

Name \_\_\_\_\_

Teacher \_\_\_\_\_

# Year 9 Geography Plate Tectonics

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Hello year 9 Geographers! Well done on completing the work set so far. This new booklet focuses on Plate Tectonics. The study of processes within the Earth that create amazing features such as Earthquakes and volcanoes

All the work in here can be done on paper if you can't print a copy.

Please keep completed work to show us how hard you have been working when we return to School.

In addition to the work provided, here are some great links to Geography resources you'll find helpful and interesting.

Keep up the hard work!

Mrs Mitchell, Miss Finn, Mr Gest, Mr Prutton, and Mr Westby

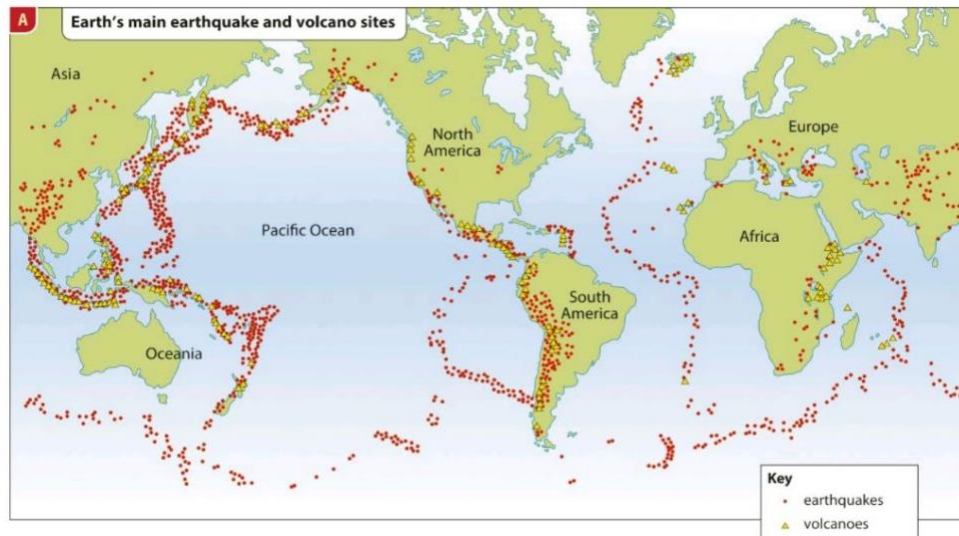
[www.timeforgeography.co.uk/](http://www.timeforgeography.co.uk/) Fantastic library of videos about our world

[www.bbc.co.uk/bitesize/subjects/zrw76sg](http://www.bbc.co.uk/bitesize/subjects/zrw76sg) BBC bitesize Geography with links to all the topics, activities and daily lessons.

## Lesson 1: Essential knowledge 1

The Earth's crust is broken up into lots of plates. These slowly move over time due to convection currents in the Earth. Where 2 plates meet is called a **plate boundary or plate margin**. Watch [this video](#) and then read over [this information](#) from the BBC.

Almost all of the world's Earthquakes and volcanoes can be found at plate boundaries.



1. The theory of plate tectonics is that....

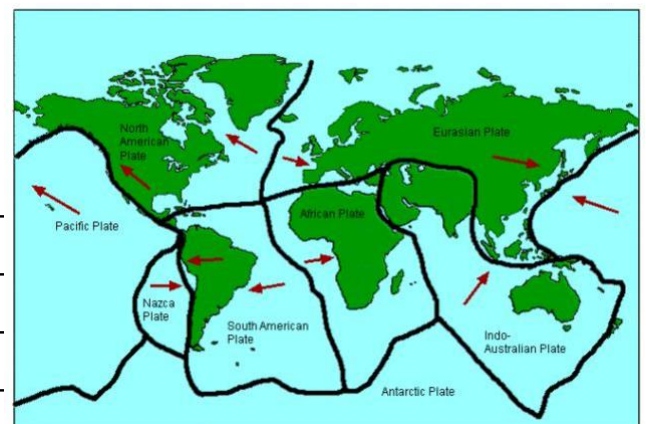
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2. Look at the map. The black lines show plate margins. In one sentence, say what a plate margin is.



