuji</b>		Mount Fuji is the highest mountain in Japan, standing 3,776m. It is an active stratovolcano that last erupted between 1707 and 1708. It is visible from Tokyo on clear days, and is a popular hiking spot.
<b>Yellowstone Caldera</b>		The Yellowstone Caldera in the United States is a crater that is approximately 34 x 45 miles in size. It is considered to be a supervolcano – if it were to erupt, experts predict there would be devastating regional (and possibly global) consequences.
<b>Krakatoa</b>		Krakatoa is a caldera between the islands of Java and Sumatra in Indonesia. Its famous 1883 eruption could be heard 4,500km away, and resulted in 70% of its island being destroyed. 1927, Anak Krakatau emerged from the caldera.
<b>Olympus Mons (Mars)</b>		Olympus Mons is a very large shield volcano on the planet Mars. It has a height of over 21,000m: more than three times the size of Mount Everest! It is the tallest planetary mountain in the Solar System.

## Key Vocabulary

- Volcano
- Eruption
- Magma
- Lava
- Active
- Dormant
- Extinct
- Shield Volcano
- Stratovolcano
- Caldera
- Cinder Cone
- Crust
- Mantle
- Core
- Vent

## Answers to the Important Questions

### How do volcanoes erupt?

- The Earth has 3 layers: the crust (top), the mantle (middle) and the core (centre). As tectonic plates move around, rock is forced towards the mantle. Here, it is so hot that they melt, becoming magma.
- Magma is lighter than rock and so rises to the Earth's surface. Magma erupts through openings or vents in the earth's crust before flowing onto its surface as lava.

### Why are some eruptions stronger than others?

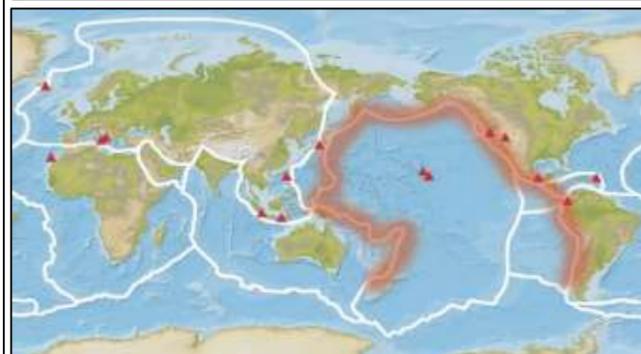
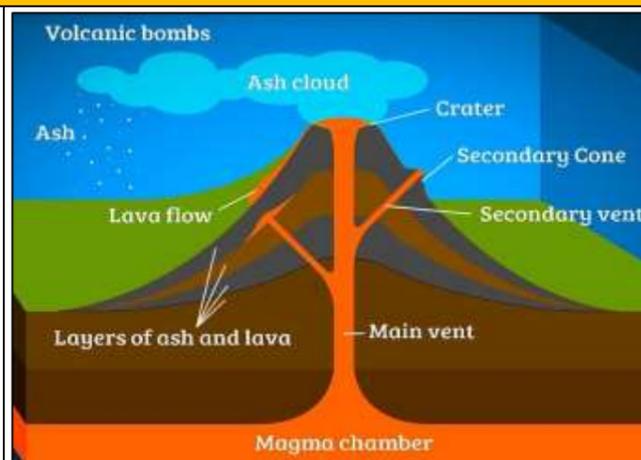
- If magma is thick, the gas bubbles cannot easily escape, and pressure builds as magma rises.
- If the pressure becomes too strong, a violent eruption can happen, where magma is launched a great distance. The lava and accompanying ash clouds can be destructive and extremely dangerous.

### How are new volcanoes formed?

- As volcanoes erupt, molten rock (magma), gas, ash escapes from the Earth's surface. As the lava flows on the Earth's surface, it cools and solidifies. This creates the distinctive volcano shape that we see.

### Where are volcanoes?

- Most are located along the edge of tectonic plates, especially around the Pacific Ocean 'Ring of Fire.' There are no volcanoes in the UK.



## Interesting Facts

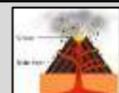
- The largest volcano on Earth is Mauna Loa on Hawaii Big Island.
- The tallest volcano is Mauna Kea which is right next to it.
- Ash clouds from volcanoes can be dangerous for us to breathe in.
- It is also makes plane flight difficult. An eruption in Iceland in 2010 closed most of Europe's airports!
- Around 50 volcanoes erupt every year!
- Land near volcanoes is very fertile. Farmers often move near them!
- People who study volcanoes are called volcanologists.
- Volcanologists can sometimes tell if a volcano is likely to erupt soon.
- The biggest recorded eruption was Tambora in Indonesia in 1815.
- In the Tambora explosion, an estimated 60,000 people died, and a great famine followed.

## Types of Volcanoes

Shield Volcano – shaped like a bowl or shield. Formed from thin layers of lava. They have big, gentle slopes.



Stratovolcano – also called composite volcanoes. Large, with steep slopes, and often made up of layers of volcanic rock from prior eruptions. They can grow into huge mountains.



Caldera – Big, round and shaped like a cauldron. Formed from thick lava that hardens right around the vent.



Cinder Cone – a straight, steep mound. Formed from particles of lava from one vent at the top. They generally are not taller than around 300m.

