

# The Power of the Planet

## Concepts:

Strength, beauty and resilience.

## Key Question:

How does the natural and man-made landscape impact our lives?

## What is a Natural Hazard?

- ⇒ Natural hazards pose major risks to people and property
- ⇒ Natural hazards are natural processes which cause damage, injury and death
- ⇒ Geological hazards are tectonic processes

## What is a volcano?

A volcano is a mountain that opens downward to a pool of molten rock below the surface of the earth. When pressure builds up, eruptions occur. Gases and rock shoot up through the opening and spill over or fill the air with lava fragments.

## Did you know?

The word **volcano** comes from the name of the Roman god of fire, **Vulcan**.

## What is a flood?

A flood is an overflow of water that 'submerges' land.

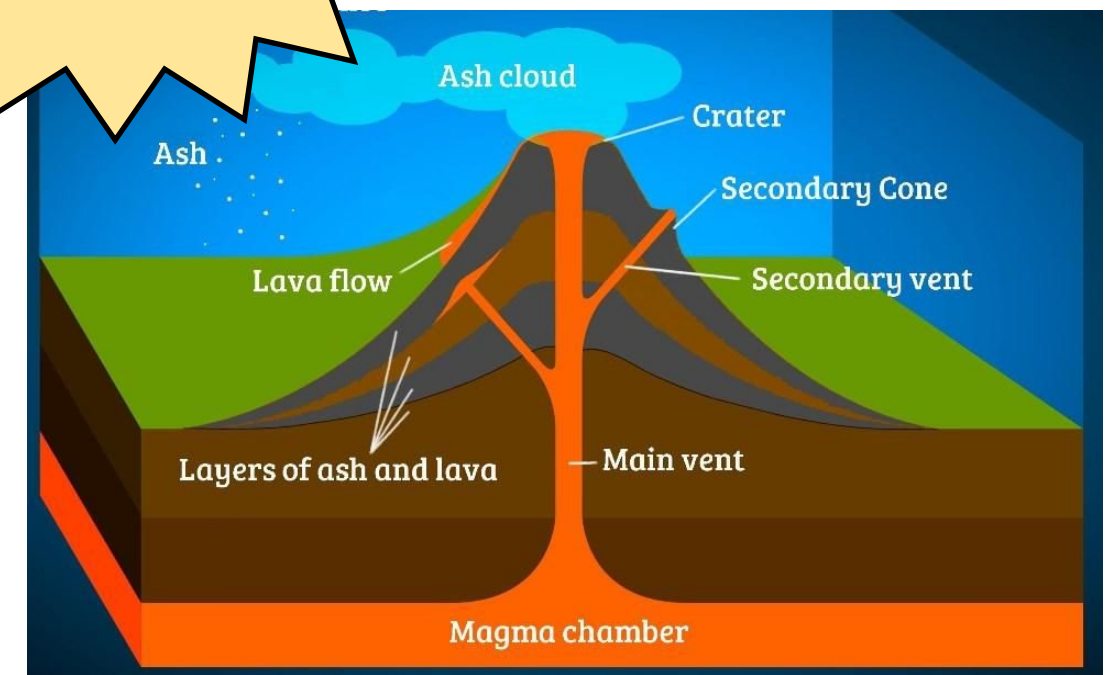
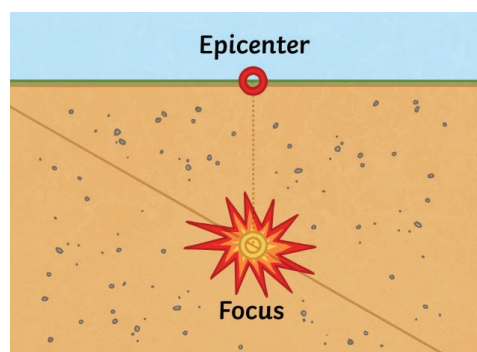
The EU Floods Directive defines a flood as a temporary covering of the land with water, this is land which is usually not covered by water.

## What is an earthquake?

When the tectonic plates slide past each other they send out shock waves from the focus. The epicentre is directly above the focus on the earth's surface.

An earthquake is the result of a sudden release of energy in the Earth's crust that creates seismic waves. At the Earth's surface, earthquakes manifest themselves by vibration, shaking, and sometimes displacement of the ground.

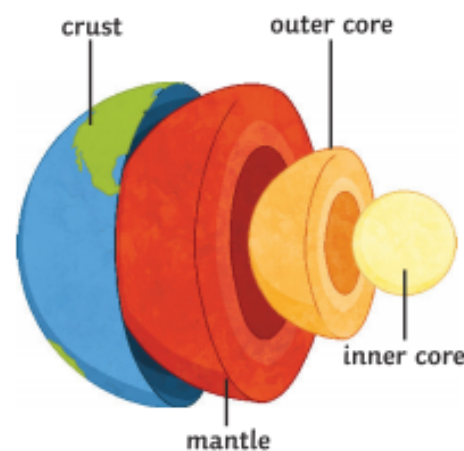
The strength of an earthquake is called its magnitude.





## Earthquakes and Volcanic Eruptions

- The crust is divided into tectonic plates.
- They move because of convection currents in the mantle.
- The plates meet at plate boundaries.



There are different types of plate boundaries:

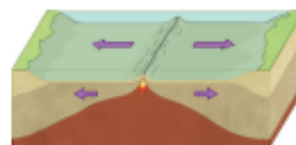
### Destructive Margins

Where two plates move towards each other; the oceanic plate will be destroyed as it is forced beneath the continental plate, creating volcanoes and ocean trenches.