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3. Why do most earthquakes and volcanoes occur near plate margins? In your answer, try to use geographical terms such as: *convection currents, tectonic plates, plate boundaries, collision, energy, etc.*

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4. Where do more tectonic hazards occur? Circle the correct answers.
- On or near plate margins / far from plate margins
  - Near the Pacific Ring of Fire / far from the Pacific Ring of Fire
  - Near coastal areas / inland areas
  - The western coastline of North and South America / the eastern coastline of North and South America
  - Southern Africa / south and eastern Asia
5. There are three main types of plate margin (destructive, constructive and conservative). For each plate margin type:
- Draw a diagram showing how the plates move (Towards each other? Apart? Alongside each other?)
  - Write a sentence describing what happens
  - Indicate whether earthquakes and/or volcanic eruptions occur as a result
  - Give an example (use the map above to help you) e.g. *'where the South American and Nazca plates meet'*

### Activity 2 Exam Question

Answer this question using the map above

### **Describe the location of Earthquakes and volcanoes on Earth (4)**

- To get full marks you need to say where Earthquakes and Volcanoes can be found using compass directions and names of oceans and continents. You have a map in your planner.**

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Literacy Help

Sentence starter: Earthquakes are located in... Volcanoes are located in...

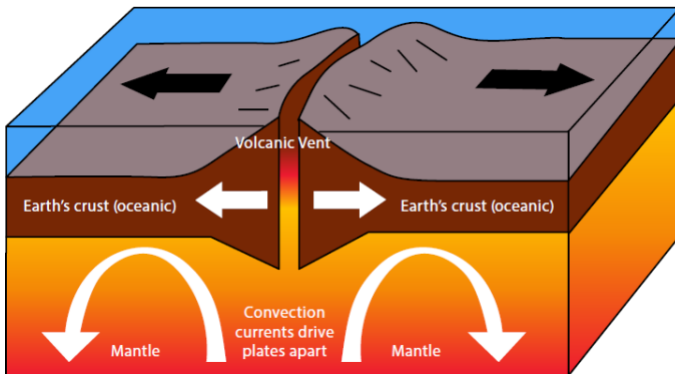
Key words: Oceans, Atlantic, Pacific, Continents, North America, Asia

Discourse markers: As well as, in addition, likewise

**Lesson 2: Essential knowledge Plate boundaries** - Watch [this video first](#).

You will need to be able to draw diagrams and write descriptions of each type of boundary.

**Constructive**



Draw a diagram of a constructive boundary

**Activity 1 Describe the features of a constructive boundary using the diagram to help you. Include all the information from the diagram.**

