Key Stage 2 Geography | **Title of Topic : Extreme Earth** | **Term: Spring 2**

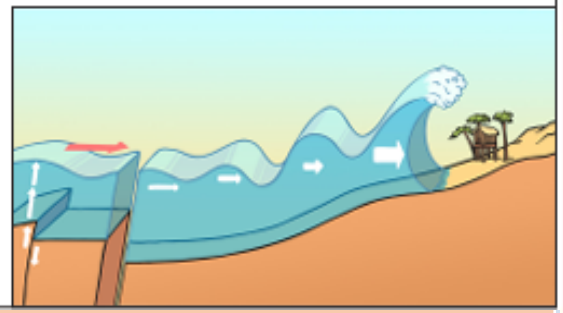
Key Learning

Volcanocs

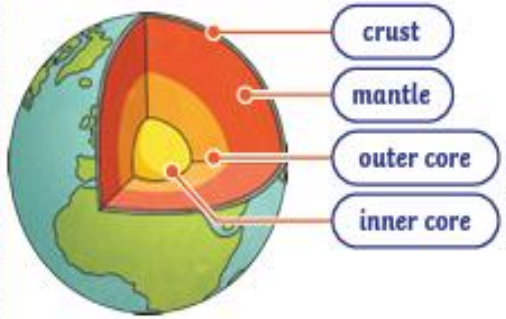
- Volcanoes are made when pressure builds up inside the earth. This affects the earth's crust causing magma to sometimes erupt through it.
- Active volcanoes have erupted in the last 10 000 years.
- Dormant volcanoes haven't erupted in the last 10 000 years but may erupt again.
- Extinct volcanoes aren't expected to erupt again.

Tsunamis

- A tsunami is a giant wave caused by a huge earthquake under the ocean.
- The earthquake causes a large amount of water to be displaced very quickly causing a series of waves.
- As the waves travel through shallower water near land, they get bigger and bigger. The wave crashes onto the land causing devastation to buildings and sometimes even lives.



The Earth's Structure



Tectonic Plates

The Earth's crust is made up of different rocky sections called tectonic plates, which fit together like a puzzle covering the Earth. Most tectonic activity occurs along the plate boundaries (convergent, divergent and transform). Some **volcanoes** form over hotspots in the **mantle**, e.g. Hawaii.

Tornadocs

- A tornado is a swirling funnel of air that forms when warm air rises from near the ground into big cumulonimbus clouds.
- There can be thunder and lightning at the same time.
- You can see tornadoes due to the dust and water droplets caught in the clouds.
- Storm chasers are film-makers and scientists who head towards the storms. They film the tornadoes and collect data about them.
- Most tornadoes happen in Tornado Alley in America – more than 500 each year.
- Tornadoes can happen in the UK but only around 30 per year.

Earthquakes

- Earthquakes are caused when the earth's tectonic plates suddenly move.
- Most earthquakes occur near the tectonic plate boundaries.
- Earthquakes can cause lots of damage to roads, buildings and property.

Vocabulary

crust - the rocky outer layer of the Earth.

earthquake - intense shaking of the Earth's surface caused by movements happening beneath the **crust**.

epicentre - the central point where an **earthquake** begins.

eruption - when a **volcano** throws out **lava**, ash, gases and rock from the central crater.

inner core - the very hot centre of the Earth. It is solid due to the high pressure.

lava - hot, liquified rock that flows from the opening of a **volcano**.

magma - molten or hot, liquified rock that is located deep under the Earth's surface.

magnitude - the number given to show the size of an **earthquake** (how powerful it is).

mantle - the thickest layer of the Earth, split into the lower and upper **mantle**. It is a semi solid layer below the **crust**.

modified Mercalli Scale - a 12-point scale to measure the intensity of an **earthquake**.

outer core - a liquid layer of the Earth's core, which lies below the **mantle**.

Moment Magnitude Scale - this scale measures the **magnitude** of an **earthquake** (how powerful it is).

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	Key Learning:
1	**What is underground?** Soil is the very top layer of the Earth. It is made of organic matter (living and also decaying plants and animals), water, air and pieces of rock. Very finely broken down pieces of rock also provide minerals in soil. Soil is formed in layers over many years (have a look at page 11 of the Rock and Soils fact sheets). There are three main layers: top soil, sub soil and then base rock. Starting at the center, Earth is composed of four distinct layers. They are, from deepest to shallowest, the inner core, the outer core, the mantle and the crust.
2	**How are volcanos formed?** Volcanoes are formed when magma, which is located at the centre of the Earth, pushes its way upwards through the Earth through a long shaft. When the magma travels through the Earth's crust, it emerges as lava. Once this lava has erupted onto the Earth's surface, it cools and hardens into a pile of rock.
3	**How do volcanos affect peoples lives?** Volcanoes are dangerous. They can kill people and damage property. Economic activity can suffer as it is hard for businesses to operate after an eruption. Habitats and landscapes are damaged by lava. However, **Ash** ejected by the volcano acts as a good fertiliser for soil. Also, volcanoes attract many tourists, who enjoy the dramatic scenery that they produce.
4	**What causes earthquakes? How are they measured?** Most earthquakes happen where these plates meet. Some of these plates slide past each other, causing friction to build up. While some move towards each other, causing a build up of pressure. When these forces - friction or pressure - are released, they produce a violent jolt that shakes the land: an earthquake. Geologists record the magnitude of earthquakes using instruments called seismometers. Seismometers measure the shaking from seismic waves and plot these as a seismogram.
5	**What causes tsunamis?** Most tsunamis are caused by earthquakes at destructive plate boundaries. This movement causes friction, which in turn causes the plates to stick. Energy accumulates, like that of a compressed spring. When the energy exceeds the friction, the plates snap back into position. This movement thrusts the water above causing a wave to form. The waves can travel large distances.
6	**What causes Tornadoes?** Tornadoes are among the most violent storms on Earth, with the potential to cause very serious damage. As the ground temperature increases, moist air heats and starts to rise. When the warm, moist air meets cold dry air, it explodes upwards, puncturing the layer above.