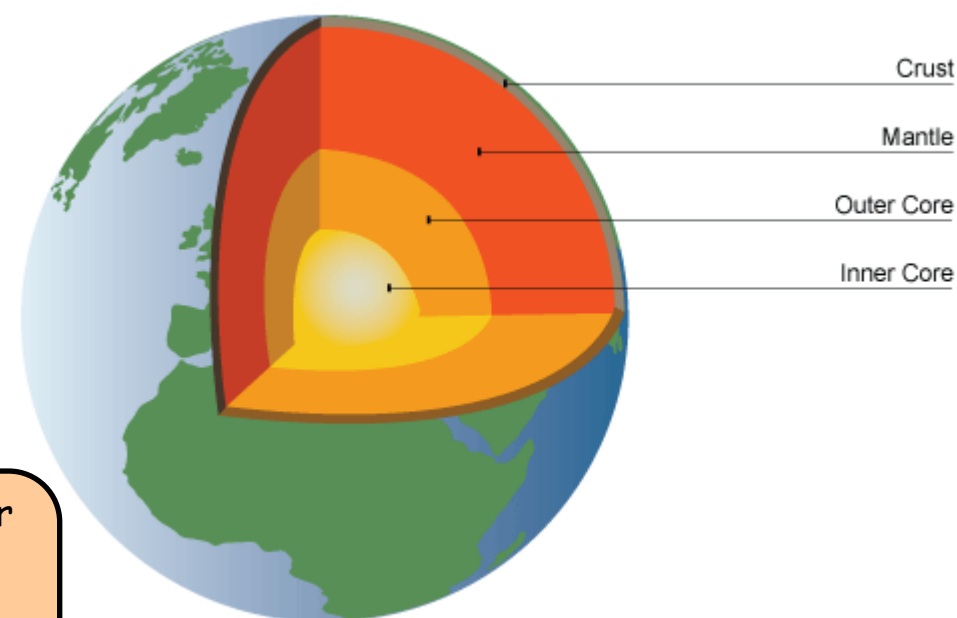
### Constructive Margins

Where two plates move away from each other. Magma will create new crust.



### Conservative Margins

Where two plates slide along each other. No crust is created or destroyed. This can cause earthquakes.



Italy is exposed to a number of major natural risks. In the period 1944-2012, **earthquakes**, landslides and floods have resulted in huge losses with an economic cost (widely underestimated) of 3.5 billion Euros per year.

### What are the different stages of volcanoes?

Scientists have categorised volcanoes into three main categories: active, dormant, and extinct. An **active** volcano is one which has recently erupted and there is a possibility that it may erupt soon.

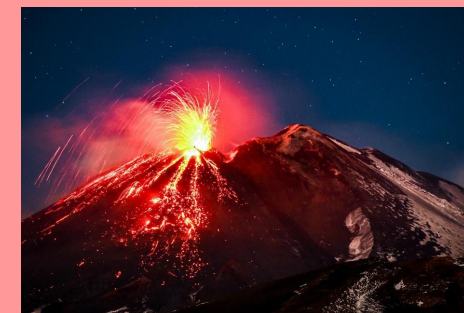
A **dormant** volcano is one which has not erupted in a long time but there is a possibility it can erupt in the future. An **extinct** volcano is one which has erupted thousands of years ago and there's no possibility of eruption.



## Italy's Volcanoes

### Mount Etna

- Mount Etna is located on the east coast of the Italian island of Sicily between the cities of Messina and Catania.
- This volcano is almost continuously active; in fact, it is one of the most active volcanoes in the entire world.
- Mount Etna is the largest volcano in Europe.
- Mount Etna's most severe recent eruption was on March 16, 2017, when ten people including a BBC news crew were injured. A further eruption in August 2018 sent plumes of ash and lava spewing in the air but no evacuations or injuries were reported.



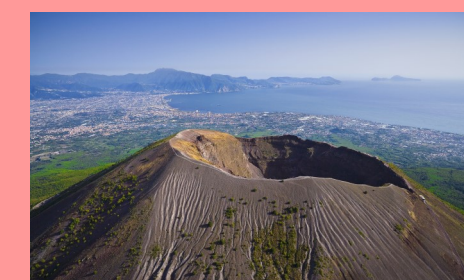
### Stromboli

- Stromboli is one of the Aeolian Islands in the Tyrrhenian Sea north of Sicily. The whole island is basically the volcano. This volcano has been almost continuously active for the past 2000 years.
- Stromboli has been given the nickname "Lighthouse of the Mediterranean" due to its eruptions making it visible from far out at sea.



### Mount Vesuvius

- This volcano is located on the Bay of Naples just east of Naples, Italy.
- This volcano is famous for its eruption in 79 AD which buried the Roman cities of Herculaneum and Pompeii and killed over 1,000 people.
- This is the only active volcano on mainland Europe; however, it is not in a constant state of eruption.
- Mount Vesuvius' last significant eruption occurred in 1944.



### Italy's Dormant Volcanoes

Italy has several volcanoes that are classified as dormant but have erupted within the last few hundred years.

The most dangerous of these is considered to be Campi Flegrei, near Naples. Many scientists are concerned that this massive volcano could erupt soon and, due to the dense population of where it is located, put thousands of people's lives in jeopardy.

- Larderello - last erupted in 1282 AD
- Ischia - last erupted in 1302 AD
- Campi Flegrei - last erupted in 1528 AD
- Vulcano - last erupted ended in 1890 AD