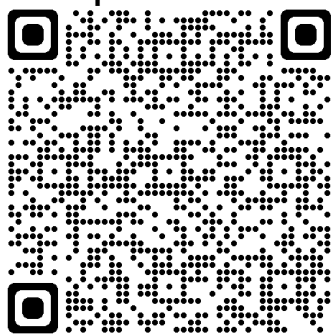


# GET READY TO STUDY A LEVEL GEOGRAPHY

If you are planning to study A Level Geography with us in September, please review this document and complete the required activities. Please bring the completed activities with you at induction.



## FAQ

### **What specification will I study?**

You will be studying the Pearson Edexcel A Level Geography specification. Use the weblink or QR code below to read about the specification and you can also view past papers to see what the assessment looks like.

[Edexcel A level Geography \(2016\) | Pearson qualifications](#)

### **How many lessons will I have a week?**

You'll have 4 lessons a week, each lesson is 1 hour and 5 minutes

### **Who can I contact if I have a question about this subject?**

Sarah King, Teacher of A Level Geography [s.king@barnsley.ac.uk](mailto:s.king@barnsley.ac.uk)

### **What subjects go well with Geography?**

Geography fits with science subjects such as Biology, Physics and Maths. It also works well with Social Science options, such as Psychology or Economics or History and Arts subjects.

### **What grades should I have?**

In addition to the general sixth form entry requirements, learners must have grade 5 or above in GCSE Maths. There is a significant data component in the course which demands this level of numerical competency.

# WHAT WILL I STUDY?

Year 12	<b>Topic 1:</b> Tectonic Processes and Hazards <b>Topic 2:</b> Landscape Systems, Processes and Change – a choice of <b>either</b> 2A Glaciated Landscapes and Change <b>or</b> 2B Coastal Landscapes and Change	<b>Topic 3:</b> Globalisation <b>Topic 4:</b> Shaping Places – a choice of <b>either</b> 4A Regenerating Places <b>or</b> 4B Diverse Places
	<b>Physical Systems and Sustainability</b>	<b>Human Systems and Geopolitics</b>
Year 13	<b>Topic 5:</b> The Water Cycle and Water Insecurity <b>Topic 6:</b> The Carbon Cycle and Energy Security	<b>Topic 7:</b> Superpowers <b>Topic 8:</b> Global Development and Connections – a choice of <b>either</b> 8A Health, Human Rights and Intervention <b>or</b> 8B Migration, Identity and Sovereignty

# WHAT WILL I NEED?

To study the course you will need the following equipment:

- A folder with dividers
- Lined paper
- Pens, pencils, ruler
- Highlighters
- A calculator

We recommend all students buy a textbook and these can be purchased from the college at the start of term. Financial support is available for those.

# FIND OUT MORE

These activities are to help broaden your understanding of the subject in preparation for studying this subject at an advanced level.

Careers	<a href="#">Geography careers: what jobs are linked to studying geography? (icould.com)</a> <a href="#">Royal Geographical Society - Why you should study geography (rgs.org)</a>
Social Media	<a href="#">Pearson Geography (@Edexcel_Geog) / Twitter</a> <a href="#">A Level Geography (@A_level_geog) / Twitter</a>
YouTube	<a href="#">you tube edexcel a level geography - Bing video</a>
Further Reading / Useful websites	<a href="#">A Level Geography</a> <a href="#">A Level Geography - Internet Geography</a> <a href="#">🔗 Free Edexcel A Level Geography Revision   Seneca (senecalearning.com)</a> <a href="#">Homepage   National Geographic</a> <a href="#">Geography News -- ScienceDaily</a>

# INDUCTION TASK

Geographers study the big issues facing the world today. 2022 was one of the most hazardous years on record. Worldwide, 2022 was marked by an abundance of devastating natural disasters, including floods, tornadoes, cyclones, wildfires (hydrometeorological- linked to climate change) and tectonic hazards- earthquakes, tsunamis and volcanoes. The first topic of study is tectonic processes and hazards.

## Topic 1: Tectonic Processes and hazards

This topic looks at the processes that pose a large risk to many part of the world. There are many places in world where there is an interaction between these dangerous processes and high population density. This topic addresses how and why some places are more vulnerable than others.

