
All about
Volcanoes
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Aim

- To know about volcanoes and where in the world they can be found.

Success Criteria

- To describe the structure of a volcano.
- To locate some of the major volcanoes on a world map.

Where Does the Word ‘Volcano’ Come From?

Have you ever thought about why volcanoes are actually called 'volcanoes'? Can you think of a reason why?

The word 'volcano' comes from the island ‘Vulcano’, which is a volcanic island in Italy.

Vulcano, Italy.

The island actually gets its name from the Roman god of fire – Vulcan.

The Roman God of Fire

Roman mythology says that Vulcan lived in a volcano. As well as being the god of fire, he made many weapons and **forged** them using metal and fire. He was a very skilled blacksmith.

Romans believed that if Vulcan was made angry, the volcano would erupt. So they tried their best to please him and not anger him.

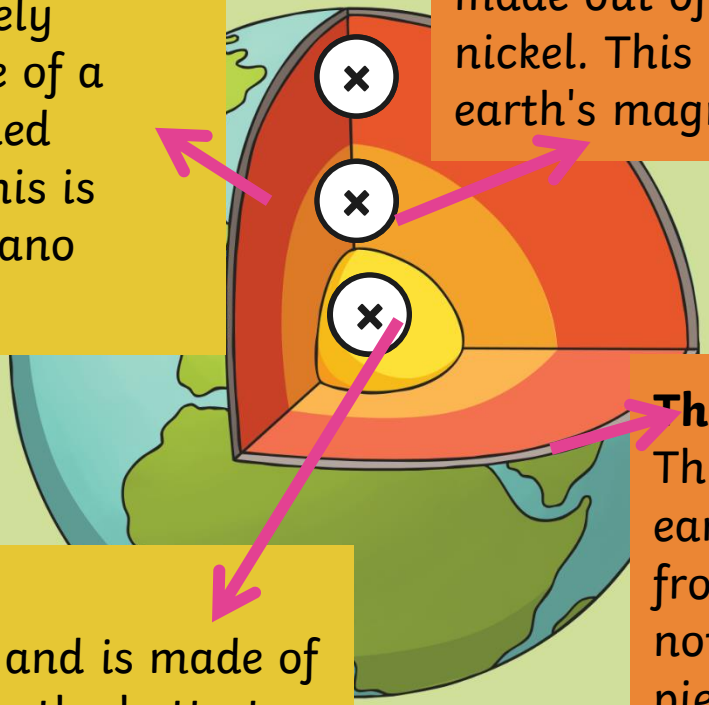
Forged: to have made or shaped a metal object using a fire or furnace.

What Is Our Earth Made Of?

Click on the circles to reve

The Mantle
The mantle is approximately 2897km thick and is made of a solid, rocky substance called molten rock or magma. This is what escapes when a volcano erupts.

The Outer Core
The outer core is a liquid layer made out of molten iron and nickel. This liquid metal creates the earth's magnetic field.

