

Name:

Class:

Year 7 Unit 4:



Why are some tectonic hazards more dangerous than others?

Unit Overview: Tectonic hazards
ENQUIRY: Why are some tectonic hazards more dangerous than others?
Unit intention:
Success criteria

✓

X

- I can explain in detail the composition of the Earth
- I can explain how Plate Tectonics has changed the surface of the Earth over millions of years
- I can compare different types of volcanoes
- I can explain what causes earthquakes and where they occur
- I can explain what causes a tsunami and where they occur
- I can give examples and evaluate hazard risk

Unit summative and formative assessment details:

Several EQs
End of unit assessment

Home Learning (What and how often):

Variety of consolidation sheets

Topic Sequence

- Structure of the Earth
- Plate tectonics
- Continental drift theory
- Rock cycle
- Types of plate boundary
- Volcanoes
- Earthquakes
- Tsunamis
- Case studies

Recommended reading/ watching

Dante's Peak
Volcano

Places to visit:

Science Museum

End of unit evaluation

Success criteria – Have you met them? Show your evidence in preparation for your assessment.

1.

2.

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5.

6.

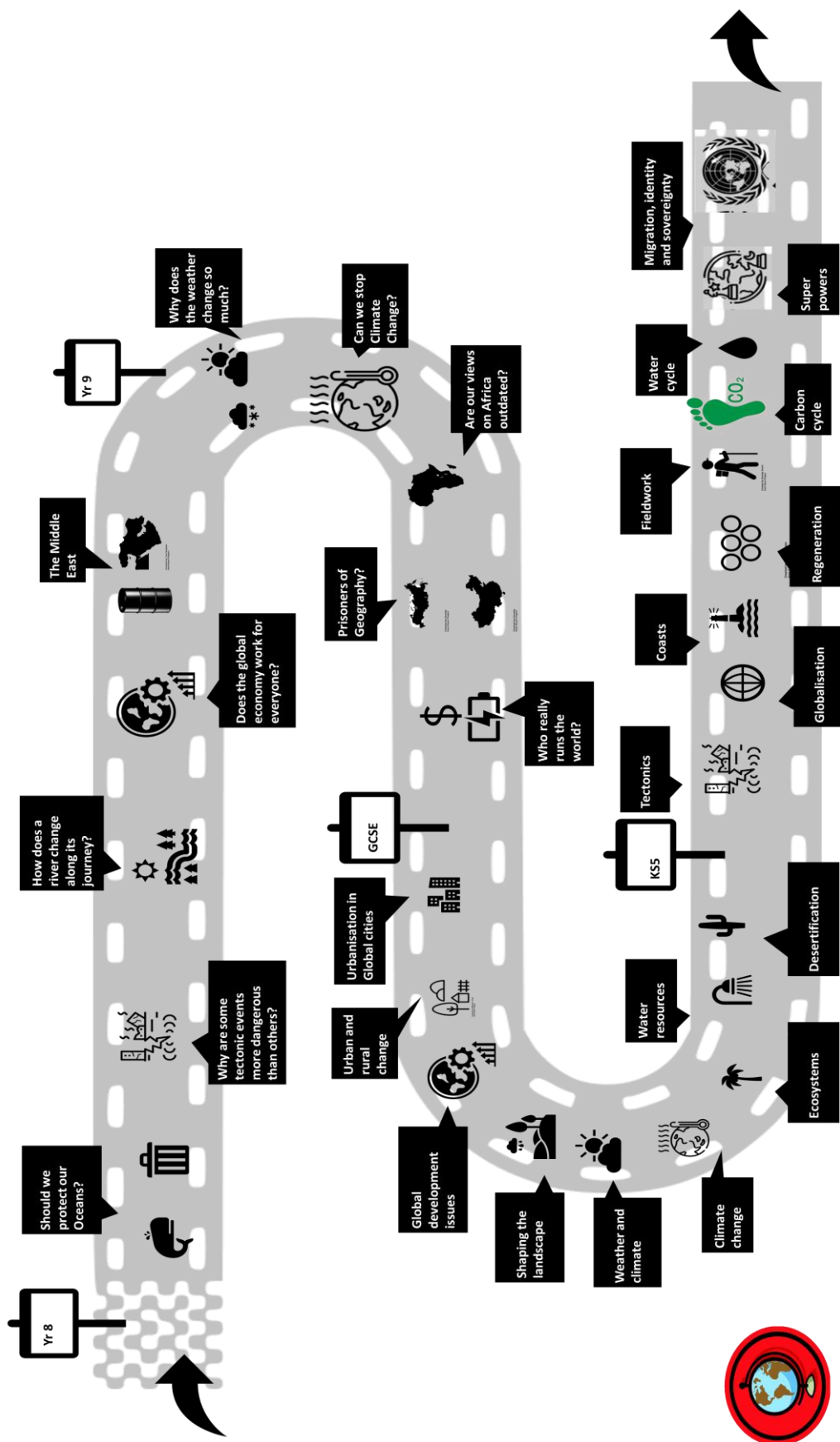
How will you improve your work?

Year 7 (Unit 4)					
Learning goal	Extending	Mastering	Learning	How assessed	HW Check
To understand the internal structure of the Earth.	I can explain the different types of crust within the context of Earth's structure	I can explain in detail the composition of the Earth	I can describe the 4 layers of the Earth	2 x EQs	Design a vehicle for the centre of the Earth
To understand how Plate Tectonics shapes the continents and oceans.	I can explain how Plate Tectonics has changed the surface of the Earth over millions of years	I can explain what drives Plate Tectonics	I can describe what the theory of Plate Tectonics is	Wegener essay	Seneca review
To understand the different plate boundaries that occur on our planet.	I can explain the different landforms created at different plate boundaries	I can explain what happens at different plate boundaries	I can describe the types of rock	EQ - Distribution	Giant's causeway
To understand why volcanoes can be so destructive	I can explain the different types of volcanoes and their global distribution	I can compare different types of volcanoes	I can describe why volcanoes occur	EQ – Impacts of Volcanoes	Google form quiz
To understand what causes Earthquakes	I can explain where earthquakes occur and how to measure them	I can explain what causes earthquakes and where they occur	I can describe what an earthquake is	EQ – Impacts of earthquakes	Richter scale
To understand what causes a tsunami and why they are so dangerous	I can explain why Japan has tsunamis and categorise the effects	I can explain what causes a tsunami and where they occur	I can describe what a tsunami is	EQ – Impacts of tsunamis	Research – Why is Haiti so poor?
To understand why some tectonic events are more dangerous than others	I can give examples and evaluate hazard risk	I can fully explain these reasons for living in areas of tectonic hazard	I can describe why people may still live in areas of tectonic hazards	Essay - Why are some tectonic events more dangerous than others?	Revise

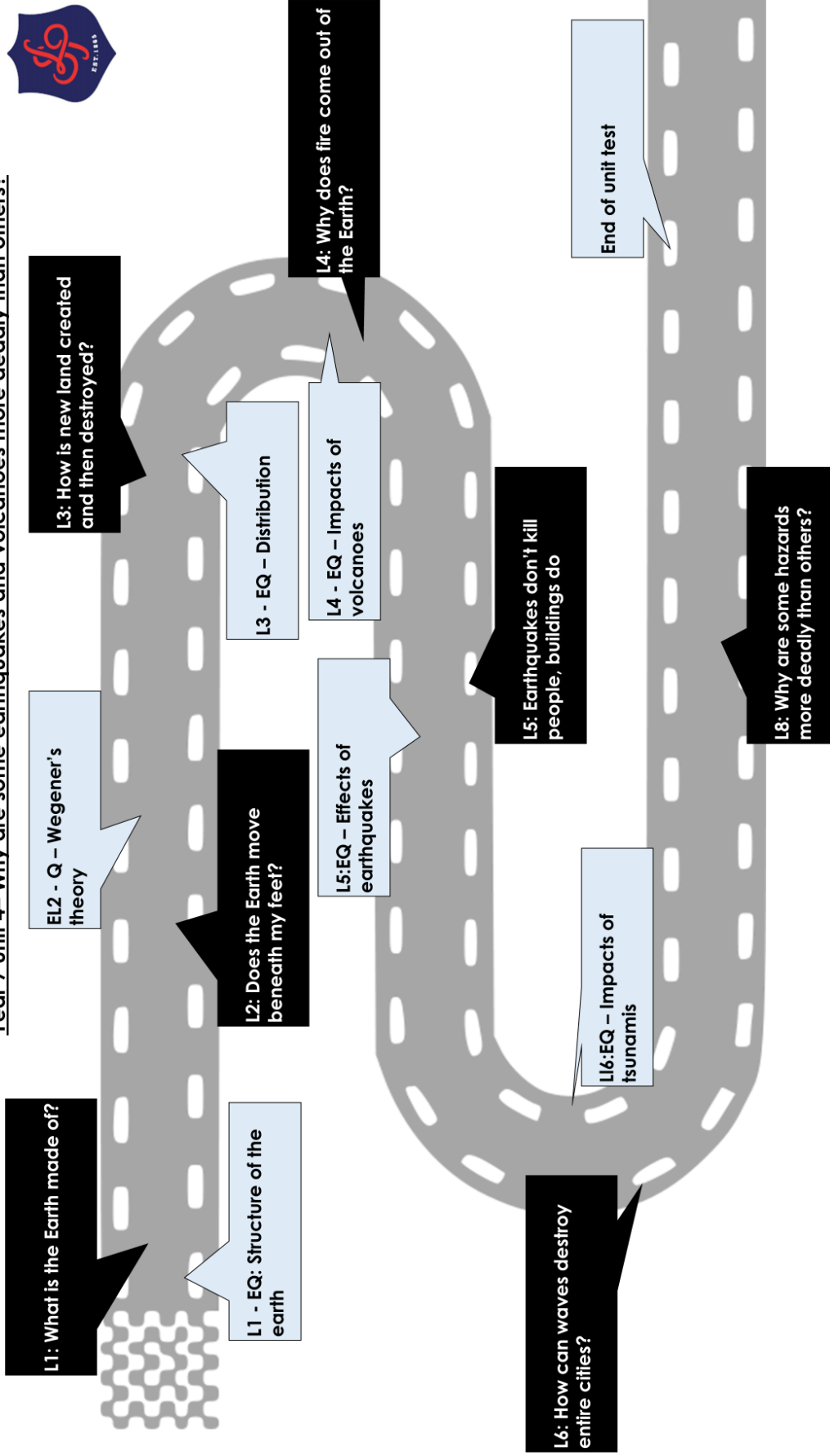
Glossary

Key word	Definition
Convergent boundary	
Composite cone	
Continental crust	
Divergent boundary	
Epicentre	
Subduction	
Focus	
Lithosphere	
Tectonic plate	
Inner core	
Outer core	
Mantle	
Magma	
Slab pull	
Ridge push	
Mid-oceanic ridge	
Moment magnitude scale	
Mercalli scale	
Mudflows/ lahars	
Continental drift	
Pyroclastic flow	
Shield volcano	
Volcanic hot spot	
Sedimentary rock	
Igneous rock	
Metamorphic rock	

Geography at Langdon Park School September 2020-July 2022



Year 7 unit 4– Why are some earthquakes and volcanoes more deadly than others?



Big Picture

Lesson 1: What is the Earth made of?

L/M/E		I think I can ...	My teacher thinks I can ...
Learning	I can describe the 4 layers of the Earth		
Mastering	I can explain in detail the composition of the Earth		
Extending	I can explain the different types of crust within the context of Earth's structure		

Do it now: Which of these does the earth have the most in common with?



Point	The Earth is like _____
Evidence	For example, _____
Explain	This means that _____

Starter: Key words

Tectonic
The crust
Mantle
Core

the outer layer of the earth consisting of solidified rocky plates.
the centre of the earth is very hot and made of iron
the geological study of the earths structure.
the layer of molten rock which the crust floats on top of.

Video notes:

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What is the geological time scale?

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How do we know the Earth's age?

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How old is the Earth?

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Era	Time Periods	Life/Climate/Vegetation (Plants)?
Precambrian (from ____to ____)		
Palaeozoic Era (from ____to ____)		
Mesozoic Era (from ____to ____)		
Cenozoic Era (from ____to ____)		

What is the difference between Oceanic and continental crust? (3)

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Which is Continental and which is Oceanic?

Colour code the table to show the correct properties for each

Older – most over 1500 million years old	Cannot sink
Newer – less than 200 million years old	Denser
Thinner	Cannot be renewed or destroyed
Thicker	Can sink
Can be renewed and destroyed	Less dense

Continental	
Oceanic	

Layer	Made of?	Solid or liquid	How thick?
Crust			
Mantle			
Core Inner Outer			

The structure of the Earth

Draw and colour in:

Key:

- The inner core
- The outer core
- The mantle
- The crust

Using your key, colour in the boxes below to show which part of the structure they are referring to.