This is looked at through three key questions:

- 1) Why some locations are more at risk from tectonic hazards?
- 2) Why do some tectonic hazards develop into disasters?
- 3) How successful is the management of tectonic hazards and disasters?

There are two tasks to complete and bring to the first lesson:

**TASK 1: Knowledge and understanding-** Read the information which follows and the key resource (open by clicking on hyperlink or scanning the QR code). There are other sources, including a video to access. Use this information to answer the questions which follow.

**Key resource to use:**

[Essential Notes - Tectonics - Edexcel Geography A-level - Edexcel Geography A-level Tectonics - StuDocu](#)

**Other sources:**

[Edexcel A Level Geography - Tectonics EQ1 Revision - Bing video](#)

[EQ1: Why are some locations more at risk from tectonic hazards? \(coggle.it\)](#)



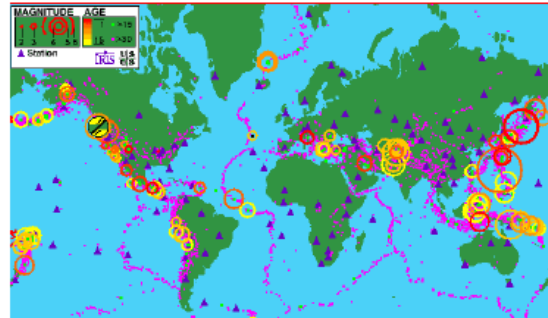
# Tectonic Processes and Hazards

## Enquiry question 1: Why are some locations more at risk from tectonic hazards?

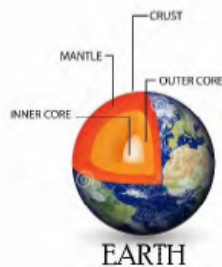
### The Global Distribution of Hazards

- A **hazard** is a potential threat to human life and property.
- A natural hazard can be either hydro-meteorological (caused by climatic processes) or geophysical (caused by land processes).
- Geophysical hazards occur near plate boundaries. These plates move at different speeds and directions which can cause collisions, earthquakes and volcanic activity as shown in the map.
- Earthquakes can also occur near the middle of plates (called intra-plate). The causes of this are not fully understood but it is assumed that plates have pre-existing weaknesses which become reactivated, forming seismic waves. For example, an intraplate earthquake may occur if solid crust, which has weakened over time, cracks under pressure.
- Volcanic hotspots, such as the Ring of Fire, are also situated amongst the centre of plates. This is a localised area of the lithosphere (Earth's crust and upper mantle) which has an unusually high temperature due to the upwelling of hot molten material from the core.
- At hotspots, such as the Hawaii hotspot, magma rises as plume (hot rock).

Earthquakes, Active Volcanoes, and Plate Tectonics



### Plate Tectonics and Theories



- The Earth's structure, as shown in the picture, is divided into four sections.
- Plate Tectonic Theory:
  - The earth's crust is divided into a series of plates. These plates are either oceanic (thin and dense) or continental (thick).
  - Radioactive reactions occur inside the core which produces convection currents in the mantle. This causes the tectonic plates to move.
  - At mid-ocean ridges, there is a push and slab pull. This is the process of subduction where oceanic plates are pushed under continental as oceanic plates are heavier.
  - The Pacific Plate is one such example which has a lot of subduction around its edges.
- Plate Tectonic Theory is believed to be correct due to evidence from Wegner's Continental Drift Theory which states that the shapes of South America and Africa seem to fit together so were once part of a supercontinent. As plates moved, the continent separated.
- Another piece of evidence is studying how seismic waves travel through the Earth. Along the Wadati-Benioff foci, the depth of waves shows subduction of the denser basaltic oceanic plates into the upper mantle.
- Sea Floor Spreading: This occurs when two oceanic plates move away from each other, allowing magma from the mantle to rise and form new crust ridges within the ocean, resulting in the sea floor widening.
- When the magnetic patterns of cooled magma (palaeomagnetism) were studied, it was discovered that the magnetic patterns were arranged in the direction of the earth's magnetic field which flipped every millions of years. This helps identify the age of the oceanic crust, by studying the youngest rocks at ridges, and proves that the earth did once fit together.

### Types of Plates

- Conservative – Plates move past each other but at different speeds, causing friction and collisions
- Constructive – Plates moving apart from one another

- Destructive – Plates move towards each other, colliding head on if both continental. If one is continental and the other is oceanic, subduction will occur where the oceanic plate is thrust under the continental. If there are two oceanic plates, the heavier plate will be forced under the other.