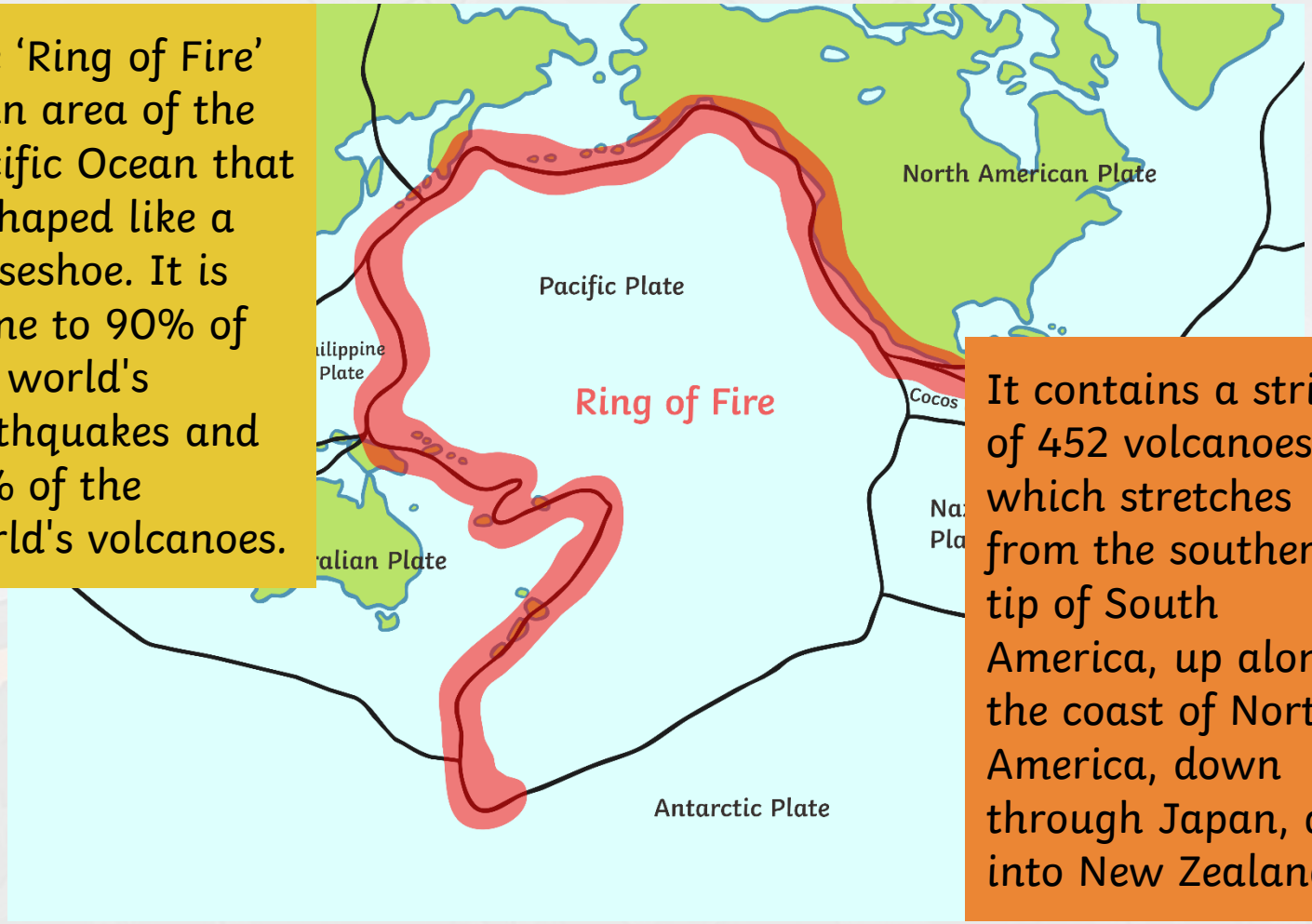


The Inner Core
This is a solid layer and is made of iron and nickel. It is the hottest part of the earth and can reach temperatures of up to 5500°C!

The Crust
This is the outer layer of the earth. It varies in thickness from 0 – 60km thick. It is not even and is made up of pieces which overlap to cover the entire planet. These pieces are called 'tectonic plates'.

Where Are Most Volcanoes Located?

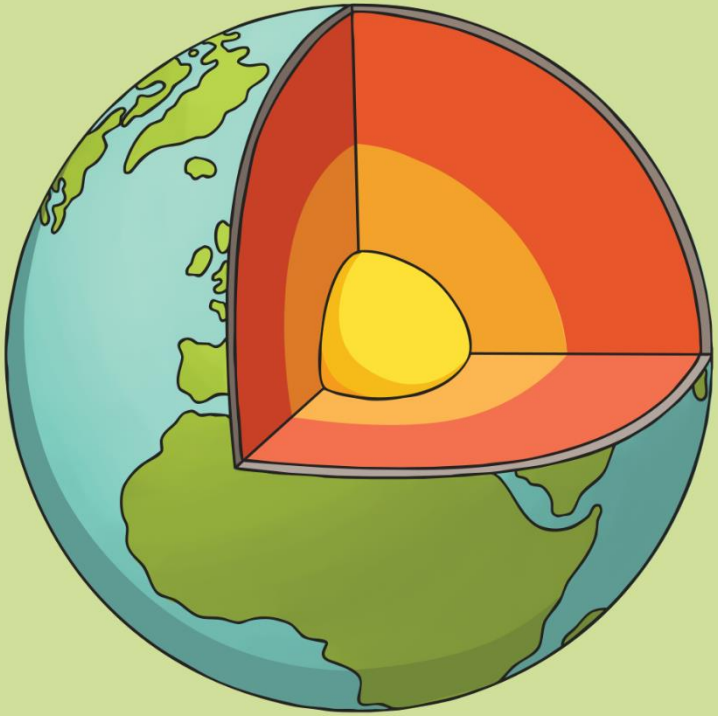
The ‘Ring of Fire’ is an area of the Pacific Ocean that is shaped like a horseshoe. It is home to 90% of the world's earthquakes and 75% of the world's volcanoes.