Very thin

Behaves like a solid, but does flow

Magnetic

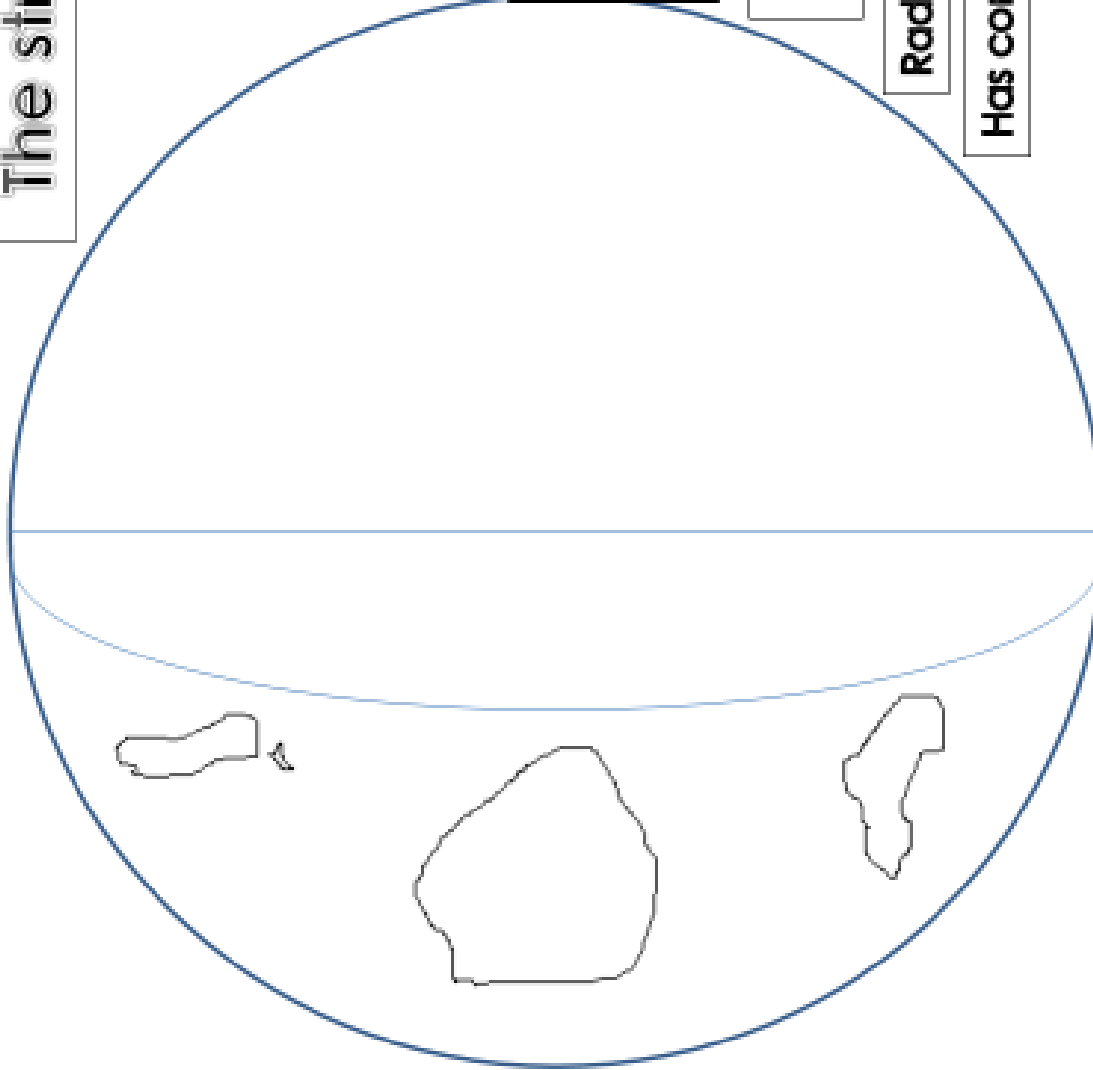
Liquid

Radius of 3500km

Very thin

Has convection currents

Has convection currents



Superstar Challenge: List three other things that area found in the crust.

The Earth is made up of several layers. The outer layer is one of the Earth's spheres; it is called the _____. This layer has a thin layer of rock on top; it is called the _____. This layer is 5-30 km thick. The next layer is much thicker; it is called the _____. It is made of solid rock called _____. Where the earth's outer layer is thin, this rock can explode onto the surface as _____ forming _____. The next layer is called the _____ here material is in a liquid state. The layer at the centre of the earth is called the _____. This is the _____ part of the Earth.

Key words:

Mantle	hottest	lithosphere	Outer core	crust
magma	lava	inner core	volcanoes	

Describe the internal structure of the Earth (8 marks)

Put the sentence fragments into the correct order to complete the exam answer to this 8 mark GCSE question on the structure of the Earth.

1	The Earth's structure consists of 4 concentric layers.
	of 1200km.
	...is the outer core which is liquid and 2200km in thickness. It has temperatures ranging from...
	...of rock ranging from 6-70km in thickness.
	of up to 2900km.
	It is made up of 7 major tectonic plates and many smaller ones that move around across the Earth's surface...
	The outermost and coolest layer (0-870°C) of the Earth is the crust. This is a thin layer...
19	... (least dense) and is made up of elements such as silicon, oxygen, aluminium, magnesium, potassium and sodium.
2	At the centre of the Earth is the inner core. This is followed by the outer core, the mantle and the outermost layer is the crust.
	...(near the crust) temperatures are cooler at 1300°C. The upper part of the mantle is...
	The inner core is the central part of the Earth and it has a diameter...
	...4000 - 5000°C and like the inner core it is made up of iron and nickel rich rocks.
	Surrounding the outer core is the mantle which is made of silicon and oxygen. This is the thickest layer with a diameter...
	...semi-liquid molten rock whilst the lower mantle is solid rock.

	It is a layer of solid, dense rocks composed of iron and nickel. Temperatures in this layer are greater than 5000°C. The next layer...
	...due to the convection currents in the mantle.
	The mantle layer has convection currents in it which move the mantle material around in a circular action.
	In the lower mantle (close to the core) temperatures reach 4000°C whilst in the upper mantle...
	Some of these tectonic plates are made of oceanic crust whilst others are made of continental crust. This layer is the lightest...

Time to reflect: Quiz time

The Earth's structure is similar to what food?	
The Earth's outer most layer is called the	
This layer is divided up into plates, of which there are two types which are called _ _ _ _ _ and _ _ _ _ _	
The Earth's mantle is the thickest layer of the Earth, is this true or false?	
The next layer within the Earth after the mantle is called the _ _ _	
The Earth's inner core exists in which physical state; solid, liquid or gas? Explain your answer!	

Stick your homework here

Big Picture

Lesson 2: Does the Earth move beneath my feet?

L/M/E		I think I can ...	My teacher thinks I can ...
Learning	I can describe what the theory of Plate Tectonics is		
Mastering	I can explain what drives Plate Tectonics		
Extending	I can explain how Plate Tectonics has changed the surface of the Earth over millions of years		

Do it now: Name the continents

A		E	
B		F	
C		G	
D			

Starter:

<p>1. When did the earth form?</p> <p>A. 500 million years ago</p> <p>B. 3.5 billion years ago</p> <p>C. 4.5 billion years ago</p>	<p>3. What is the largest layer of the earth?</p> <p>A. Outer core</p> <p>B. Mantle</p> <p>C. Crust</p>
<p>2. What are the TWO types of crust?</p> <p>A. Oceanic</p> <p>B. Continental</p> <p>C. Mountain</p> <p>D. Desert</p> <p>E. Land</p>	<p>4. Which layer of the earth is responsible for magnetism?</p>

Wegener's theory – notes:

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What does the model show?

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What supports the theory of continental drift?

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Which countries were connected together?

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Which types of fossils once existed in the same areas?

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Alfred Wegener Mystery

© icgeography.com

In 1912 Alfred Wegener presented an amazing theory of 'Continental Drift'. He had analysed rock types and fossils and he decided that millions of years ago all the Earth's land masses were in different places, and have moved to where they are now.

Task: Look at the land masses below. Can you identify what they are from their shape? Use an Atlas to help you and then label them. Now cut out each of them and try to re-arrange by matching the fossils just as Wegener did. You will need to cut out your fossils from the box below and using an Atlas stick them in the correct place. Then try to fit it all together like a jigsaw

Mesosaurus, found:

- South West coast of Africa – South Africa/ Nambibia
- East coast of South America – Argentina/ Uruguay



Cynognathus, found:

- West coast of Africa – Gabon/Congo
- East coast of Brazil around the tropic of Capricorn



Glossopteris, found:

- West coast of Africa – Nambibia/Angola
- East coast of Africa – Malawi
- South coast of Australia – West of Adelaide
- East coast South America between Tropic of Capricorn and Uruguay.
- South India - Kerala



Lystrosaurus, found:

- East African Coast – Somalia
- West Indian Coast – Mumbai
- East Coast of India from Calcutta to Vishakhapatnam



True or False

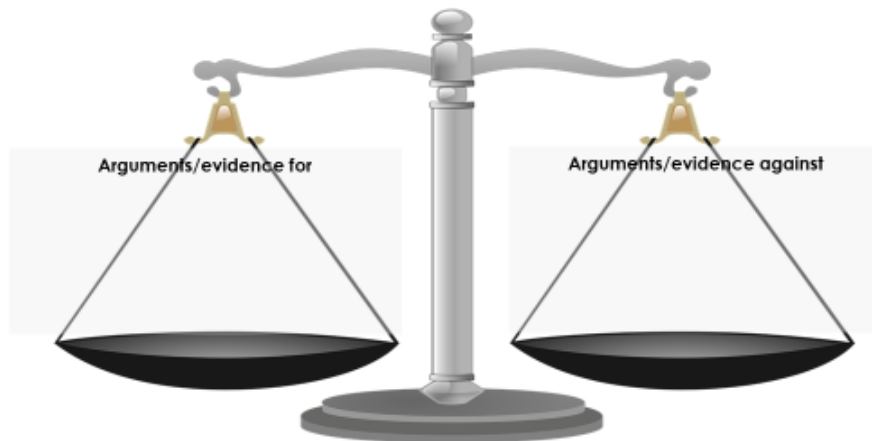
South America used to be connected with Australia

Antarctica used to be connected to Australia

Similar fossilised animals/plants have been found in South America and Africa

Similar fossilised animals/plants have been found in Australia and south America

'Wegener's theory of continental drift is correct.' Use the scales to assess this statement.



Superstar Challenge: Circle how the scales would tip now that you know the arguments for and against



Conclusion:
Do you agree or disagree? Why?

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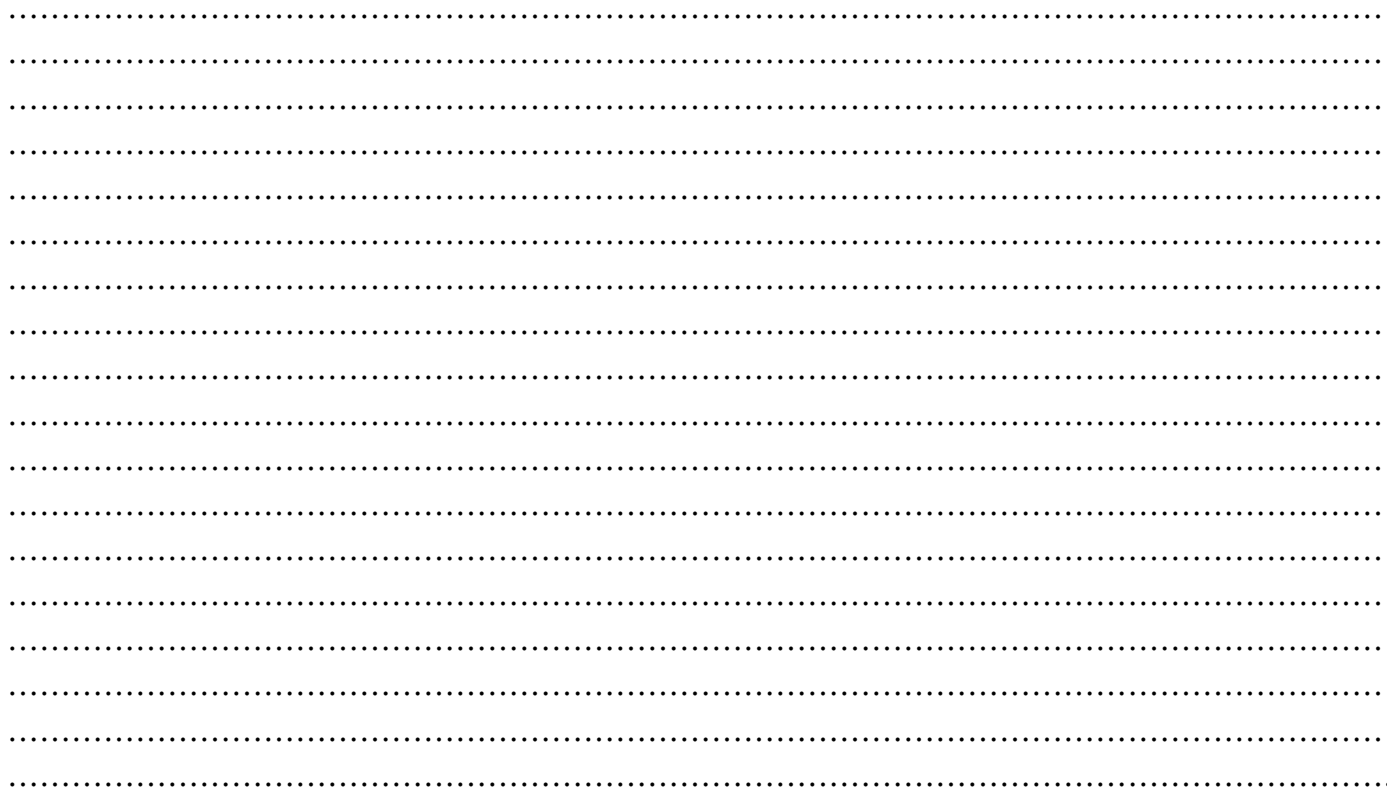
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Time to reflect:

Who proposed continental drift?

