

Mountains, Volcanoes and Earthquakes – Lesson 3

How are volcanoes formed?

Subject Knowledge Notes

Types of volcano

There are two main types of volcano - composite and shield. The two types of volcano form in different places and have very different characteristics.

Composite volcanoes

Composite volcanoes are found on destructive plate margins, where the oceanic crust sinks beneath the continental crust.

Composite volcanoes have the following characteristics:

- Acidic lava, which is very viscous (sticky).
- Steep sides as the lava doesn't flow very far before it solidifies.
- Alternate layers of ash and lava. For this reason, they're also known as stratovolcanoes. Strato means layers.
- Violent eruptions.
- Longer periods between eruptions.
- A composite volcano is made up of layers of ash and lava. It is steep-sided and cone shaped.
- An example of a composite volcano is Mount Pinatubo in the Philippines.

Shield volcanoes




Shield volcanoes are found on constructive plate margins, where two plates move away from one another. Shield volcanoes have the following characteristics:

- basic lava, which is non-acidic and very runny
- gentle sides as the lava flows for long distances before it solidifies
- no layers, as the volcano just consists of lava
- less violent eruptions
- shorter periods between eruptions

People choose to live in volcanic areas despite the risks of an eruption. Volcanoes can provide people with many benefits such as:




- volcanic rock and ash provide fertile land which results in a higher crop yield for farmers
- tourists are attracted to the volcano, which increases money to the local economy
- geothermal energy can be harnessed, which provides cheaper electricity for locals
- minerals are contained in lava, eg diamonds - these can be mined to make money

Lesson Three: How are volcanoes formed?

 <p>5 minutes</p>	<ul style="list-style-type: none"> • Prior Knowledge: <ul style="list-style-type: none"> ◦ Pupils complete the retrieval practise quiz • Circulate and note misconceptions. • Display slide 3 • Pupils self-mark using answers on board • Pupils identify topics they need to focus their self-testing on
 <p>10 minutes</p>	<ul style="list-style-type: none"> • Introduce our line of enquiry: How are volcanoes formed? • Display slide 4 • Read the section titled 'volcanoes' • Pupils answer the questions • Take answers to Q1+2 • Display answers to labelling question
 <p>20 minutes</p>	<ul style="list-style-type: none"> • Display slide 5 • Partner talk: what is the difference between these two volcanoes? • Read the table independently • Questions to ask <ul style="list-style-type: none"> ◦ What do shield/ stratovolcanoes look like? ◦ What type of lave so shield/ stratovolcanoes have?

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How are volcanoes formed?

	<ul style="list-style-type: none">○ Name an example of a shield/ stratovolcano• Pupils complete everybody writes activity• Share answers• Display slide 6• Allow pupils time to correct answers
  20 minutes	<ul style="list-style-type: none">• Read the section titled 'where are volcanoes found'• Display slide 7• Partner talk: what has happened differently to form the different volcanoes?• I say you say 'shield volcanoes occur when two plates move apart'• I say you say 'stratovolcanoes occur at subduction zones'• Check understanding of a subduction zone from previous lesson• Pupils complete answers to 'think about questions'• Circulate and pick answers• Show answers to class – what is good about them? What have they got slightly wrong?• Time for redrafting• Stretch: draw a diagram to explain what is happening in your example• Display slide 8• Review the answers
 5 minutes	<ul style="list-style-type: none">• Display slide 9• Pupils turn to page 3 and complete learning review• Pupils share their learning review with their partner