It contains a string of 452 volcanoes, which stretches from the southern tip of South America, up along the coast of North America, down through Japan, and into New Zealand.

How Are Volcanoes Formed?

Deep in the earth, it is extremely hot. It is so hot, in fact, that rocks actually melt and form magma, which makes up the mantle of the earth.



The upper mantle mixes and moves, which creates pressure underneath the crust. This pressure can sometimes cause the mantle to leak out onto the surface of the earth **– this is a volcano!**

Over time, as this magma leaks out, the volcano will get bigger and bigger.

The Three Stages of Volcanoes

Scientists have placed volcanoes in to three different categories.
What do you think each one is?

Active

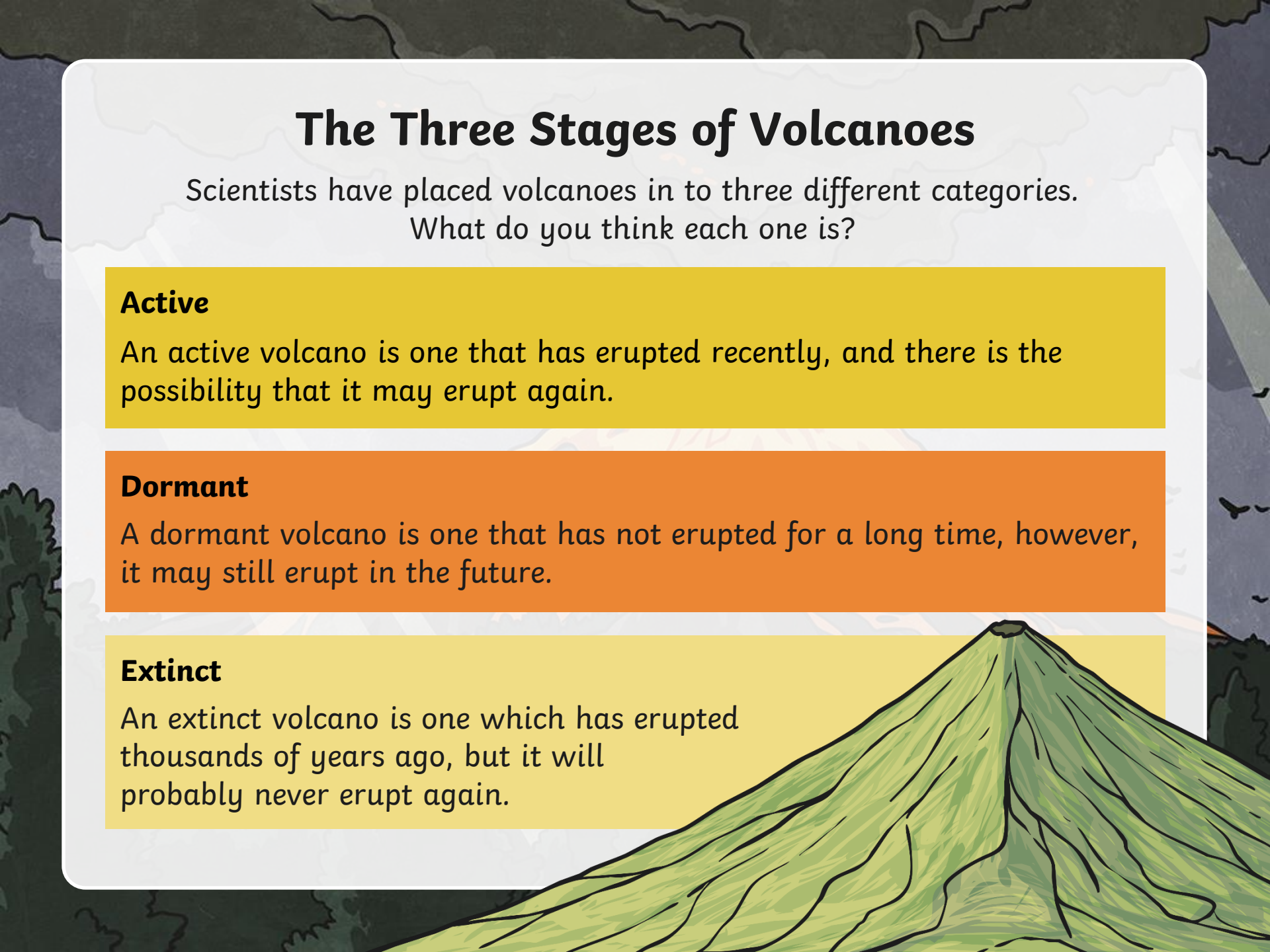
An active volcano is one that has erupted recently, and there is the possibility that it may erupt again.