In what year was continental drift proposed?

What is biological evidence for continental drift?
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What is the rock evidence for continental drift?
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What was the climate evidence?
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Why was continental drift not accepted at first?
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What was the name of the proposed supercontinent?

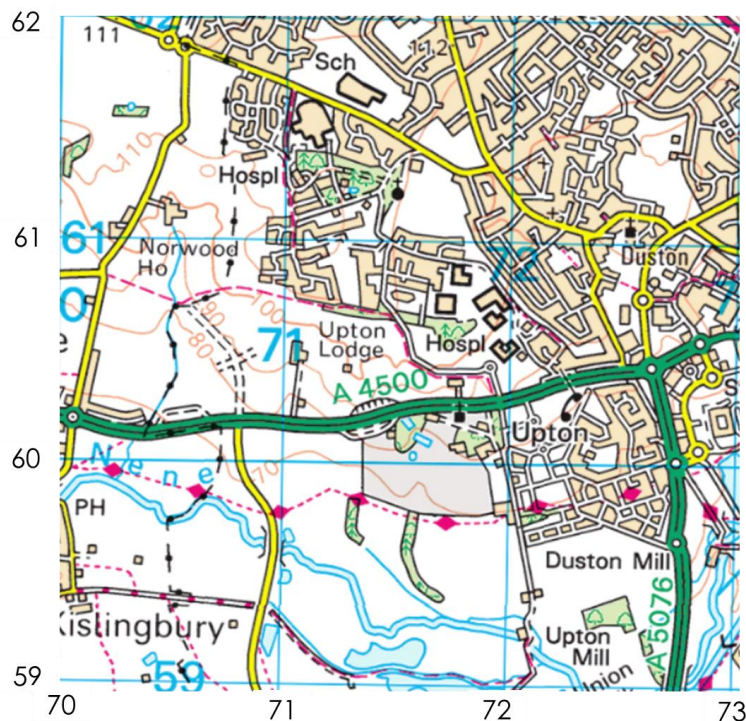
When did the supercontinent breakup?

Big Picture

Lesson 3: How is new land created and then destroyed?

L/M/E		I think I can ...	My teacher thinks I can ...
Learning	I can describe the types of rock		
Mastering	I can explain what happens at different plate boundaries		
Extending	I can explain the different landforms created at different plate boundaries		

Do it now: Grid reference review



What can be found at:

713 606

725 611

708 613

724 593

702 598

What is the 6 figure grid reference of:

The hospital east of Upton Lodge

The school

The telephone box

Starter:

Who proposed continental drift? a) Alfred Wegener b) Abraham Ortelius c) Isaac Newton	In what year was continental drift proposed? a) 1590 b) 1912 c) 1960
What is the biological evidence for continental drift? a) The same fossils on opposite sides of the Atlantic b) The same rocks on both sides of the Atlantic c) Different fossils on both sides of the Atlantic	Apart from biological evidence what other evidence is there?

Sedimentary	Metamorphic	Igneous
Three words to describe the rock are: <ul style="list-style-type: none"> • _____ • _____ • _____ 	Three words to describe the rock are: <ul style="list-style-type: none"> • _____ • _____ • _____ 	Three words to describe the rock are: <ul style="list-style-type: none"> • _____ • _____ • _____
Made when...	Made when...	Made when...
Two examples are... <ul style="list-style-type: none"> • _____ • _____ 	Two examples are... <ul style="list-style-type: none"> • _____ • _____ 	Two examples are... <ul style="list-style-type: none"> • _____ • _____

Write the story of the rock

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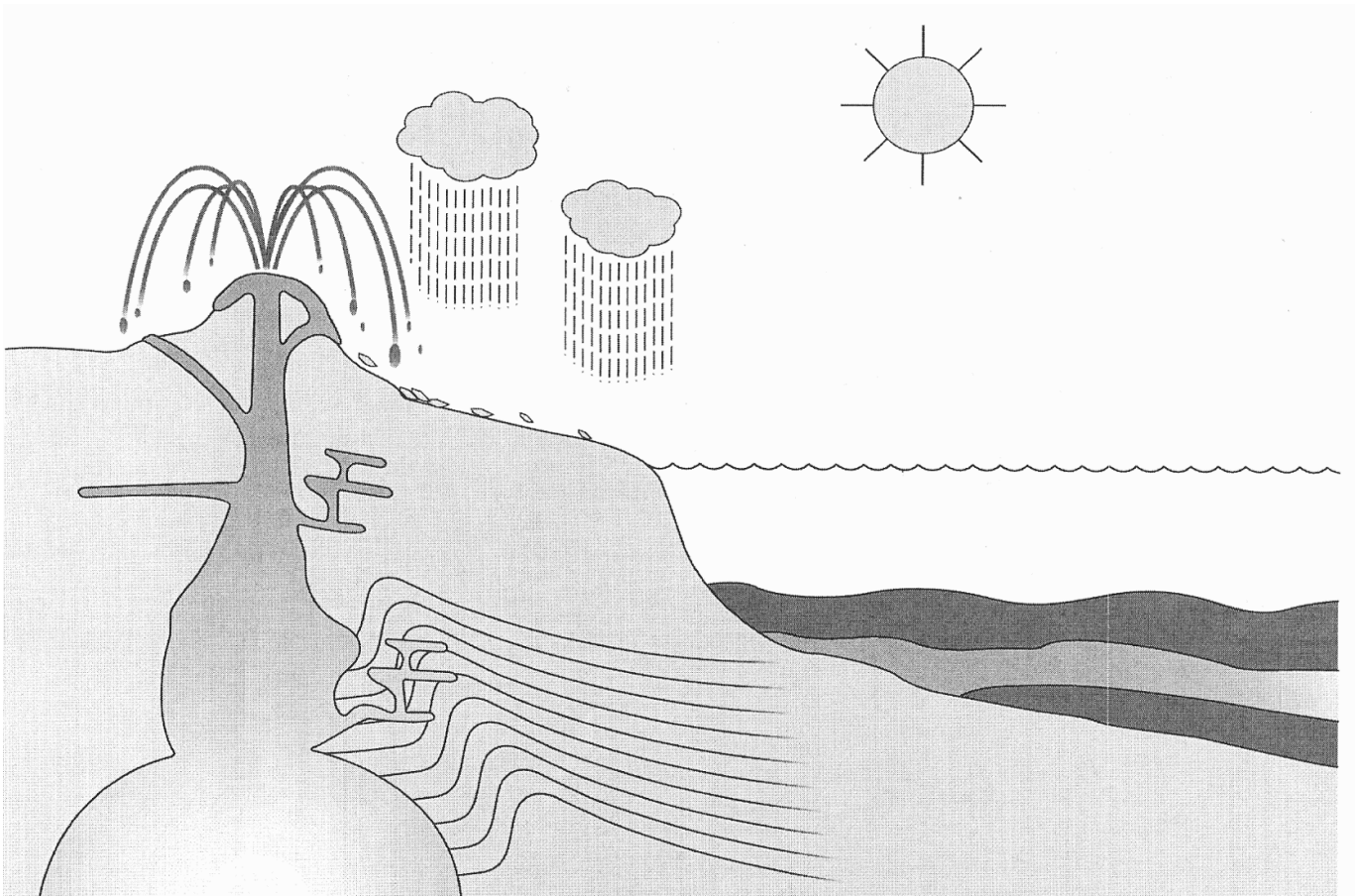
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1. Add arrows and labels to your diagram of the rock cycle

Use the following key words at least once each:

Igneous, Extrusive. Weathering, Melting, Cooling, Metamorphic, Intrusive, Magma, Heat, Pressure, Sedimentary, Sediment, Erosion , Deposit, Compaction

Match the key words

Igneous Rock		Igneous or sandstone rocks undergo a change when they get pushed down under continental plates. The heat and pressure changes them into new rocks.
Sedimentary Rock		Formed when molten magma or Lava cools slowly. This forms crystals. The crystals are larger if the rock cools more slowly.
Metamorphic Rock		Rocks are worn away into smaller particles by wind, water, wave action, ice and chemicals.
Erosion		Formed when rocks which have been weathered, eroded and deposited on the sea-bed are cemented and compacted to form new rocks.
Weathering		The weathered material is carried by rivers, sea or wind, and deposited.
Deposition		The layers of deposited material gets squashed together forming new rocks.
Compaction and cementation		When the weathered particles of rocks are dumped, often on the sea bed or lakes and rivers forming successive layers.

Review

This rock type normally forms in layers or from the remains of plants and animals.

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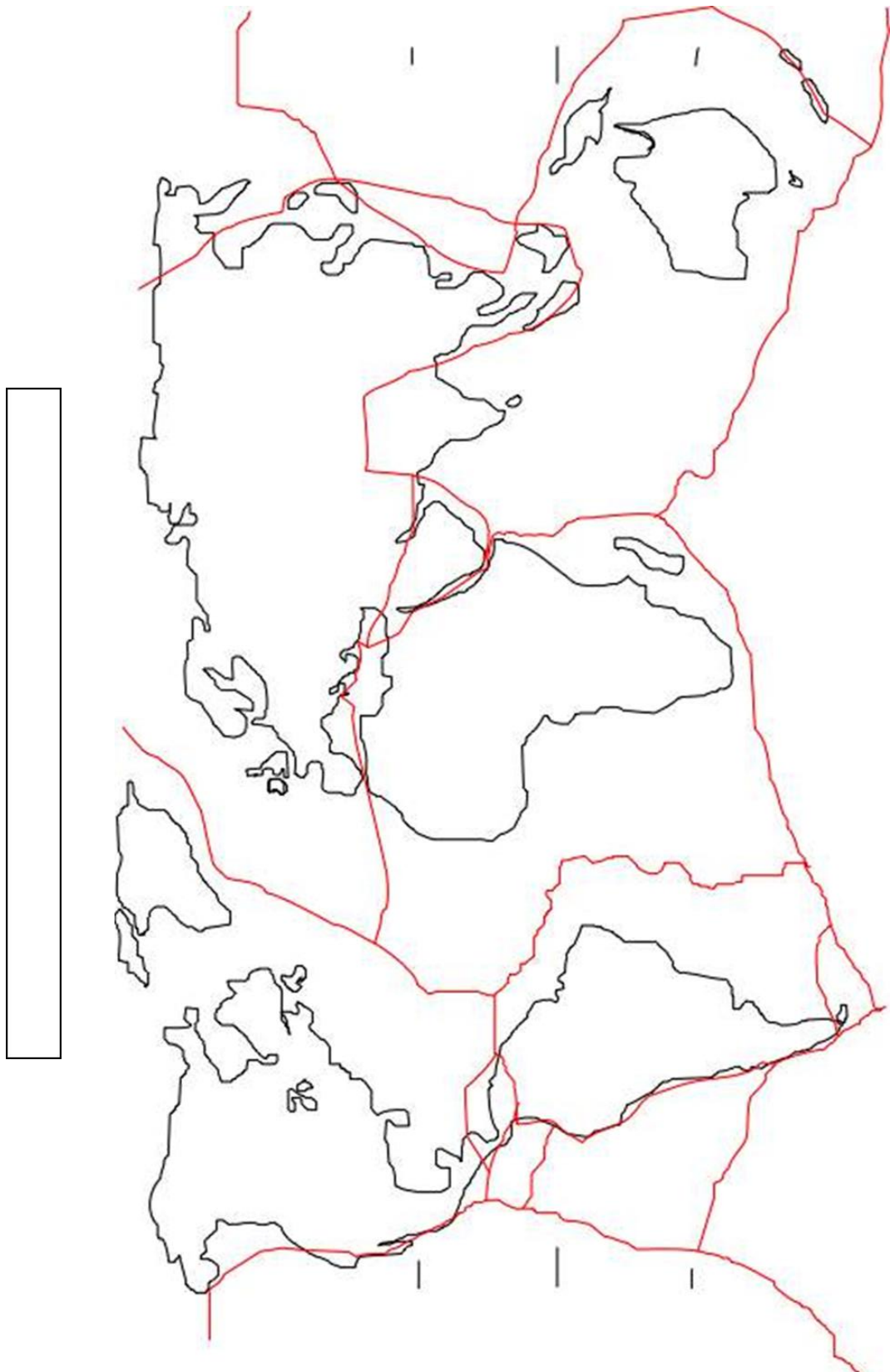
This rock type is formed from other rocks that have been changed by extreme pressure or heat.