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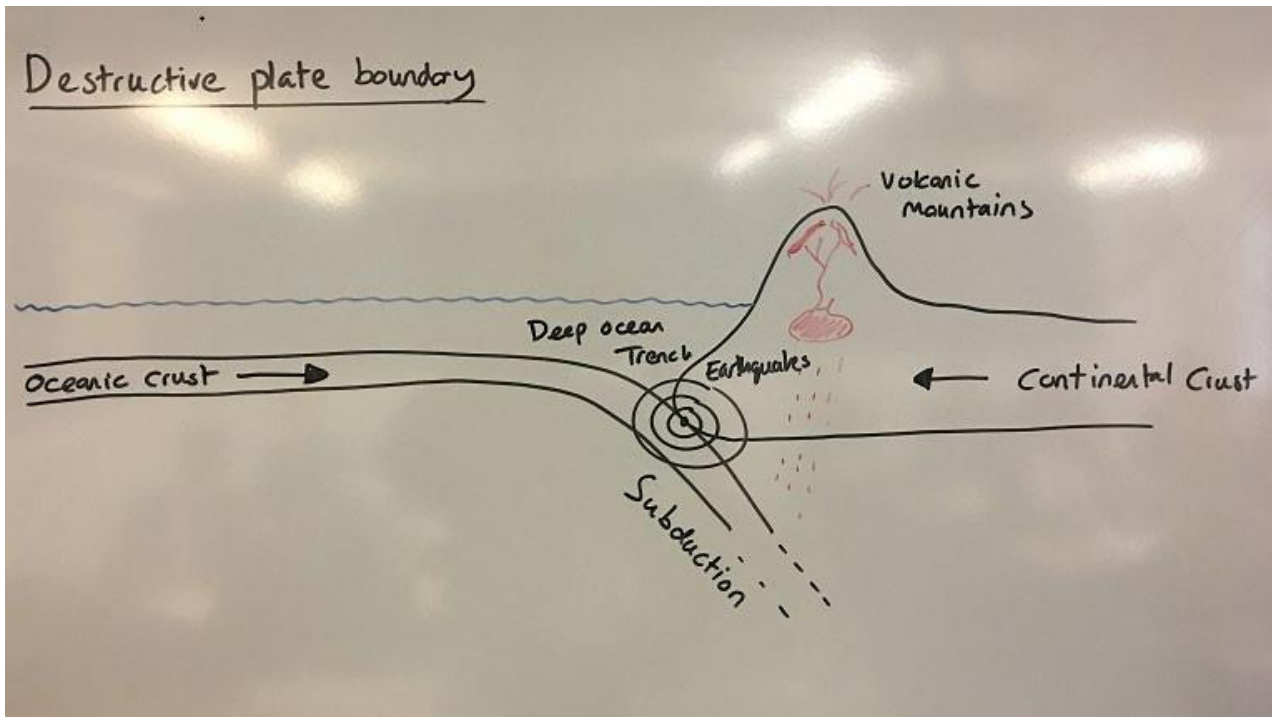
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## Destructive



Draw a diagram of a destructive boundary

Activity 2 Describe the features of a destructive boundary using the diagram to help you. Include all the information from the diagram.

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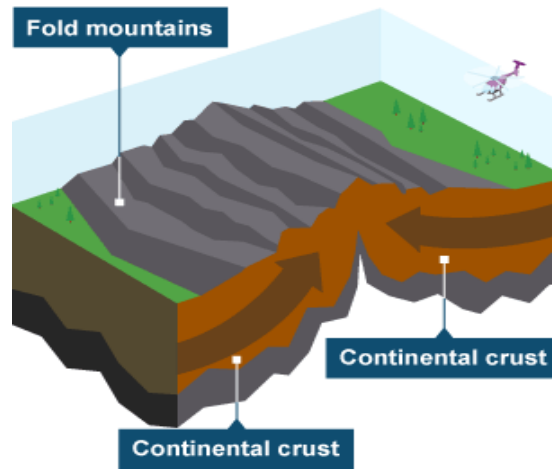
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## Collision



Draw a diagram of a collision boundary

**Activity 3 Describe the features of a collision boundary using the diagram to help you. Include all the information from the diagram.**

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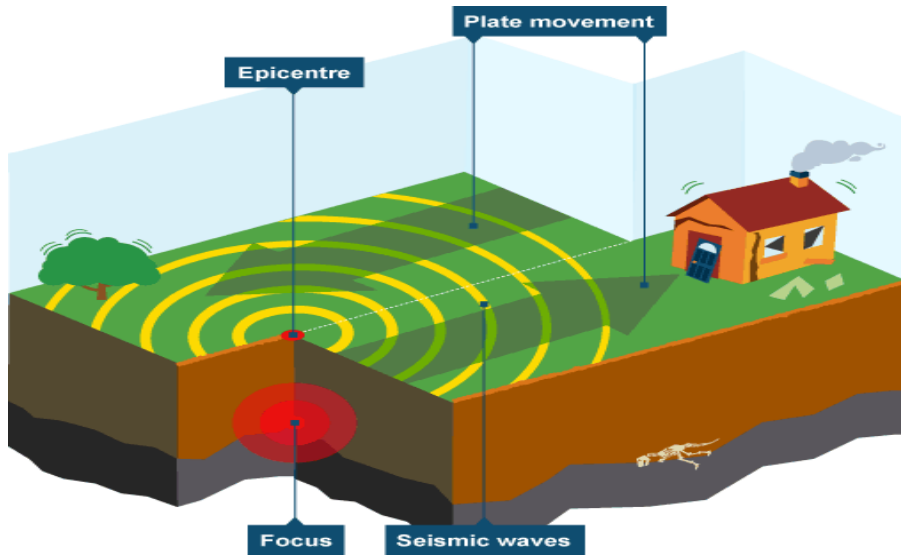
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## Conservative