Dormant

A dormant volcano is one that has not erupted for a long time, however, it may still erupt in the future.

Extinct

An extinct volcano is one which has erupted thousands of years ago, but it will probably never erupt again.



Why Do Volcanoes Erupt?

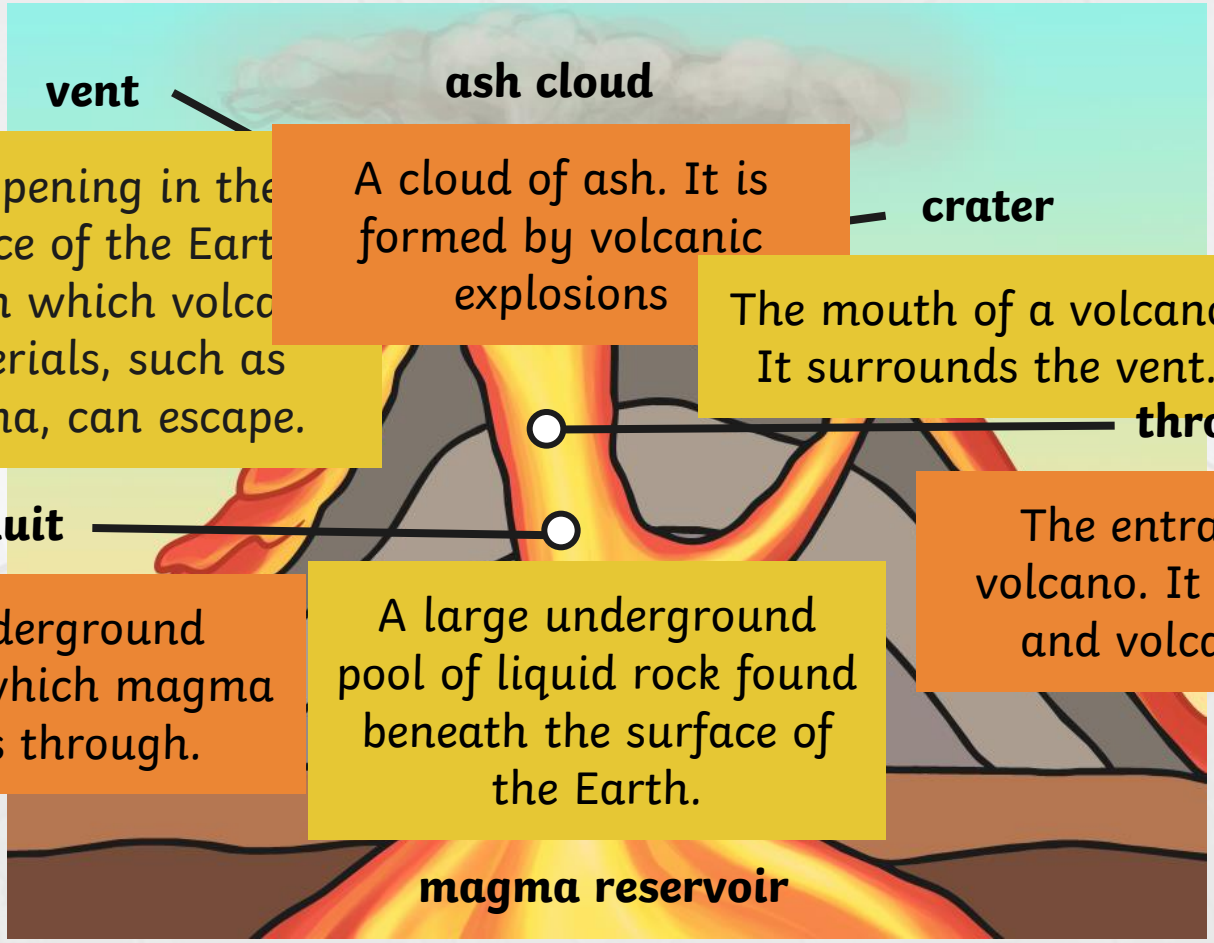
We know that the earth's crust is made up of huge slabs called tectonic plates. These fit together like a jigsaw puzzle and they sometimes move.

Friction: the resistance created when one surface rubs against another.