An example of this rock type is limestone.

This rock type is formed from cooling of magma or lava.

An example of this rock type is slate.

An example of this rock type is granite.



Destructive Boundary

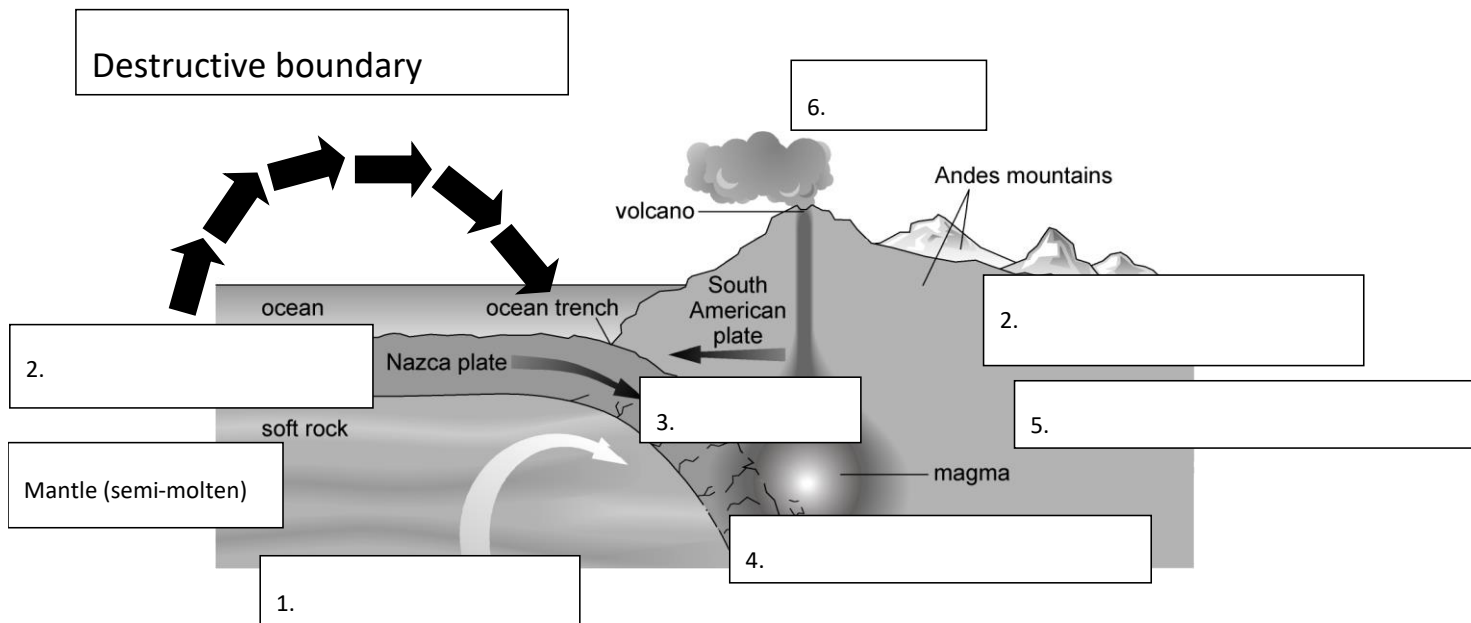
Describe the plate movement:

What direction are the two plates moving?

Diagram of plate boundary:

What hazards are created here?

Explain how these hazards are created:



Collision zone

Describe the plate movement:

What direction are the two plates moving?

Diagram of plate boundary:

What hazards are created here?

Explain how these hazards are created:

Constructive Boundary

Describe the plate movement:

What direction are the two plates moving?

Diagram of plate boundary:

What hazards are created here?

Explain how these hazards are created:

Conservative boundary

Describe the plate movement:

What direction are the two plates moving?

Diagram of plate boundary:

What hazards are created here?

Explain how these hazards are created:

What can you remember?

What layer of the earth does the crust float on top of?

Which type of crust is more dense? Oceanic/Continental

What is the main driver of plate tectonics?

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Which way are the plates moving at a divergent boundary? (Named example)

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What type of boundary is the San Andreas Fault an example of?

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At what type of boundary do you get large volcanoes on land?

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Which 2 types of boundaries have no volcanoes?

Why can you find ocean fossils at the top of Mount Everest?

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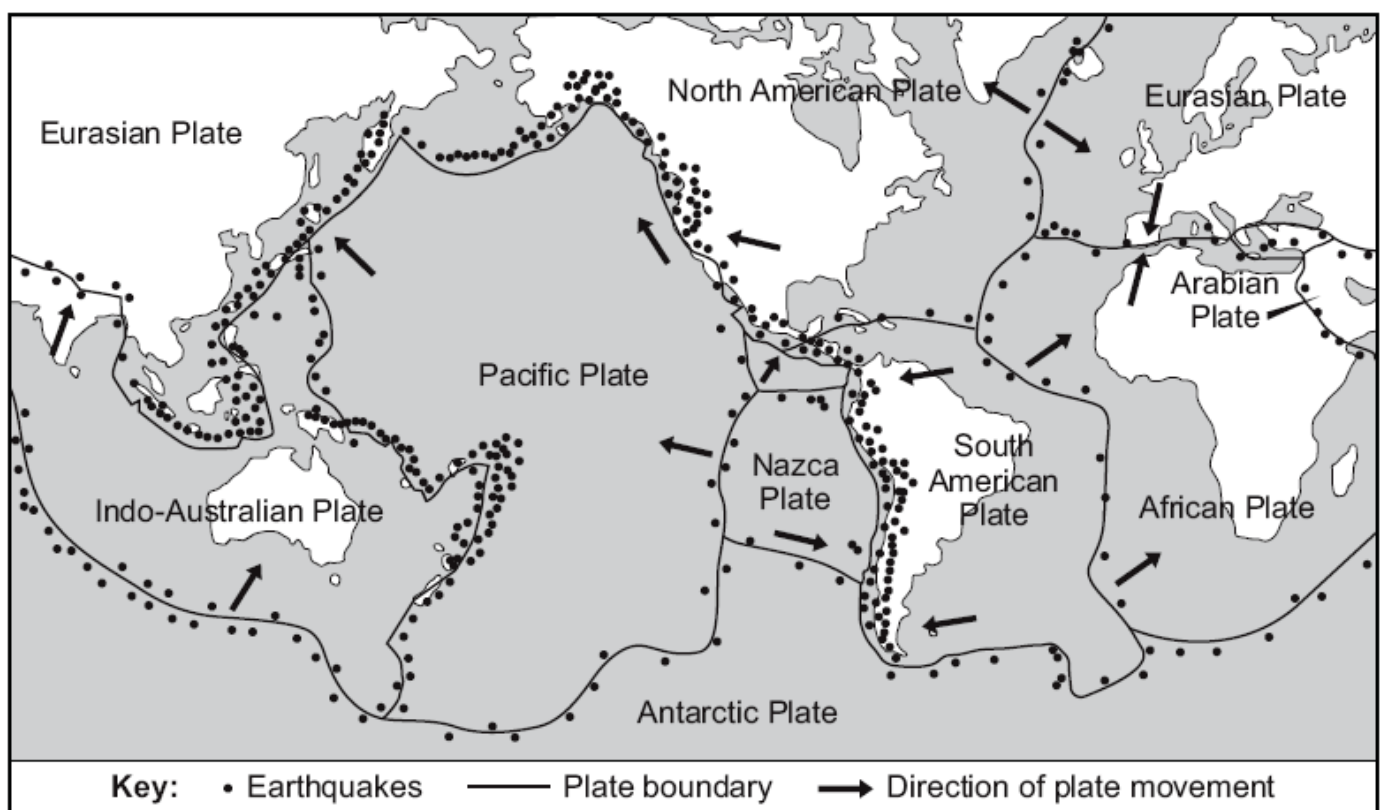
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Time to reflect: Exam practice

- 1 (a) Study **Figure 1** which shows the earth's tectonic plates and the places where earthquakes occur worldwide.

Figure 1



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Stick your homework here

Big Picture

Lesson 4: Why does fire come out of the Earth?

L/M/E		I think I can ...	My teacher thinks I can ...
Learning	I can describe why volcanoes occur		
Mastering	I can compare different types of volcanoes		
Extending	I can explain the different types of volcanoes and their global distribution		

Do it now: Key term review

Continent	A small part of a continent
Country	Study of the movement, collision and division of continents
Continental drift	One of 7 large land masses on earth
Sedimentary rock	Rocks that are made from magma that has cooled and solidified
Igneous rock	Rocks formed from existing rocks under extreme pressure
Metamorphic rock	Rocks made from layers of sediment and dead creatures

Starter:

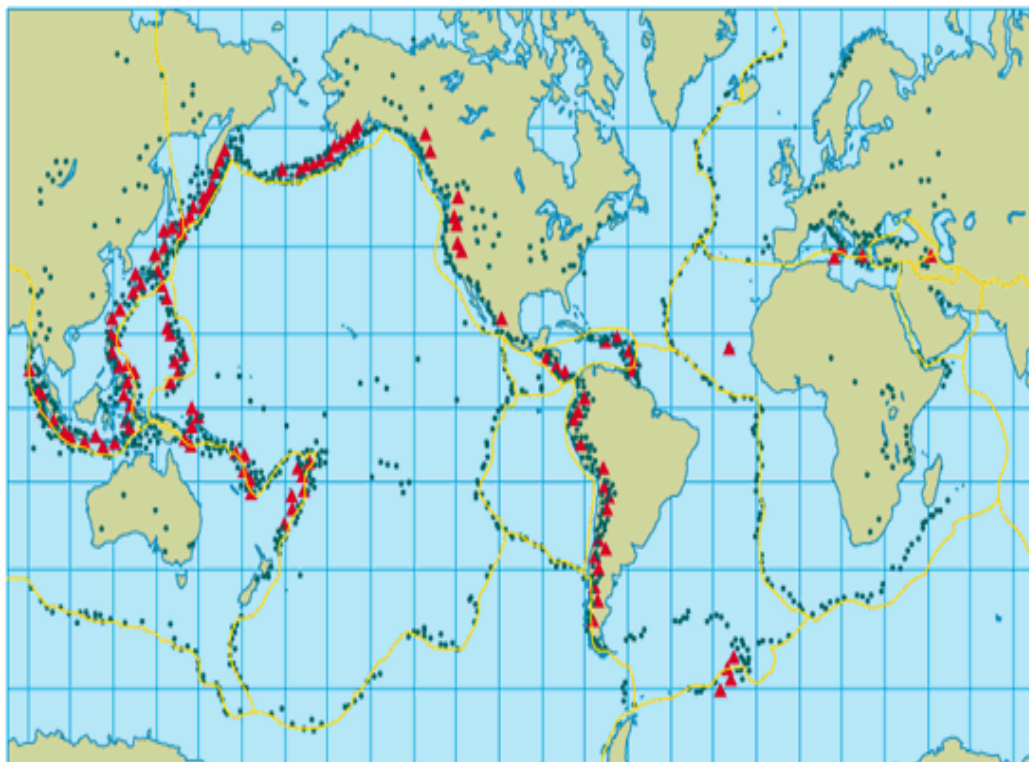
Draw and label what you think a volcano looks like on the back page of your book. We will check this later in the lesson

Who was Vulcan?

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Where are volcanoes and earthquakes found?