Draw a diagram of a conservative boundary

Activity 4 Describe the features of a conservative boundary using the diagram to help you. Include all the information from the diagram.

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## Lesson 4: Essential knowledge 1 Primary and Secondary effects

Earthquakes have primary and secondary effects.

**Primary effects** are what the earthquake actually does. For example destroy homes.

**Secondary effects** are the knock on effect of this. For example as homes have been destroyed people are made homeless.

Watch [this video](#) about the earthquake in Haiti in 2010 - note there are images and details that you may find disturbing, if this is the case click [here](#) instead.

**Activity 1.** Read the information and complete the task below.

**Label each of these as a primary or secondary effect** (if you are working on paper make a list). They are all from the Haiti Earthquake in 2010

|  |   |
|--|---|
| 220 000 people were killed   | Stealing became a serious problem   |
| People who lost their homes were moved into tents and temporary shelters.  | 100 000 homes were destroyed.   |
| The destruction of the Government buildings hindered the government's efforts to control Haiti and the police force collapsed. | The Haitian tourist industry declined as tourists stopped visiting.                       |
| 300 000 people were injured  | By November 2010 there were outbreaks of diseases such as cholera.                        |
| The main shipping port was badly damaged and part of it collapsed into the sea.  | Eight hospitals or health care centres in Port-au-Prince were badly damaged or collapsed. |

### **Activity 2 Exam Question (4 marks)**

Describe the effects of the Haiti earthquake. (tip describe the primary and secondary effects)

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**Lesson 5: Essential knowledge - Answering evaluation questions.**

Questions that ask you to **evaluate** something are worth the most marks at GCSE, either 8 or 12. Evaluation involves explaining the positives about something, then the negatives and then come to a conclusion.

It doesn't matter what your conclusion is, positive or negative as long as you can give reasons for your decision.

You can break it down into 3 PEE paragraphs

Positive PEE

Negative PEE

Conclusion PEE

You are going to use some resources to practice answering an evaluation question.

**Activity 3 Exam question 8 marks**

**The primary effects of the Haiti Earthquake were more devastating than the secondary effects. Evaluate this statement (8)**

You need to decide if this statement is true or not. Begin by explaining why you agree with the statement

**PEE Paragraph 1. Why you agree**

P I agree that the primary effects were more serious, for example one primary effect was.....

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E This was devastating because.....

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E Therefore.....

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**PEE Paragraph 2 Why you disagree**

P However the secondary effects could be very devastating, for example one secondary effect was

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E This was devastating because....

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E Therefore.....

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**PEE Paragraph 3 Conclusion (decide if you agree or disagree)**

P Overall I agree/disagree

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E The main reason I think this is.....

