

## Eyjafjallajökull Video Worksheet

Watch the film ***Eyjafjallajökull: A Geography Case Study*** right through once

Then watch it again, pausing at the appropriate points to attempt the following questions

(answers in red)

**00.22**

1. When was the main eruption of the volcano Eyjafjallajökull? (14 April 2010)

### **Do You Know?**

How to pronounce 'Eyjafjallajökull'

Ey/ja/fjalla/jö/kull

ay/ya/fyatla/yø/kootl

- 'j' sounds like the 'y' in yes
- 'll' sounds like the 'tl' in 'kettle' in English

<http://www.howdoyousaythatword.com/word/eyjafjallajokull/>

Take a look at this YouTube link to hear some amusing pronunciations!

<https://www.youtube.com/watch?v=7uCKSYTH-4o>

**00.45**

2. How did the second eruption on 14 April differ from the earlier eruptions in March 2010?  
(more explosive ash compared to fiery, less explosive lava.)

Later in the video we'll find out why this second eruption was so explosive.

**01.06**

3. Explain why the explosive eruptions caused travel chaos throughout much of Europe. (fine ash carried by high level winds over European airspace caused a threat to jet engines. Hundreds of flights were cancelled.)

### 01.20

4. Why were local people in Iceland concerned about the threat of flooding? (melting ice produced huge reservoirs of water underneath the ice cap posing a danger to people and property when it escaped from beneath the ice.)

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### 01.41

5. Imagine that the floodwaters had escaped down the valley behind the farm. Suggest the social, economic and environmental impacts of such a flood. (Social – devastation to the farmer and his family, possible physical impacts, way of life affected; Economic – loss of income and cost of repairs to buildings; Environmental – land strewn with rocks carried by the floodwaters would make it unusable)

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### 01.50

6. Draw a simple sketch to show how the long grass helped to trap the ash preventing it from being blown around. Use a scale to show that there was 5cm of ash, roughly the same height of the grass. Add labels to explain why farmers had a good crop. (warmth of the ash and its nutritious value)



02.36

7. What were the first signs that Eyjafjallajökull was about to erupt? (earthquakes 1990s)

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03.08

8. What were the effects of the eruption on Inga and her family living on the farm? (they were worried about the possible impact of ash and flooding. They were concerned for the welfare of their animals, they were eventually evacuated.)

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9. How many people have visited the Eyjafjallajökull Visitor Centre? How has this benefitted the family? (300,000 people; the family – and local people – have benefited from the income and from employment)

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10. Why is Inga not particularly worried about flooding when Katla next erupts? (not in the immediate area - Katla is beneath the ice cap some distance away – so flooding is unlikely to be an issue, though ash might be)

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11. How do the family prepare themselves for future eruptions? (build strong buildings to cope with ashfalls; civil protection will assist with evacuation)

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### 05.30

12. Describe the Markarfljót River today. What did it look like when the floodwaters poured into the river after the eruption? (very broad river with multiple channels; during the flood it was swollen and just a single huge raging torrent of warm water (17C), with small icebergs)

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#### Did You Know?

The Markarfljót River, with its multiple channels, is an example of a *braided* river.

### 06.01

13. Describe the shape and composition of the embankments alongside the river. (high, straight raised river banks made of very large boulders)

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14. Evaluate the success of the embankments in preventing widespread flooding. (very effective in containing the floodwaters and preventing flooding of farmland and farm buildings)

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### 06.20

15. How did the action of quick thinking road engineers help to save the metal bridge carrying the main road across the Markarfljót River? Use a simple diagram to show what happened. (engineers used heavy machinery to break through embankments to the side of the bridge allowing the floodwaters to escape without damaging the bridge)



**Did You Know?**

The explosiveness of volcanic eruptions is measured using the VEI (Volcanic Explosiveness Index). It was devised by Chris Newhall at the University of Hawaii in 1982 to enable eruptions to be compared with each other.

**07.23**

16. Make a copy of the VEI index diagram to show the position of the eruption of Eyjafjallajökull.  
(3/4 on the scale)

**07.40**

17. How did the presence of water and the chemical composition of the magma affect the eruption of Eyjafjallajökull? (it made it explosive creating a lot of ash and pyroclastics)

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**Did You Know?**

The term 'tephra' describes rock fragments and particles of all sizes, from ash to large boulders called 'volcanic bombs', erupted from a volcano

## 09.04

18. Watch the clip about volcano monitoring and complete the table below.

	Seismometers	GPS Antennae
How does the instrument help to predict a volcanic eruption?	(Measures earth tremors which are precursors to an eruption)	(Measure relative movement and tilting of the ground surface)
How many instruments are there in Iceland?	(80+)	(120)
What happens to the data collected?	(Data is fed to central Icelandic Met (Meteorological) Centre. This enables monitoring and forecasting of an eruption and enables action to be taken (evacuation) if necessary. )	

## 10.25

19. Consider the threat posed by an eruption of the volcano Katla. Complete the factfile table below and then attempt the question that follows.

### Katla Factfile

Question	Answer
When was the last eruption of Katla (shown by the old photo)?	(1918)
Katla has erupted twenty times between 930 and 1918. Calculate the frequency of eruptions.	(Just under 1 eruption every 50 years)
Is an eruption overdue?	(Yes, by almost 50 years)
Does it matter if an eruption is overdue?	(An overdue eruption might be more violent and explosive – though this is not a rule)
What are the warning signs to look out for?	(Earthquakes, with large earthquakes (M4/5) just before an eruption. The eruption would melt the ice above the volcano with flooding expected 2-4 hours later.)

20. To what extent can scientific monitoring and knowledge help to reduce the volcanic hazard posed by Katla? (monitoring – using instruments such as seismometers and GPS antennae – together with scientific knowledge based on documented evidence from past eruptions does reduce the threat. Scientists believe they will be able to identify an impending eruption and will have hours or days advance warning. This will enable action to be taken, such as evacuations. However, this cannot be certain!)

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12.15

21. Describe how the eruption of Eyjafjallajökull has boosted tourism in Iceland. (initially people were concerned that tourist numbers would fall. The opposite has happened - 1.7m tourists visited in 2016! New attractions have been established, such as the Eyjafjallajökull Visitor Centre and the new LAVA Centre (2017).)

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