<p>In places, the North American and the Pacific Plates are moving past one another.</p> <p>1</p>	<p>Many earthquakes happen in the Himalayan Mountains to the north of India.</p> <p>2</p>	<p>The east coasts of North and South America are not close to active zones.</p> <p>3</p>	<p>There is an active zone where the Nazca and the South American Plates move together.</p> <p>4</p>
<p>Volcanoes and earthquakes occur along the west coast of North America.</p> <p>5</p>	<p>A belt of volcanoes and earthquakes is located along the west coast of South America.</p> <p>6</p>	<p>Active zones are found around the edges of many of the world's tectonic plates.</p> <p>7</p>	<p>The North American and Eurasian plates are moving away from one another.</p> <p>8</p>
<p>Many volcanoes and earthquakes are clustered together around the edge of the Pacific Ocean.</p> <p>9</p>	<p>Volcanoes can be found in the middle of the Atlantic Ocean. They form a line running north to south.</p> <p>10</p>	<p>Earthquakes and volcanoes occur in linear patterns in some parts of the world.</p> <p>11</p>	<p>Australia is found in the middle of the Indo-Australian Plate.</p> <p>12</p>
<p>There are no volcanoes or earthquakes on the east coast of North or South America.</p> <p>13</p>	<p>Around the edge of the Pacific Plate is an active zone called the 'ring of fire'.</p> <p>14</p>	<p>Volcanoes and earthquakes are not found in Australia.</p> <p>15</p>	<p>The Eurasian and Indo-Australian Plates are moving towards each other.</p> <p>16</p>

Using the cards, finish the sentences

Volcanoes and earthquakes occur in linear patterns because

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There are volcanoes in the middle of the Atlantic ocean because

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There are many earthquakes and volcanoes around the Pacific Ocean because

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Volcanoes and earthquakes are found along the West coast of North America because

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Volcanoes and earthquakes are found along the West coast of South America because

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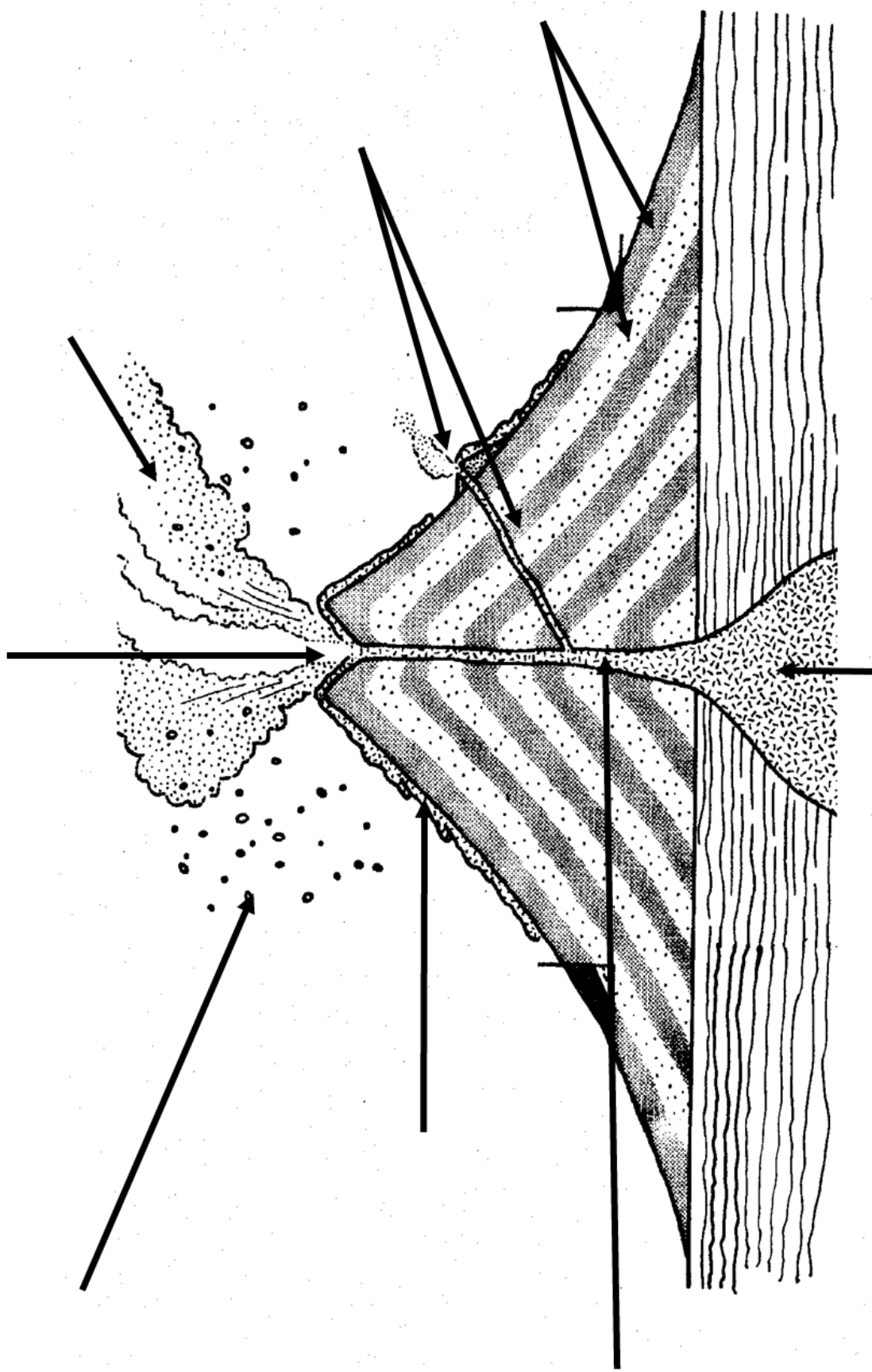
There are earthquakes in the Himalayas because

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What is the 'Ring of fire'?

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Extinct volcano	An active volcano that is not erupting but supposed to erupt again.
Dormant volcano	A volcano which has erupted recently and is likely to erupt again
Active volcano	A volcano which has not had an eruption for at least 10,000 years and is not expected to erupt again in a comparable time scale of the future.



Write a detailed description of what happens when a volcano erupts.

These words might help.

Volcanic bombs lava ash smoke steam
explosion gas pyroclastic

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Why do volcanoes have different shapes?

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	Shield volcano	Composite volcano
Plate boundary		
Shape		
Gradient		
Lava type		
Explosiveness		
Eruption frequency		

Most likely to

1. Have thin, runny lava	2. Usually have violent eruptions	3. Have thick treacly lava	4. Create layers of ash and lava on their sides
5. Have steep sides	6. Have gentle slopes	7. Have eruptions that force volcanic bombs out of the vent	8. Have narrower bases due to the explosive nature of the eruption
9. Often produce lahars (mudflows)	10. Have runny lava that moves quickly	11. Have viscous lava which moves slowly	12. Have a number of vents leading to parasitic cones
13. Are found at constructive margins	14. Have one large fissure or vent allowing lots of lava to reach the surface	15. Have gentle eruptions	16. Found at destructive Boundaries
17. Are only made of lava	18. Have less violent eruptions without volcanic bombs	19. Have lava which flows downhill quickly and spreads for a long distance	20. Have a broad base due to the size of the lava flow

What are the different types of lava?

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Explain why.....

Composite volcanoes are more violent than shield volcanoes?

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The lava from a composite volcano moves slower than that of a shield volcano?

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Composite volcanoes have a narrow base and shield volcanoes have a wide base?

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Composite volcanoes are more dangerous?

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Describe how the characteristics of composite and shield volcanoes are different.
(3 marks)

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What is a hot spot volcano?

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Describe the impacts of a volcanic eruption (6 marks)

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To what extent are the primary effects of volcanoes more harmful than secondary effects?

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Time to reflect:

From which Roman God do we get the word volcano?

What is a volcano?

What are the two types of volcanoes?

What is the eruption like at a shield volcano

What is a famous example of a shield volcano?

What shape is a composite volcano?

Why is a composite volcano this shape?

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At which type of plate boundary/location do you find each type of volcano?

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Big Picture

Lesson 5:

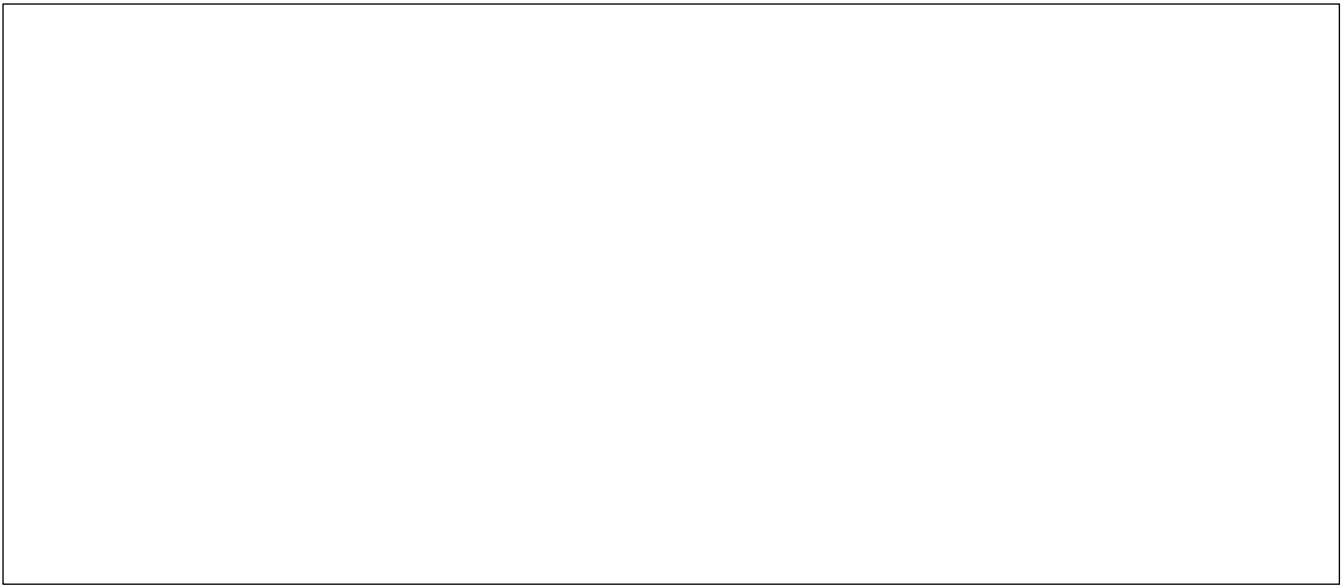
L/M/E		I think I can ...	My teacher thinks I can ...
Learning			
Mastering			
Extending			

Do it now: Here are the answers, but what are the questions?

	Answer	Question
Example	1300°C	What is the temperature of the rocks in the upper mantle?
1		
2		
3		
4		
5		

Tectonic Plate	Plate Boundary	6-70km	Inner Core
Continental Drift	Alfred Wegener	1912	iron and nickel
Pangaea	Convection currents	7	1300°C
Radioactive Decay	4000-5000°C	Mantle	Magma
Outer Core	Crust	1200km	+50000°C
Solid rock	2900km	4000°C	4

Starter: Draw and annotate a diagram to show the processes happening at a conservative plate boundary. (4 marks)



True or False? If false, then please write the correct answer.

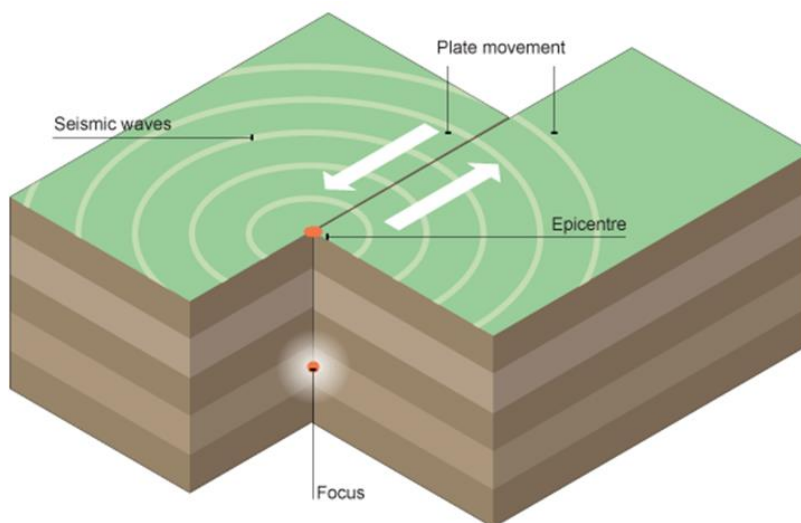
Many earthquakes occur around the edges of the Pacific Ocean.

There is a line of earthquakes through the middle of the Atlantic.

The majority of earthquakes occur in Africa.

There is a large cluster of earthquakes in the middle of the Pacific.

How does plate movement cause earthquakes?