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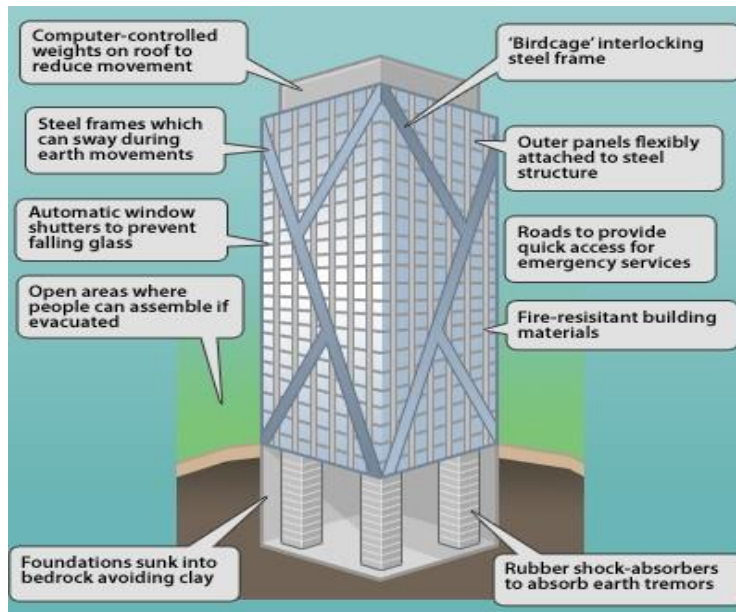
E Someone may disagree with me because.....

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**Lesson 6: Essential knowledge Earthquake resistant buildings - Watch [this video](#) first**



**Activity 1 Using the information answer this exam question.**

**Explain how buildings can be made earthquake resistant (4 marks)**

P: One way in which a building can be made earthquake resistant is.....

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E: This makes the building resistant because.....

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P: Another way in which a building can be made earthquake resistant is.....

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E: This makes the building resistant because.....

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P: A final way in which a building can be made earthquake resistant is.....

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E: This makes the building resistant because.....

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Extension - try out this [disaster simulation](#) and record what you find out about the different methods that can be used to protect and prepare people for an earthquake.

**Lesson 7: Tsunami** - watch [this video](#) first and then answer the questions below.

**The Earthquake** - all answers are based on the report as it happened:

1. The earthquake hit Japan on \_\_\_\_\_.
2. It registered a magnitude of \_\_\_\_\_.
3. That makes it the most powerful quake to hit Japan in at least \_\_\_\_\_ years.
4. There were reports over the weekend that the quake moved the main island of Japan by \_\_\_\_\_ feet.
5. Scientists in Japan say that there is a strong chance of another quake, one with a magnitude of \_\_\_\_\_ or higher, hitting in the next few days.

**The Tsunami** - answer the questions in complete sentences

6. Which part of the country was most affected by the tsunami?

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7. What is a tsunami?

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8. How fast can a tsunami travel?

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9. How far away did the tsunami travel before it reached the California coast?

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10. What effect did the tsunami have on the coast at Santa Cruz, California?

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### **The Prime Minister's statement**

11. What expression did Japan's Prime Minister use to describe the impact of this earthquake?

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12. How is the government planning to save electricity until the power plants are repaired?

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13. According to the Prime Minister, what is Japan's main goal right now?

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### **The Fukushima nuclear plant**

14. What is nuclear fission?

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15. How many reactors were running in the nuclear plant when the quake hit?

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16. What caused the failure of the back-up generators (according to experts)?

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17. What could happen if too much radiation gets out of the reactor?

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### **The world is coming to Japan's aid**