The movement causes **friction** which causes earthquakes and volcanic eruptions near the edges of the plates. The theory that explains this process is called 'plate tectonics' – this means the plates are moving in different directions and at different speeds. Sometimes they collide or brush past each other and cause these earthquakes and volcanic eruptions.

What Are the Different Parts of a Volcano?

Click on each label to find out more. Click again to remove.



An opening in the surface of the Eart through which volca materials, such as magma, can escape.

A cloud of ash. It is formed by volcanic explosions

The mouth of a volcano. It surrounds the vent.

The entrance of a volcano. It ejects lava and volcanic ash.

An underground passage which magma travels through.

A large underground pool of liquid rock found beneath the surface of the Earth.

How Many Volcanoes Are There?

There are more than 1500 active volcanoes on Earth. There are also more than 80 volcanoes under the ocean, although these are just the ones that have been discovered.

What Types of Volcano Are There?

Mount St. Helens in Washington, USA is a composite volcano.

Composite Volcanoes

These volcanoes are steep-sided volcanoes and are made up of lots of layers of volcanic rocks. They usually erupt in an explosive way because the magma in these volcanoes is quite sticky. It clogs up the passage that it has to pass through. Pressure is built inside the volcanic chamber and this results in the volcano erupting violently.

What Types of Volcano Are There?

Sunset Crater in Arizona, USA is a cinder cone.

Cinder Cones

Cinder cones are circular or oval cones. They are made up of small fragments of lava, which are blown into the air through a single vent. When they cool down, they form rock around the vent. They grow quickly, but are not usually very big. They are not usually dangerous either.

What Types of Volcano Are There?

Shield Volcanoes like this one in Hawaii are common in this part of the world.

Shield Volcanoes

Shield volcanoes are bowl or shield-shaped in the middle. When they erupt, the lava is quite runny and it travels long distances down the side of the volcano before it cools down. This lava forms long, gentle slopes that look like a warrior's shield, which is how they got their name. These volcanoes do not often explode.

More Volcano Facts

What is the difference between magma and lava?
Magma is liquid rock inside a volcano. Lava is the name for liquid rock that has flowed out of a volcano. Lava takes a long time to cool down as it is not a good **heat conductor**. As a lava flow cools down, it gets slower and thicker.

Heat Conductor:
something which can transfer heat from one object to another.

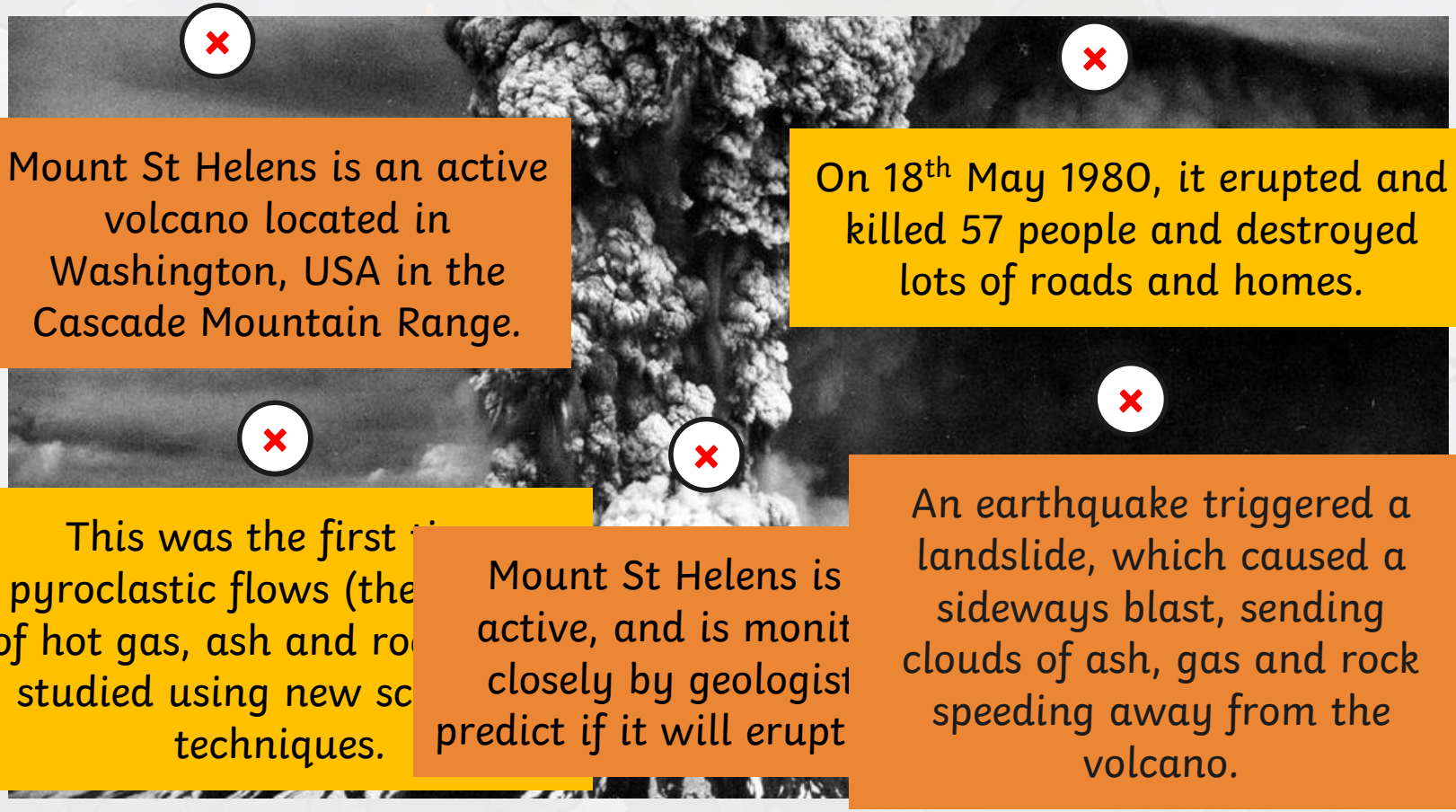
What is a 'pyroclastic flow'?
This is the most deadly of all volcano activities.
It is a liquidised mixture of solid and part-solid fragments and hot, expanding gases.
They look like a snow avalanche but are extremely hot and contain poisonous gases. They move at the speed of a hurricane.