Draw a labelled diagram to show how an earthquake occurs.

Epicentre -

Focus -

Put these statements in order

	The tectonic plate suddenly moves
	As the surface settles back down there will be smaller earthquakes known as aftershocks.
	Energy is released as 'seismic waves' travel along the surface away from the epicentre (point on the surface above the focus)
	The rock breaks along a weak point (fault line) when the pressure is released. Where the rock breaks is the 'focus'
	Tectonic plates are locked together by friction
	This is an earthquake. The Earth's surface shakes, causing 'tremors'
	Pressure (strain energy) builds up due to movement in the mantle

Starter sentence: "The most damage from an earthquake would be at _____ because..."

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P waves	
S waves	
L waves	

Travel the fastest. Travel around 8km/second.	They shear rock by vibrating at right angles to the direction of travel.	Side to side shaking and rolling motion that produces vertical ground movement.	Shake the Earth backwards and forwards.
Can move through solids and liquids.	Slower than P and S waves but are more destructive than either. Travel at 1-5km/second.	Compressional waves, vibrating in the direction in which they travel.	Cannot move through liquids.
Travel much closer to the surface.	Half the speed of P Waves but will create more damage. Travel around 4km/second.	Sideways motion.	P and S waves travel through the Earth's Interior and are recorded on a seismograph.

The Richter scale

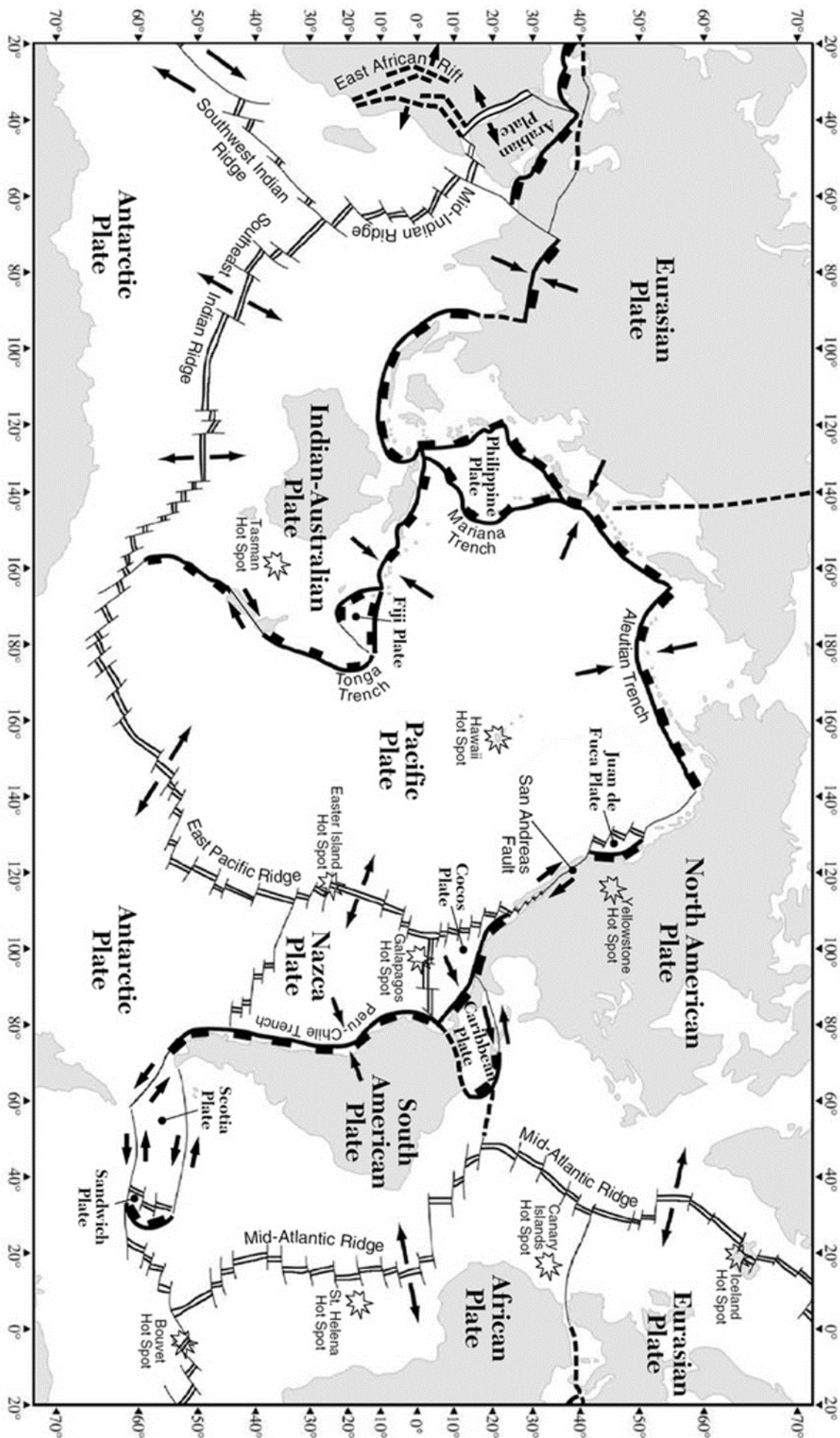
How many times more powerful is a magnitude 6 earthquake than a magnitude 5 earthquake?

How many times more powerful is a magnitude 7 earthquake than a magnitude 5 earthquake?

How can the Richter Scale help us to compare earthquakes?

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Tectonic Plates



The world's highest-magnitude earthquakes since 1900:

Source: U.S. Geological Survey © 2011 MCT

- Clue: what type of plate boundary are they on?

[illegible]

Earthquakes are
Conservative margins are
Plate boundaries are
Destructive margins are
A seismograph is
The focus is
Epicentre

where the earthquake begins in the crust.
an instrument to measure earthquakes.
a movement or tremor in the earths crust.
where two plates move alongside each other.
where two plates are destroyed as they push towards one another.
directly above the focus on the earths surface.
Where two plates meet

What are the factors that affect the impacts caused by an earthquake?

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Look at the four photos of the effects of earthquakes. Which earthquake was the most powerful? Decide the order from most to least.

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What is the difference between a primary and secondary effect?

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Exam question

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Time to reflect:

Explain what causes an earthquake and why everything shakes.

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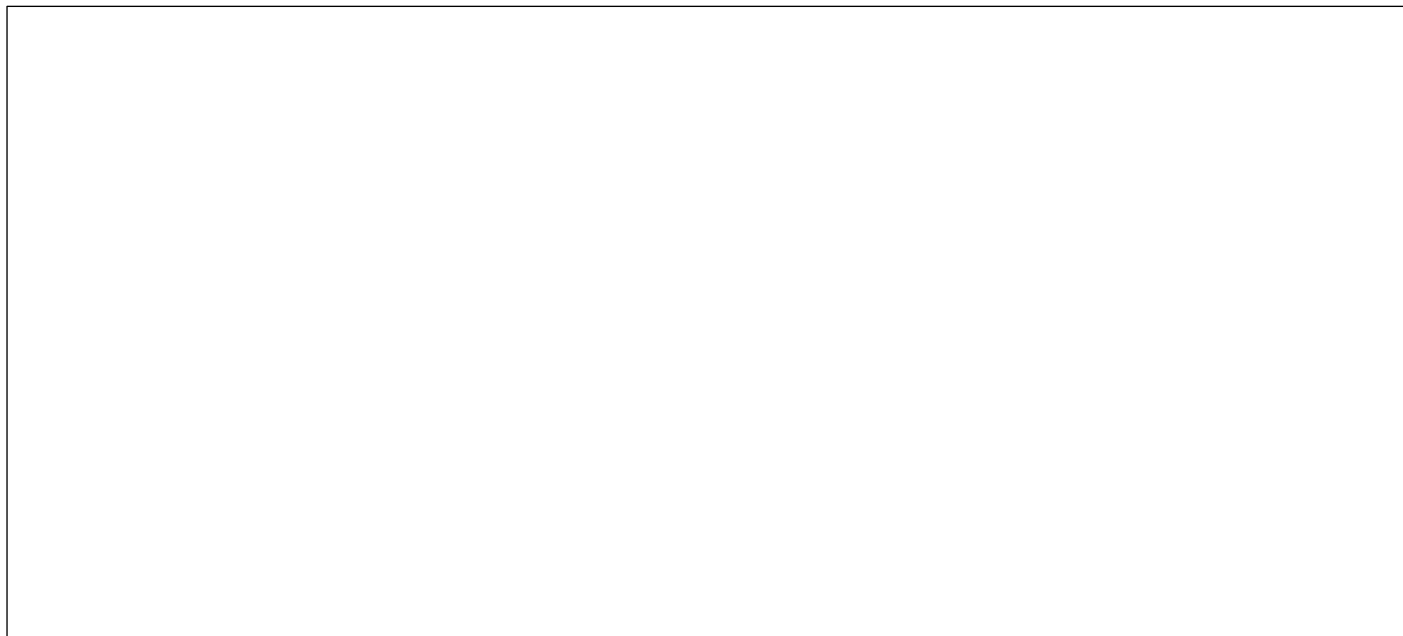
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Draw and label a cross section of a Destructive plate margin showing the following information.

The location of the fault line and the two tectonic plates.

Where the epicentre and focus of an earthquake are likely to occur.

Show the pattern of the seismic waves caused by an earthquake.



Define the terms epicentre, focus and seismic waves.

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Explain what a seismometer is used for and how the magnitude of an earthquake can be measured.

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Give some examples of damage caused by earthquakes

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Stick your homework here

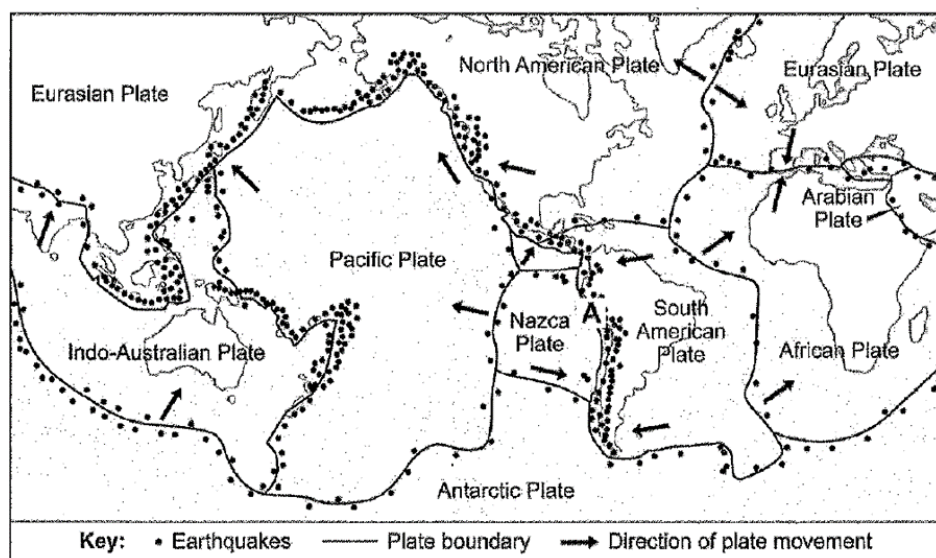
Big Picture

Lesson 6: How can waves destroy entire cities?

L/M/E		I think I can ...	My teacher thinks I can ...
Learning	I can describe what a tsunami is		
Mastering	I can explain what causes a tsunami and where they occur		
Extending	I can explain why Japan has tsunamis and categorise the effects		

Do now: Quick check

Figure 1



- 1 (a) (i) Are the following statements about the distribution of earthquakes **true** or **false**?

Tick the correct boxes.

Earthquakes occur in lines.

True False

<input type="checkbox"/>	<input type="checkbox"/>
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Earthquakes never occur away from plate boundaries.

<input type="checkbox"/>	<input type="checkbox"/>
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Earthquakes occur around the edge of the Pacific Ocean.

<input type="checkbox"/>	<input type="checkbox"/>
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(3 marks)

- 1 (a) (iii) Complete the paragraph below to explain why earthquakes occur at conservative plate boundaries.
Choose the correct words from this list.

apart from jerking different lava
slide past parallel with pressure smooth

At conservative plate boundaries, plates move each
other. They each other. The plates often stick and
..... builds up. The sudden release of the plates causes a
..... movement and an earthquake occurs.

(4 marks)

(3 marks)

- 1 (a) (ii) On **Figure 1**, the letter **A** is on a plate boundary.
What type of plate boundary is shown by the letter **A**?
Circle the correct type in the following list.

Conservative Constructive Destructive

(1 mark)

Starter:

Where do you think this is?

Why has it happened?

What will happen next?

Video notes:

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What happened in 2004?

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Convection currents in the mantle move the plates towards each other

An earthquake rocks the ocean floor as plates on a destructive boundary collide.

