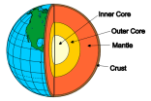
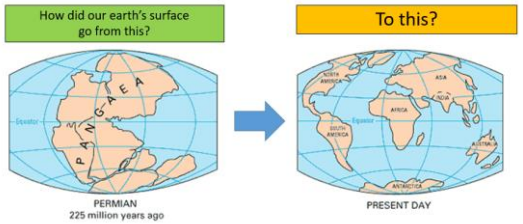
Beckfoot

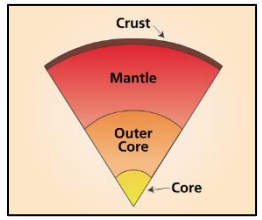
Subject: Geography	Topic: Volcanoes	Year Group: 8

enjoy learn succeed

A. Structure of the Earth and Plate Tectonics

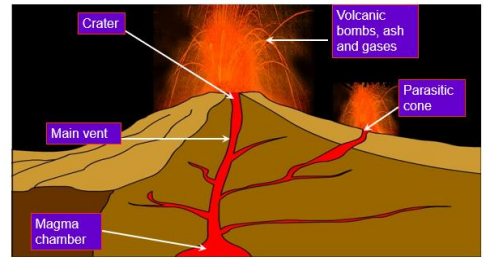
1	**Structure of the earth** 	**Crust** – The outer layer of the Earth. It is a very thin layer (think of an apple skin on an apple) and ranges between a thickness of 6 and 70 km. Broken in pieces called plates. **Mantle** – Due to the high temperatures of this thick layer, the mantle has the consistency of jam! Temperatures within the mantle range from 5000ºC near the core to 1300ºC just below the crust. **Outer Core** – This layer is liquid and made up largely of iron. **Inner Core** - This layer is solid and is also made of iron. Temperatures within this dense core can be 5500ºC.
2	**Theory of Plate Tectonics**	Scientists believe that 220 million years ago, today's **continents** may have all been joined together as one **supercontinent** called **Pangaea**. They looked at maps and saw the **continents** looked like they fit together like a **puzzle**. They also found that there are similar rock types, deserts and fossils in the places where the **continents** look like they would join.
3	**Convection currents**	Convection currents move through the mantle due to heat from the earth's core. As they move they cause the plates on the earth's crust to move. This movement is responsible for hazards like earthquakes and volcanoes.



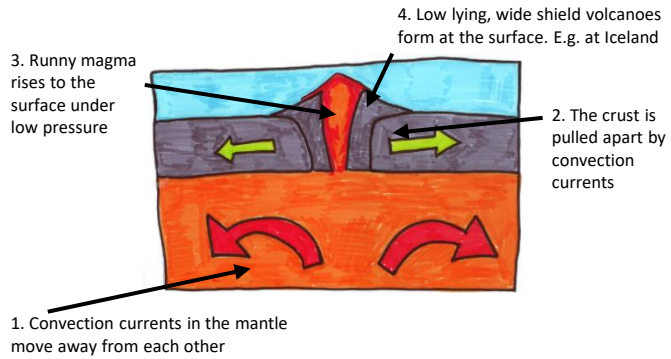


B. Volcanoes

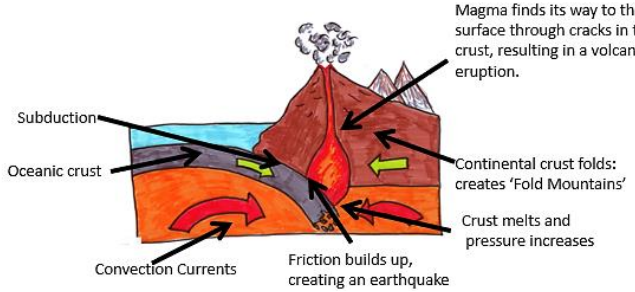
1 Main features



2 Formation at a constructive boundary: Shield Volcano



3 Formation at a destructive boundary: Composite Cone



C. Types of Volcano

1	**Composite Cone**	Composite volcanoes are found on Destructive plate edges Here the magma builds up in the magma chamber with lots of pressure under the earth's crust The high pressure makes the lava thick so it doesn't run far making the volcano have very steep.
2	**Shield Volcano**	Shield volcanoes are found on constructive plate edges Here the magma rises up to the surface when the plates move apart so therefore there is little pressure on the magma The low pressure makes the lava runny so it runs a long way making the volcano have flat sides.

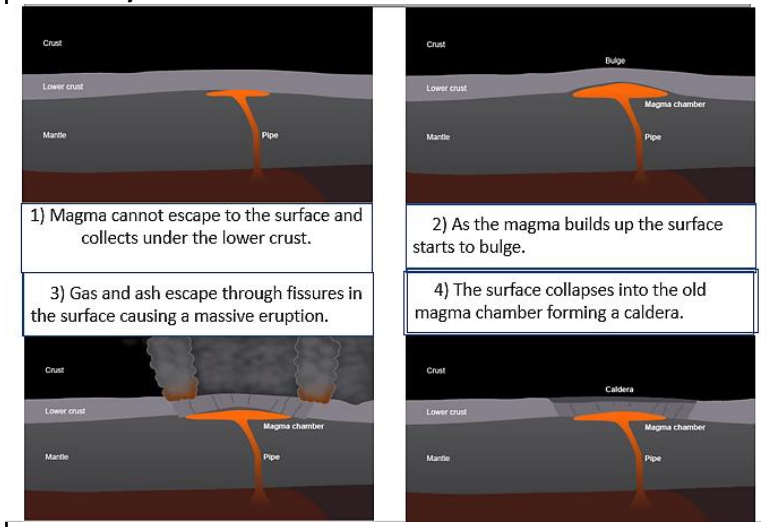
D: Iceland: Eyjafjallajökull

1	**Location**	On the Mid-Atlantic Ridge, a constructive plate boundary.
2	**Impacts of the eruption**	