What Is the Largest Active Volcano?

The largest, active volcano in the world is Mauna Loa in Hawaii. It is 13,677 feet above sea level. From its base below sea level to its summit, Mauna Loa is taller than Mount Everest.

Volcanoes of the World

Mount St Helens



Mount St Helens is an active volcano located in Washington, USA in the Cascade Mountain Range.

On 18th May 1980, it erupted and killed 57 people and destroyed lots of roads and homes.

This was the first ti
pyroclastic flows (the
of hot gas, ash and ro
studied using new sc
techniques.

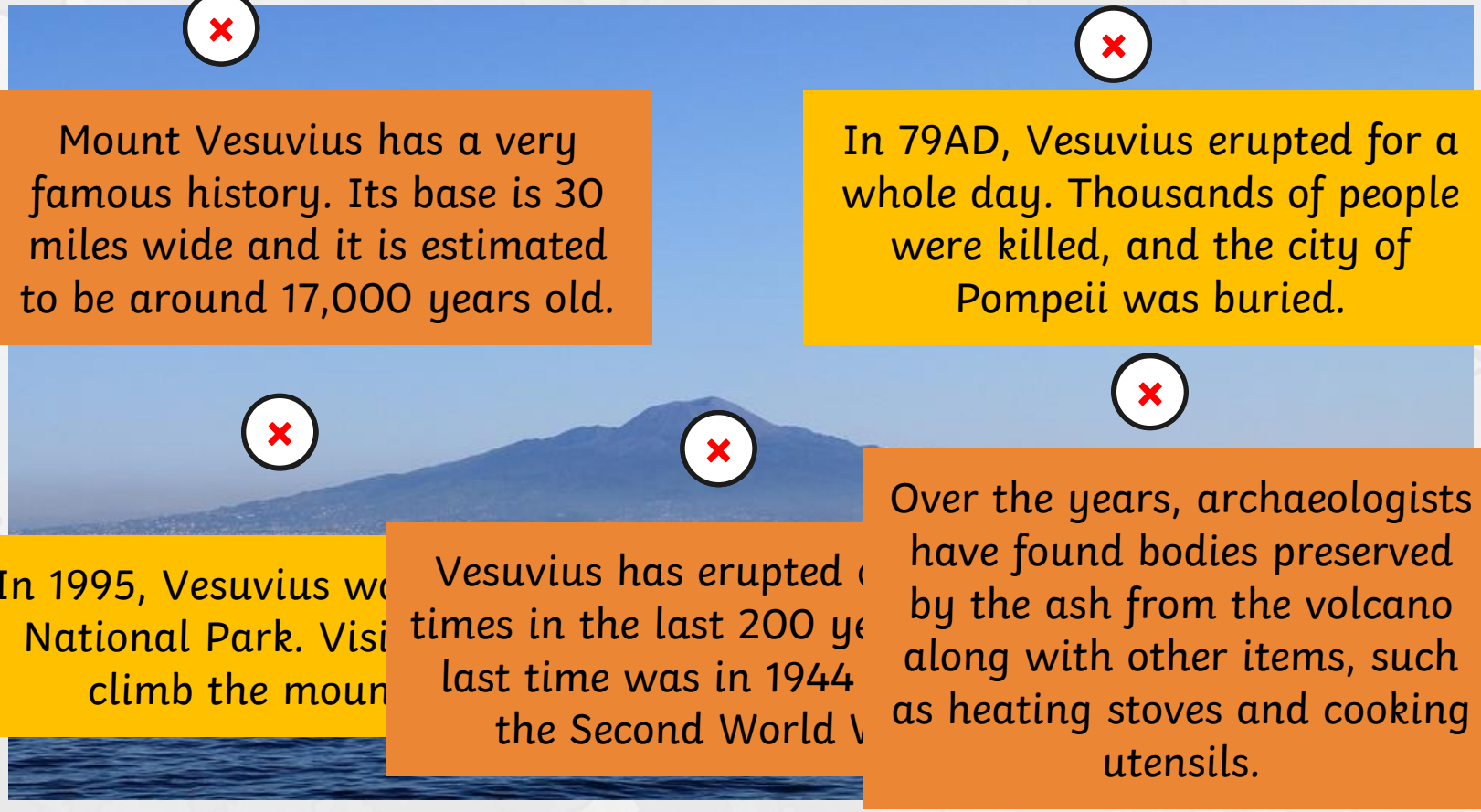
Mount St Helens is
active, and is monit
closely by geologist
predict if it will erupt