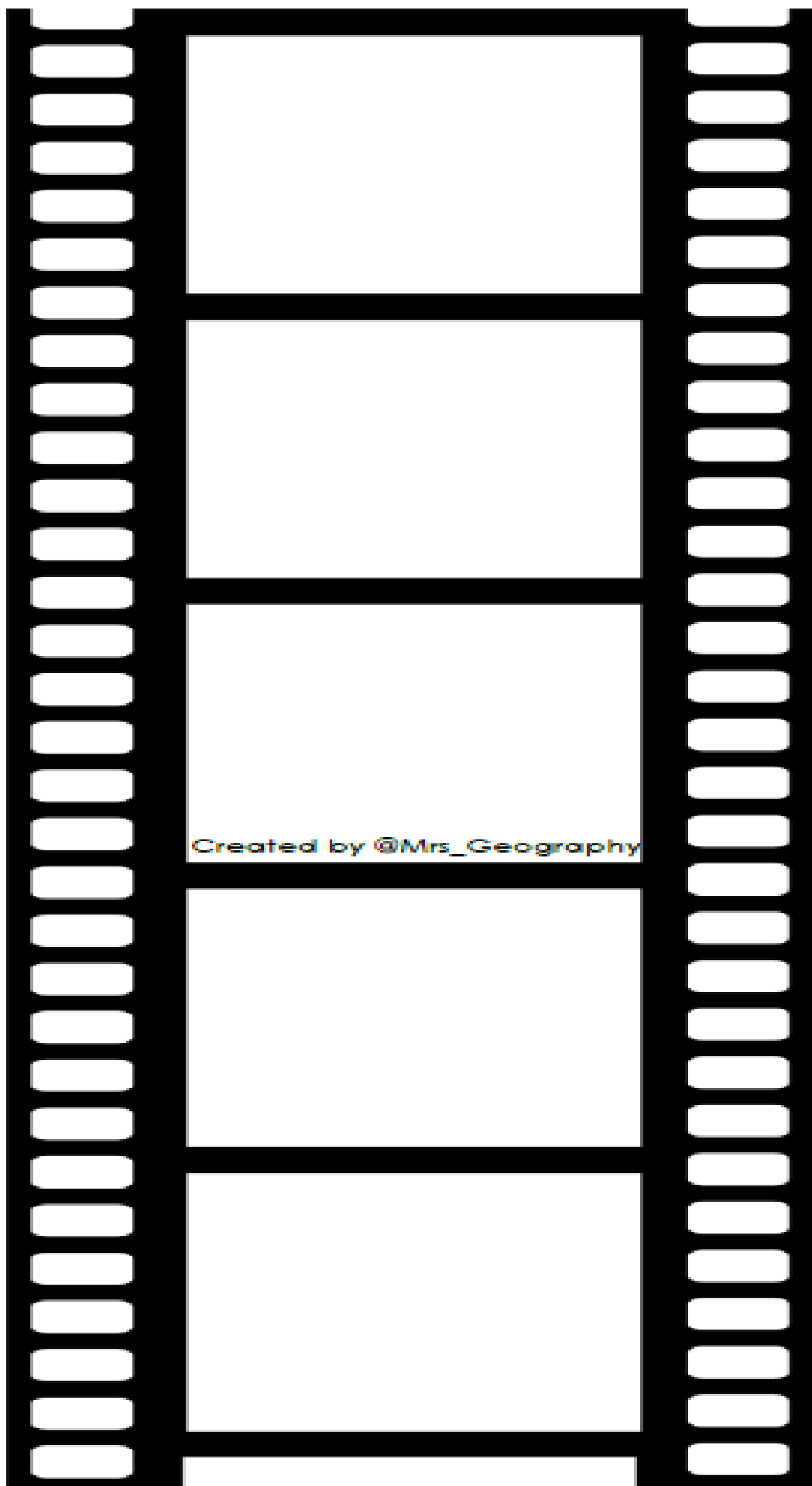
Water is displaced and pushed up. Sea water is sucked back from the shore.

Wave height increases as it gets closer to the shore.

A tsunami hits land at great speed and damages an area badly.

Create a film reel to illustrate the formation of a tsunami. Use the written explanation.

Planning space



Primary or Secondary effects?

Primary effects are

Secondary effects

Primary effects	Secondary effects

Time to reflect: 'Low income countries usually have worse primary and secondary effects.'

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Stick your homework here

Big Picture

Lesson 7: Why are some tectonic events more dangerous than others?

L/M/E		I think I can ...	My teacher thinks I can ...
Learning	I can describe why people may still live in areas of tectonic hazards		
Mastering	I can fully explain these reasons for living in areas of tectonic hazard		
Extending	I can give examples and evaluate hazard risk		

Do now:

1. What is the machine used to measure earthquakes?

- A. Seismometer
- B. Seismeter
- C. Earthquake detector

3. What is the largest layer of the earth?

- A. Outer core
- B. Mantle
- C. Crust

2. State two pieces of evidence that Alfred Wegener used as evidence for his continental drift theory in 1912:

4. Which types of countries can afford to invest in earthquake proof buildings?

- A. High Income Countries
- B. All Countries
- C. Low income countries

5. Give a named example of a place for each hazard we have studied:

- A. Composite Volcanic Eruption _____
- B. Tsunami & Earthquake _____
- C. Earthquake _____

Starter: Give 5 places that experience tectonic activity

- 1.
- 2.
- 3.
- 4.
- 5.

Do many people actually live in active zones?

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What is a positive about living near a volcano?

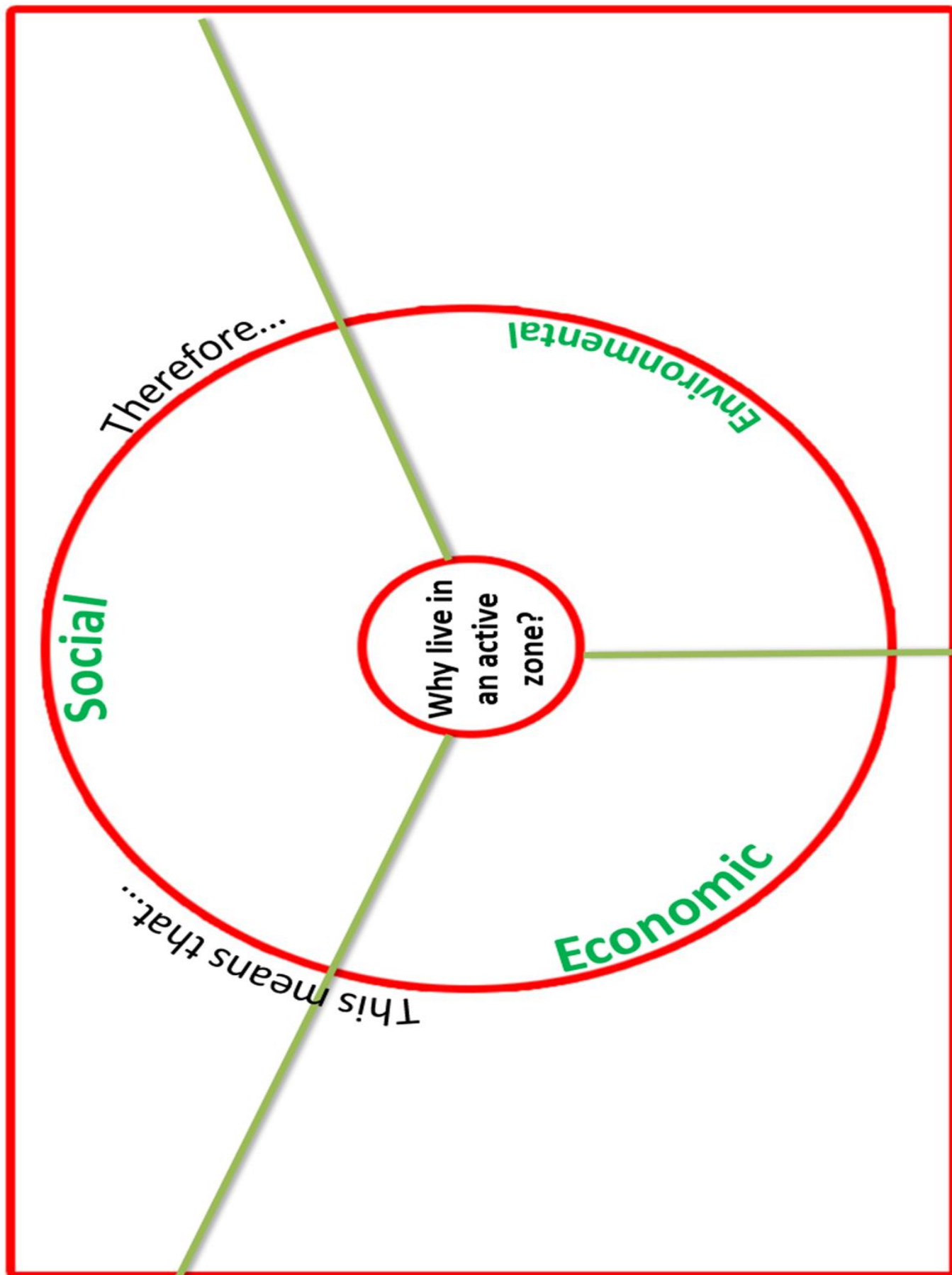
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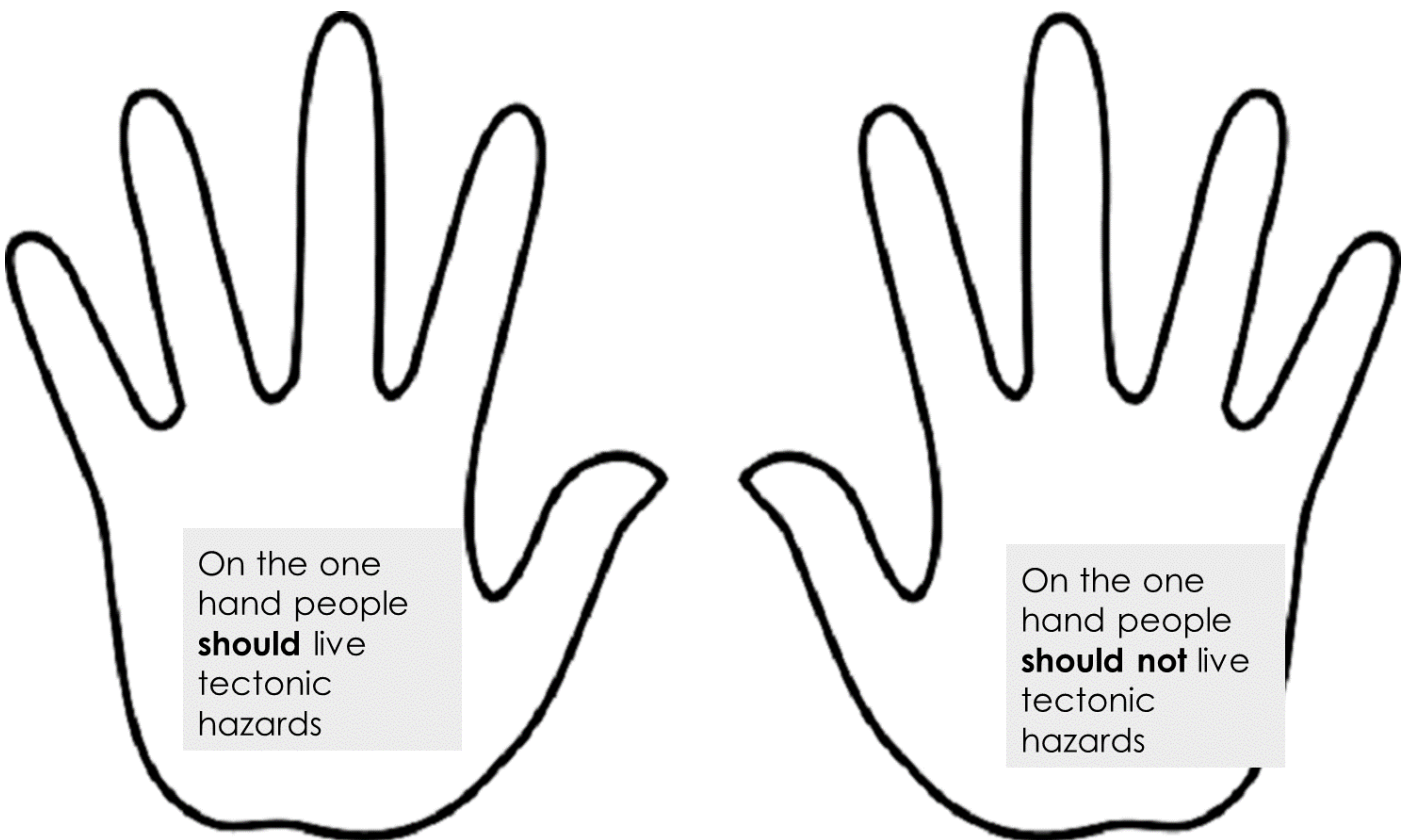
What have volcanoes done for us?