	Primary effects	Secondary effects
Local	The 150m thick ice cap above the volcano melted. Homes and roads were damaged, including 20 farms. Crops were damaged by the heavy ash falls. Local water supplies were contaminated with fluoride from the ash.	The melted ice caused major flooding. Around 700 people were evacuated because of this. Parts of Route 1 (the main road in southern Iceland) were damaged by the flood waters.
National	Agricultural production affected as crops were covered by a thick layer of ash.	Drop in tourist numbers which affected Iceland's economy and people's jobs and incomes. Road travel was disrupted due to road damage and closures.
International	Flights were cancelled across Europe and North America due to the ash in the atmosphere, around 100000 flights over an eight day period.	10 million air passengers had their travel disrupted. It is estimated the airlines lost over $2 billion in total. Freight transport was disrupted, food and flowers produced in Kenya could not be flown to European supermarkets before they perished. Sporting events including the Japanese Motorcycle grand prix and the Boston Marathon were affected as people couldn't travel.

Subject: Geography	Topic:Volcanoes	Year Group: 8

E: Why live near a volcano?		
1	**Farming**	Volcanic soil is extremely nutrient rich and is perfect soil for growing crops, this attracts people to live here for the rich soil which can be used to grow food and provide employment. **Example:** Wine is produced from grapes grown on the fertile slopes of Mt Etna, Italy.
2	**Geothermal energy**	Volcanic activity close to the surface of the crust can provide heat for Geothermal energy that can produce electricity. This is also a renewable energy source and will not run out. **Example:** Geothermal energy provides 30% of all of Iceland's electricity.
3	**Mining**	Many minerals can be found in volcanic areas. Sulphur produced by volcanoes is valuable mineral used for making matches, in medicine and fertiliser. Mining provide employment for local people, however the mining of this is very dangerous and can impact the environment. **Example** – Sulphur mining in Ijen Volcano, Java, Indonesia.
4	**Tourism**	Visiting a volcano is a very popular attraction for tourists, more than a million people visit volcanoes each year. This provides employment opportunities for local people. **Example:** 4.5 million people visited Yellowstone USA in 2018.

F_ Super volcanoes:		
1	**Facts**	They are much bigger than volcanoes They emit AT LEAST 1,000Km3 of material Mount Saint Helens emits 1KM3 They do not have a cone like a volcano They are actually a large depression called a CALDERAS They have a higher rim of land around the edges
2	**How they form:**	
3	**Case Study: Yellow Stone, USA**	Yellowstone is one example of a super-volcano. Three huge eruptions have happened in the last 3 million years. The last eruption was 630,000 years ago, and was 1,000 times bigger than the Mount St Helens eruption in 1980. The large volume of material from the last Yellowstone eruption caused the ground to collapse, creating a depression called a *caldera*. The caldera is 55 km by 80 km wide. The next eruption is predicted to have catastrophic worldwide effects.

minutes'

(1) Constructive plate margin - Tectonic plate margin where rising magma adds new material to plates that are diverging or moving apart	**(7) Volcanic vent** - an opening exposed on the earth's surface where volcanic material is emitted. All volcanoes contain a central vent underlying the summit crater of the volcano
(2) Destructive plate margin - Tectonic plate margin where two plates are converging or coming together and oceanic plate is subducted. It can be associated with violent earthquakes and explosive volcanoes.	**(8) Magma chamber-** a reservoir of magma within the earth's crust beneath a volcano
(3) Tectonic plate - A rigid segment of the Earth's crust which can 'float' across the heavier, semi-molten rock below. Continental plates are less dense, but thicker than oceanic plates.	**(9) Primary effects** - The initial impact of a natural event on people and property, caused directly by it, for instance the ground buildings collapsing following an earthquake.
(4) Plate margin - The margin or boundary between two tectonic plates.	**(10) Secondary effects** - The after-effects that occur as indirect impacts of a natural event, sometimes on a longer timescale, for instance fires due to ruptured gas mains resulting from the ground shaking.
(5) Crater- A volcanic crater is a roughly circular depression in the ground caused by volcanic activity. It is typically a bowl-shaped feature within which occurs a vent or vents.	**(11) Prediction** - Attempts to forecast when and where a natural hazard will strike, based on current knowledge. This can be done to some extent for volcanic eruptions (and tropical storms), but less reliably for earthquakes.
(6) Volcanic vent - an opening exposed on the earth's surface where volcanic material is emitted. All volcanoes contain a central vent underlying the summit crater of the volcano.	**(12) Super volcano-** A large volcano having the potential to produce an eruption with major effects on the global climate and ecosystem.