### Causes and Impacts of Earthquakes, Volcanic Eruptions and Tsunamis

#### 1) Earthquakes:

- The most powerful earthquakes occur at destructive and conservative boundaries.
- At constructive boundaries: Plates move at different speeds which builds pressure until plates crack, causing fault lines. This results in the release of seismic waves, producing earthquakes.
- At destructive, one plate is forced under the other, getting stuck due to friction which produces energy. As plates suddenly jerk past one another, this energy is quickly released, forming a powerful earthquake.
- At a conservative boundary, plates lock with one another which, when pressure is built, produces sudden seismic waves.
- Seismic waves can be split into categories. The P waves cause the immediate shock whilst the S wave has a longer wavelength and arrives seconds later. L waves only travel through the crust, causing horizontal movement. These waves can also result in crustal fracturing (producing faults) and secondary hazards such as landslides, avalanches and liquefaction.

#### 2) Tsunamis:

- Tsunamis are produced by sub- marine earthquakes at subduction zones, causing water displacement and deep trough waves.
- This hazard is always secondary to earthquakes, adding to death tolls. Tsunamis present additional damage to vulnerable communities such as coastal erosion, which is a case in Malibu/Santa Monica in California.
- The movement of plates under the ocean causes an uplift of ocean water, disrupting the sea bed.
- The 1964 earthquake on the Alaskan Coast caused a northern Californian tsunami, killing 12 in Crescent City.



#### 3) Volcanic Hazards:

- The world's active volcanoes are found at constructive and destructive plate boundaries, and at hotspots. These volcanoes eject magma, gases, ash and dust.
- At constructive margins, magma is less dense than the plate so rises above it, forming a volcano, such as those within the Rift Valleys.
- At destructive margins, subduction causes the melting of the oceanic plate, allowing for magma to rise on the crust to form a volcano. This produces explosive volcanoes such as Mt. St. Helens in the Ring of Fire.
- The shape of a volcano determines its destructive ability. A super-volcano is the most destructive but seldom occurs. A composite cone is said to be more dangerous than a shield volcano.
- Volcanic hazards involve lava flows and phreatic eruptions. Away from the volcano, the greatest threats are pyroclastic flows which carry heated rock and ash over larger distances.
- Secondary hazards involve water in the form of lahars (mudflows/typhoons) and jokulhlaups (glacial floods).



# Why are some locations more at risk from tectonic hazards?

## The global distribution of tectonic hazards

Hazards are natural events that have an adverse impact on people, the economy and society. Tectonic hazards include earthquakes and volcanic eruptions, as well

as secondary hazards such as tsunamis. The global distribution of these hazards is largely explained by the pattern of plate boundaries and their tectonic processes.

1 What is meant by a *plate boundary*?

2 marks

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2 Name the FOUR types of plate boundary.

4 marks

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3 Identify the TWO plate boundaries where the most powerful earthquakes occur.

2 marks

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4 Identify the TWO plate boundaries where most volcanoes occur.

2 marks

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5 What are *hotspot volcanoes* and where do they occur?

4 marks

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6 Describe the origins of the Mid-Atlantic Ridge and its associated tectonic hazards.

6 marks

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7 Why are some locations more at risk from tectonic hazards than others?

3 marks

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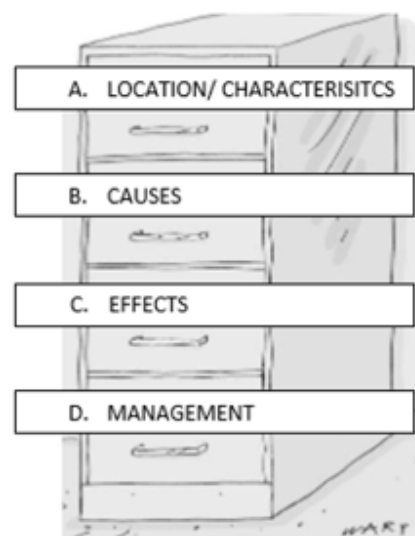
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## TASK 2: Skills and application- Investigation of recent tectonic event

As we discussed in the taster session, Geography is a way of thinking about the world which helps make sense of the big issues facing the world today such as hazards, migration, climate change and globalisation. These issues can be explored through four key categories of thinking, as shown in the geographical filing cabinet.