To what extent would you want to live in a volcanic region? Rank the statements from the 1 to 8 – 1 is the most positive reason



1.A pyroclastic flow travels at 200k an hour	5.Hot rocks can be used to create geothermal energy, which helps fight climate change
2.Igneous rocks can contain valuable minerals, such as gold, silver or diamonds	6.Nutrients in the soils allow millions of farmers around the world to grow food in very fertile land
3.Thick layer of ash can cause buildings to collapse and kill people in their sleep	7.Volcanic bombs are rocks spat out by the volcano, they can kill people and start fires
4.Lava flows destroy crops and bury towns and villages. They don't usually travel quickly though	8.Extinct volcanoes are good defensive sites to build on



Should people live near tectonic hazards?

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Haiti earthquake 2010

Describe the location of Haiti

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What is Haiti like as a country?

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Describe what the earthquake was like

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Primary Effects	Secondary Effects
Immediate Responses	Long-term Responses

What is:

Short-term aid -

Long-term aid -

Sustainable aid -

What help did Haiti get?

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Quick check:

When did the earthquake happen?

What magnitude was the earthquake?

How many people were made homeless?

How many people died or were missing?

How many buildings collapsed?

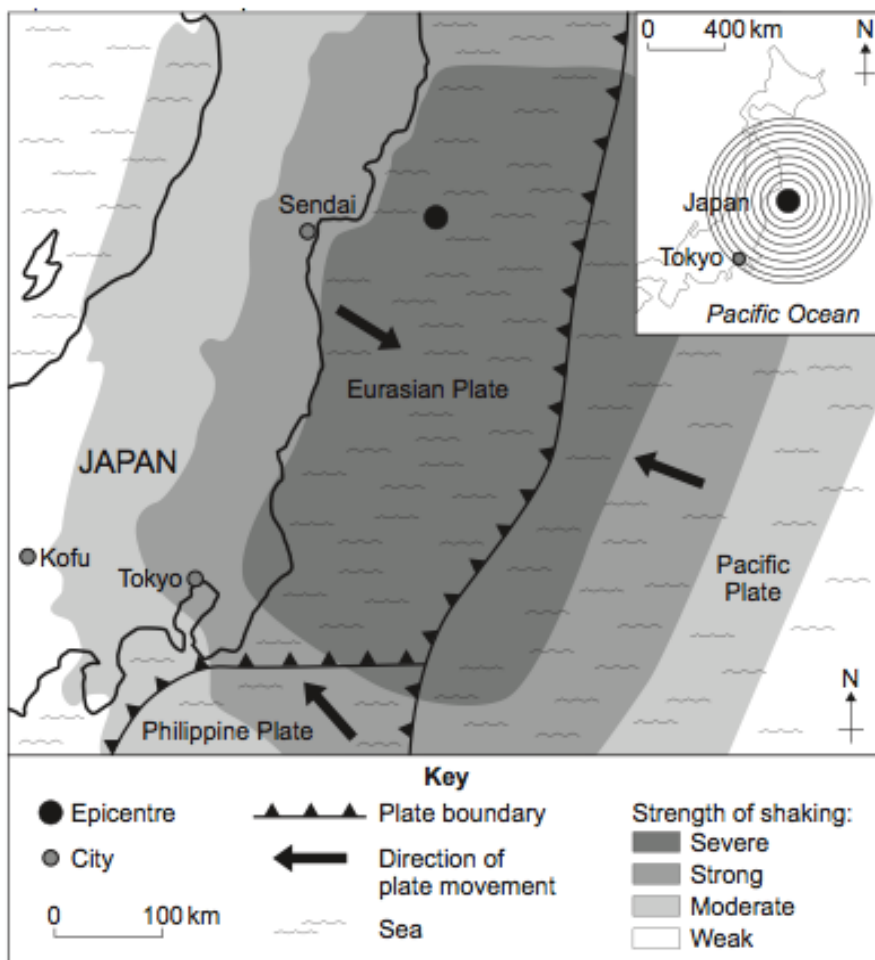
What was the total damage cost?

What disease broke out and killed hundreds of children?

How many people received cash to clear up rubble?

How did the UK respond?

Japan 2011



Describe the location of the epicentre

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Circle the correct answers:

The Eurasian plate and the Pacific plate are moving apart/ pushing together.

The earthquake epicentre was to the west/east of Japan

What was the strength of shaking in Sendai?

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Explain why there are many earthquakes in and around Japan. [6 marks]

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The magnitude of the earthquake was a massive _____ making it one of the most severe earthquakes ever and the worst to hit Japan.

The earthquake and tsunami happened on the 11th March at _____

Experts suggest that tsunami waves reached _____m

The Japanese government reported _____ deaths

The earthquake occurred _____ off the North East coast of Japan's main island of Honshu

The initial earthquake lasted approximately _____ minutes

Video notes:

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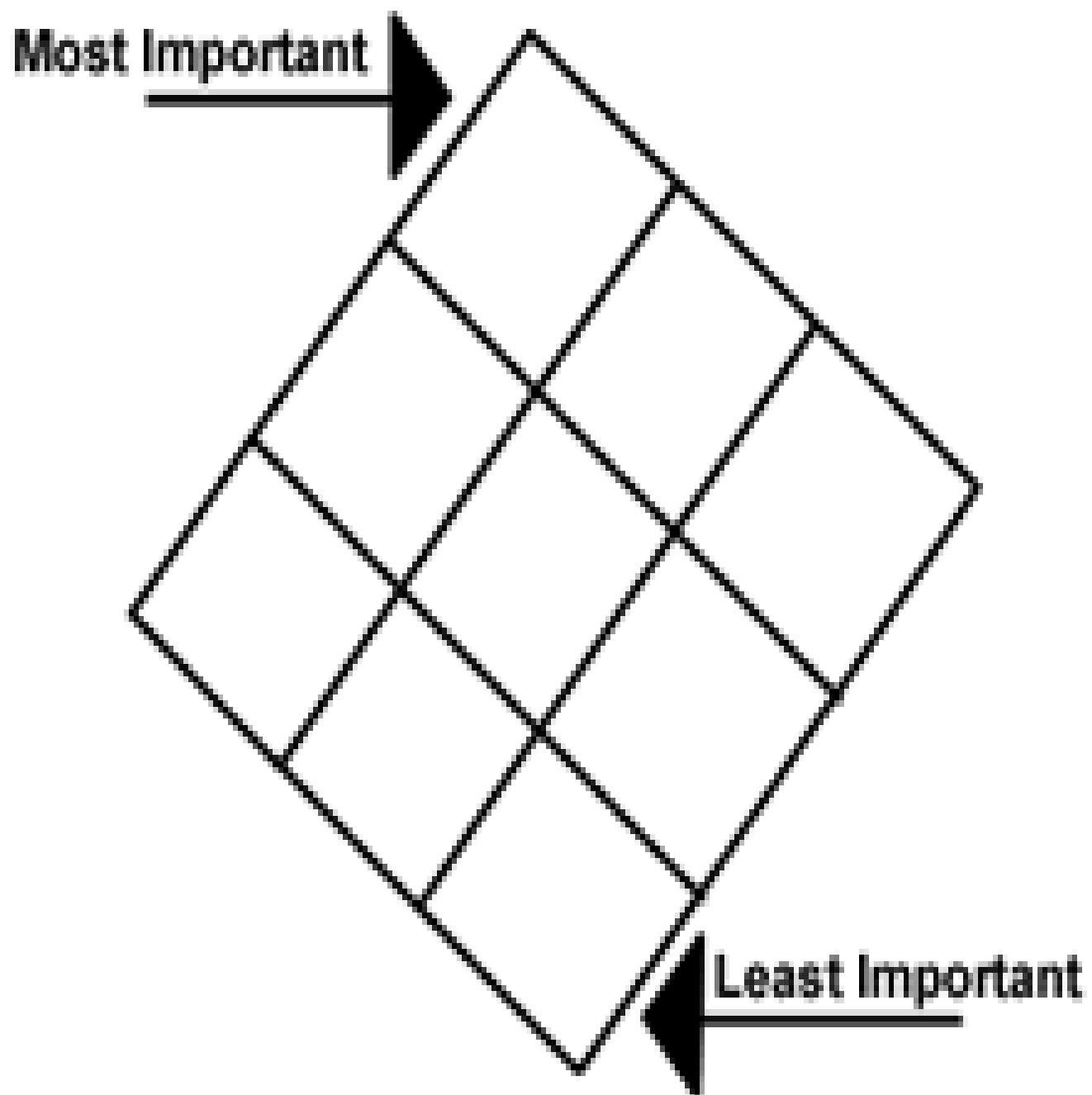
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What were the effects of the tsunami?

Social	Health	Economic	Environmental	Political



Time to reflect: Comparing case studies

Why are some tectonic events more dangerous than others?

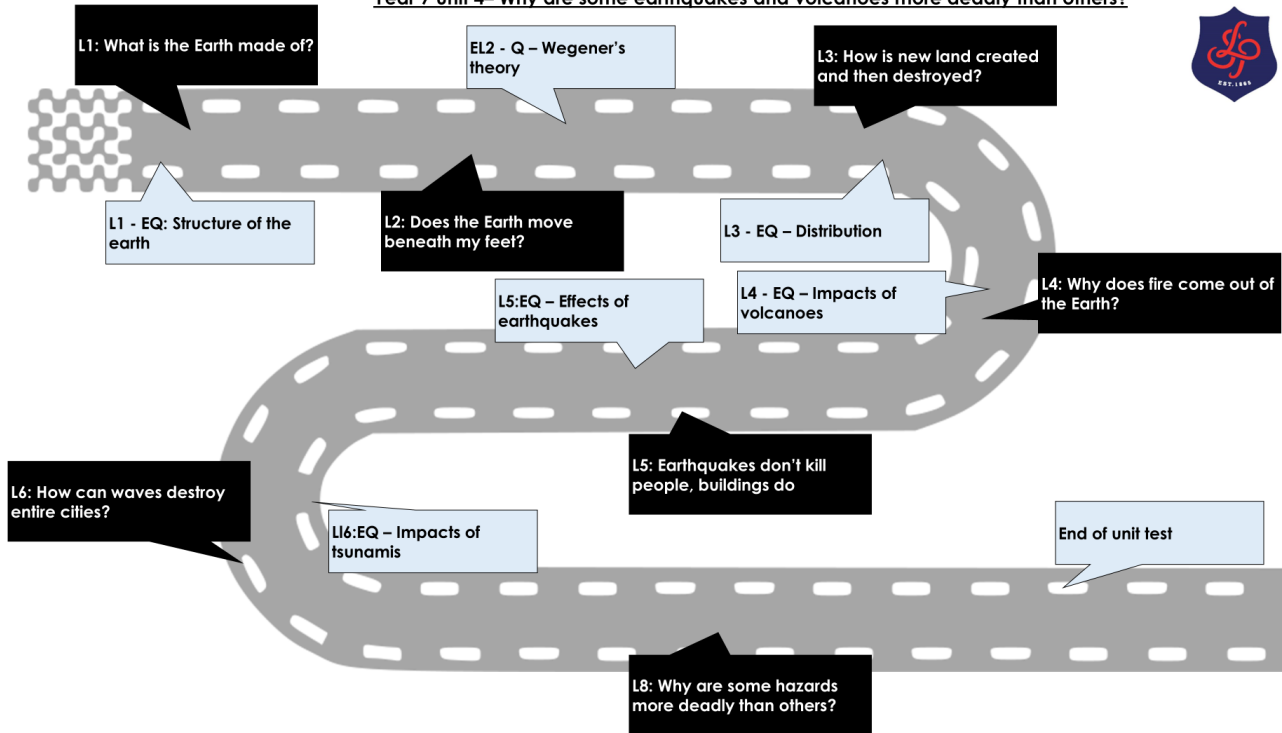
Use the 2 case studies we have covered (Haiti/ Japan)

Why did the Haiti earthquake kill and have a long term impact on so many more people than in Japan?

What makes a tectonic event dangerous?

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

Year 7 unit 4– Why are some earthquakes and volcanoes more deadly than others?



What have you learned about tectonics? Top 3 pieces of information	
Why were you studying this topic? Why is it important?	
Out of the 7 lessons in the journey above, which lesson did you learn the most from?	
What is the 1 key message/ fact that you will remember from this topic?	
When we teach this unit again next year, what else do you think we should teach about? What was missing from this unit?	