An earthquake triggered a landslide, which caused a sideways blast, sending clouds of ash, gas and rock speeding away from the volcano.

Click on the numbers to reveal the facts.

Volcanoes of the World

Mount Vesuvius, Naples, Italy



Mount Vesuvius has a very famous history. Its base is 30 miles wide and it is estimated to be around 17,000 years old.

In 79AD, Vesuvius erupted for a whole day. Thousands of people were killed, and the city of Pompeii was buried.

In 1995, Vesuvius w
National Park. Visi
climb the moun

Vesuvius has erupted
times in the last 200 y
last time was in 1944
the Second World

Over the years, archaeologists have found bodies preserved by the ash from the volcano along with other items, such as heating stoves and cooking utensils.

Click on the numbers to reveal the facts.

Volcanoes of the World

Mount Fuji, Japan

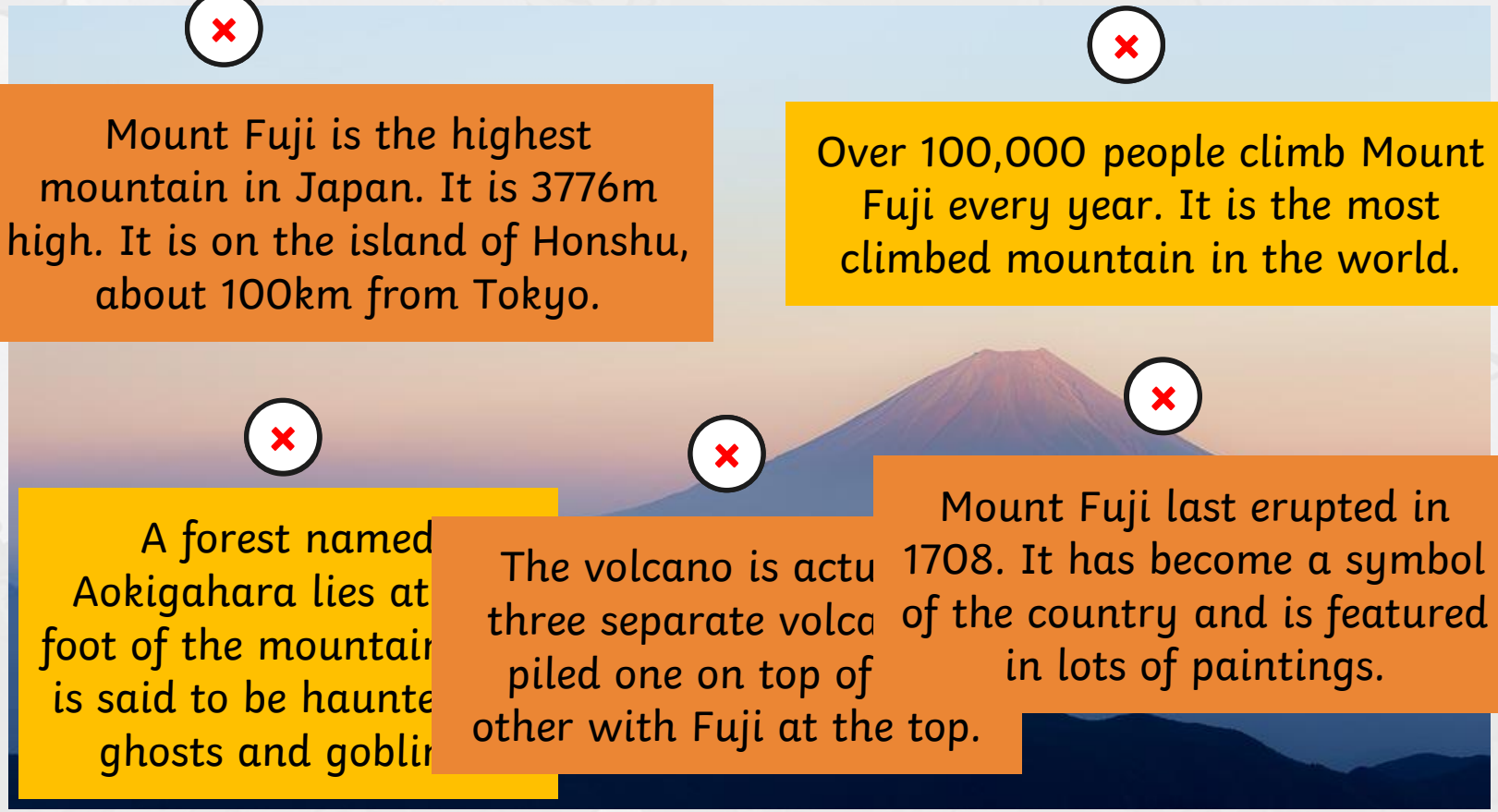
Mount Fuji is the highest mountain in Japan. It is 3776m high. It is on the island of Honshu, about 100km from Tokyo.

Over 100,000 people climb Mount Fuji every year. It is the most climbed mountain in the world.

A forest named Aokigahara lies at foot of the mountai is said to be haunte ghosts and goblir

The volcano is actu three separate volca piled one on top of other with Fuji at the top.

Mount Fuji last erupted in 1708. It has become a symbol of the country and is featured in lots of paintings.



Click on the numbers to reveal the facts.

Volcanoes of the World