Geography is about making sense of the big issues which face the world today by investigating...

- **What? NATURE/ LOCATION/ CHARACTERISTICS of ISSUE**  
(Location, characteristics, facts)
- **Why? CAUSES OF EVENT OR ISSUE**  
(Human and physical)
- **What impacts? EFFECTS**  
(Social, Economic, Environmental and Political)
- **How managed? MANAGEMENT**  
(by timescale- short, medium and long term and by scale- local, national, regional or international)



The filing cabinet of Geography, Dr S King



Choose a tectonic event which has happened in the last few years and develop a case study analysis of the event. You can choose an earthquake, volcano or tsunami. There are some examples below and you can view satellite imagery of the events by opening the link, either by clicking on the hyperlink or scanning the QR code

[Natural Disasters 2022: Terrible Losses And Valuable Lessons \(eos.com\)](https://eos.com/news/natural-disasters-2022-terrible-losses-and-valuable-lessons)



## Natural Disasters 2022: Volcanic Eruptions And Earthquakes

Neither large-scale volcanic eruptions nor earthquakes of magnitude 6.5 or greater are common occurrences. However, early detection of a disaster is not always achievable, especially in the case of a volcanic eruption. More in-depth research into these natural disasters, particularly with the help of satellite monitoring, is now required to improve early danger identification, preparedness, and resilience building, all of which have the potential to minimize the harmful impact of natural disasters.

### Indonesia Earthquake In 2022

On November 21, 2022, an earthquake measuring 6.5 magnitudes hit the Cianjur District and much of West Java Province. The hundreds of aftershocks hampered recovery after this natural disaster of 2022. Some people were buried in buildings that collapsed or were carried away by a landslide. Thus, the rescue operations shifted to search and recovery only after a few days.

Official numbers show 321 confirmed deaths, 595 serious injuries, and over 10,000 minor injuries due to the recent 2022 natural disaster. The government estimates that 73,874 individuals have been displaced from their homes and over 62,000 dwellings have sustained damage. The earthquake worsened the humanitarian crisis even more by destroying 342 educational institutions.

### China Earthquake In 2022

On September 5, 2022, a powerful earthquake with a magnitude of 6.6 struck the Sichuan province of China. Hundreds of kilometers away from the natural disaster epicenter, more than a million people in Garzê Tibetan Autonomous Prefecture (Ganzi), as well as the provinces of Shaanxi and Guizhou, felt the shocks of the earthquake. Aftershocks of differing magnitudes have continued to occur. This quake is among the largest natural disasters of the kind in recent memory for the Sichuan province.

# Hunga Tonga-Hunga Ha'apai Eruption In 2022

Hunga-Tonga-Hunga-Ha'apai (HTHH), a volcano in Tonga, erupted on January 15, 2022, with an explosion more immense than anything seen since Krakatoa's 1883 eruption natural disaster. The eruption generated up to 15-meter tsunami waves and hit the west coasts of Tongatapu, 'Eua, and Ha'apai. Harbors and shores as far afield as Peru and Chile in the eastern Pacific and Japan in the northwest Pacific were hit by the destructive waves of this 2022 natural disaster.

Surveillance flights and satellite monitoring revealed extensive natural disaster's damage to homes, roads, and other infrastructure on the western shores of Tongatapu, the Ha'apai island group, and 'Eua. Authorities estimated that 84,176 people (or 84% of the population) on Tongatapu, Ha'apai, and 'Eua were impacted by the ashfall, which covered an area of five square kilometers. The HTHH eruption and the following tsunami caused the deaths of four people.



Present your case study in a format of your choice- as a mind map, poster, table, powerpoint, publisher, report	Do not make linear notes
Make sure your case study is structured	Do not just list information
Keep within 2 sides of A4 or one A3 poster size	Do not exceed 2 sides of A4 or one A3
Write in your own words	Do not copy and paste
Make a list of sources of information you have used (this is a reference list or bibliography)	Just rely on one source of information

**THIS WORK IS DUE FOR:**

**Your Induction Lesson.  
Please ensure you bring it  
with you!!**

**If there are any questions about this  
work, you can email Shannon at:**

**[s.king@barnsley.ac.uk](mailto:s.king@barnsley.ac.uk)**