18. How many countries offered to help?

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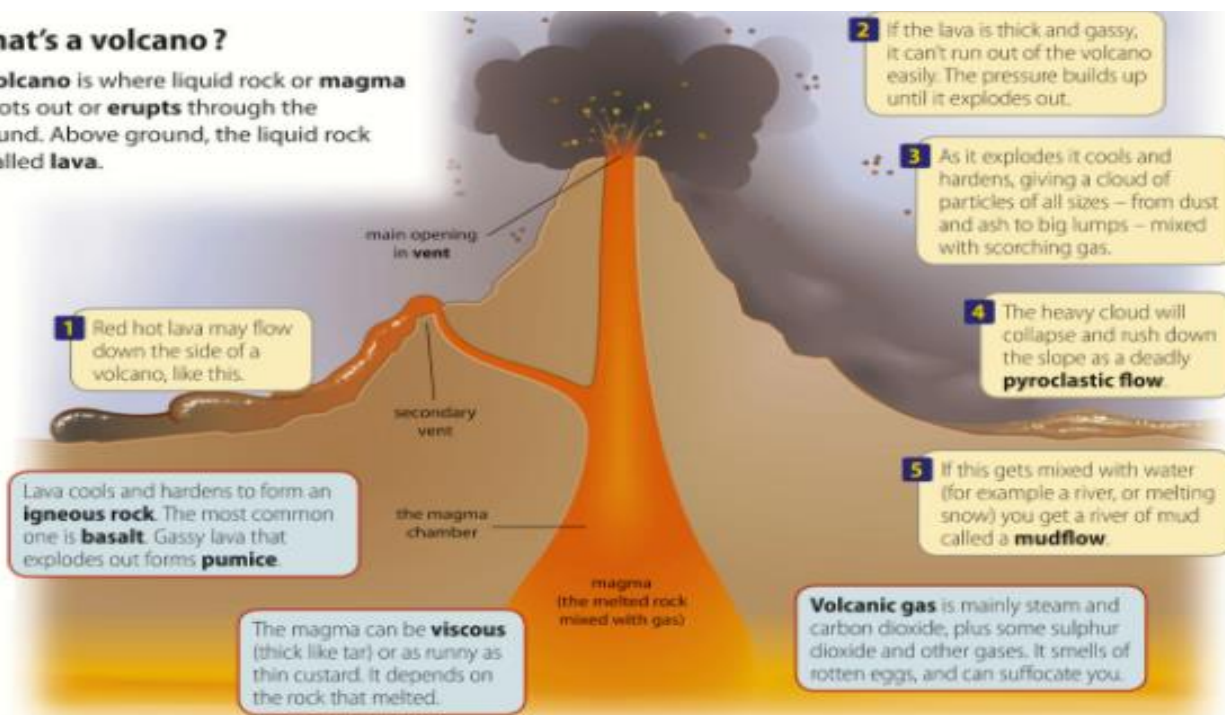
19. Name three international aid groups which were also involved.

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## Lesson 8: What about volcanoes? Read the key information below.

### What's a volcano?

A **volcano** is where liquid rock or **magma** shoots out or **erupts** through the ground. Above ground, the liquid rock is called **lava**.



Viscous gassy lava is the most dangerous kind. It builds up inside the volcano. Then the gas propels it out in an explosion.



**A** Runny lava flowing into the Pacific Ocean in Hawaii, USA.



**B** Ash and steam erupting from Popocatepetl, a volcano in Mexico. The hollow around the vent is called a **crater**.

### OUR RESTLESS PLANET

#### What damage can eruptions do?

A pyroclastic flow travels at up to 200 km an hour. You can't escape. It scorches and smothers everything.

Mudflows can travel at 100 km an hour. They sweep everything along. You drown in mud.

Lava flows destroy crops, and bury towns and villages. (They can kill too – but you can just walk out of the way.)

A blanket of ash will ruin crops.

Dust from an explosive eruption may rise high in the atmosphere and block out the sun. Temperatures around the world will fall.

The dust can also cause planes to crash.

Volcanic gas causes acid rain. This kills trees and plants over a wide area.

A thick layer of ash can be heavy enough to make roofs collapse.

The ash from an explosive eruption gets everywhere – in your eyes, your hair, your lungs. It can suffocate you.

This photo shows an eruption on the island of Montserrat, in the Caribbean.





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**Lesson 9: Revision for your end of topic exam** - complete the Seneca Learning tasks set [here](#).

Stretch and challenge tasks to further prepare you for your end of topic exam.

1. Research the deadliest earthquakes and volcanoes online. Create a poster to compare the primary and secondary effects of them.
2. Research an Earthquake resistant building, write a guide to the location and features of this building.
3. Design your own Earthquake resistant building, use the features we have taught you but also create your own.
4. Build your own erupting model volcano! See the guide on youtube.

<https://www.youtube.com/watch?v=qalAKiLbjX8>

**Lesson 10:** Complete the end of topic exam - linked [here](#).