Popocatépetl, Mexico

Until it erupted in 1994, Popocatépetl was dormant for 50 years.

It is nicknamed 'El Popo'. It has erupted several times since 1994.

Flights over Mexico have been cancelled several times due to ash and steam being produced by the volcano.

It is considered one of the world's most dangerous volcanoes. It last erupted in January 2020.

Click on the numbers to reveal the facts.

Are There Volcanoes on Other Planets?

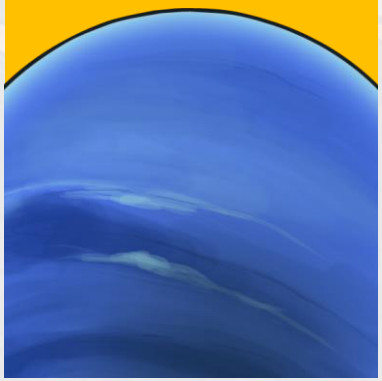
Earth is not the only planet to have volcanoes, although most of the volcanoes on other planets are now extinct.

Mercury used to have volcanoes but when the planet's interior cooled down, the volcanoes died.

Mars has the largest known volcano called Olympus Mons. It is no longer active and will probably never erupt again.

Io is one of Jupiter's moons and has several active volcanoes.

Triton is Neptune's largest moon. Instead of lava, the volcanoes on Triton actually release ice.



Glossary

Forged: to have made or shaped a metal object using a fire or furnace.

Molten: something made in to a liquid by heat.

Magma: hot fluid or semi-fluid below the earth's crust.

Friction: the resistance created when one surface rubs against another.

Heat conductor: something which can transfer heat from one object to another.

Archaeologist: someone who studies history using evidence from fossils and artefacts.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