Introduction: *What is geology?*

Geology is the study of the Earth's structure and 4.567 billion years of natural history. A science subject, geology underpins the provision of resources to the UK's population and industry, delivers a wide range of essential services, and helps us understand how we can live more sustainably on our planet.

More information on geology can be found here: <u>www.geolsoc.org.uk/geology-for-society</u>

I suggest you spend some time become more familiar with Geology the subject as preparation for the course.

Where can A level geology take me?

Geology is a more popular subject at university than most people realise, with 1455 geoscience places open to students in a typical year(UCAS). Research conducted by OCR shows that students who have studied the Geology A level are 19 times more likely to study geology at university than those without, revealing just how inspiring the Geology A level is.

Career prospects are also strong among geology graduates. Geology is also a hugely relevant sector of the UK economy, contributing 16% of total UK GVA through production and first use industries. Even with this strong economic dependence, geologists are in short supply, with geologists, geochemists, geophysicists and hydrogeologists all featuring on the Home Office shortage occupation list.



Geological map of the UK.

The UK for a relatively small place has virtually the whole sequence of rocks spanning geological time with those found at the top of Scotland being some of the oldest on the planet all the way down to (geologically speaking) young, recently formed rocks in the South-East of England.

Task 1

It can be tough for A-Level Geologists to really get a grip on the idea of geological time at first since it really is so vast. When we talk about events which occurred millions, and maybe even billions, of years ago we can quickly start to lose track, you might even hear a geologist saying 50 million years ago is really quite recent!

Fortunately, Geologists have divided the last 4.5 billion years of Earth's history into some discrete little packets which have some distinguishing characteristics which can help you tell them apart, for example the Permian period is dominated by arid terrains, lots of desert environments and creatures like Dimetrodon (think dinosaur like but with the "sail" on its back).

There are lots of great website links that can explain Geological time but one of my favourites is PBS Eon YouTube channel. Start with <u>this clip</u> and then try the <u>others here</u> to build your familiarity.

Create a flow diagram (using Word or PowerPoint) demonstrating the different subdivisions of geological time and use information from these short YouTube clips to label on your diagram an overview of how the Earth has changed through time highlighting only the most significant events e.g. episodes in the evolution of life, major geological events such as continents splitting up, huge volcanic events, meteorites, mass extinctions etc.

Task 2

In order to spark the imagination, there are unlimited examples of fascinating geological features all over the globe. As part of A Level Geology, we delve into the mysteries of several geological phenomena. This task allows you to investigate a geological feature of your choice and present this as a case study. It is entirely up to you how you present it - poster, essay, PowerPoint etc. I will ask you to discuss in the opening lessons of the course what you chose and the key features that interested you about it. Try to be as imaginative as possible and pick a feature that you think no one else will choose. Below are some examples (obviously don't just choose one of them unless you are really struggling to think of your own):

- The Great Barrier Reef, Australia
- East African Rift Valley
- Himalayan Mountain Range
- Hawaiian volcanic island chain

You must present your case study in a level of detail you think others in the group will understand and enjoy, making sure that the information you include is relevant to the geological processes that created it.



Task 3

Lastly, there are a wealth of resources out there to explore. Before you embark on A Level Geology, it is important that your knowledge of the Earth and its processes is broadened, with you being able to name and describe specific examples, just like in Task 2. In order for you to do this, there are several documentaries that are definitely worth watching. We will dip into these throughout the course; however, it would be a great opportunity to watch as many as you can. The broader your knowledge of the planet, the easier it is to understand the geological processes that shape it. The list below gives you a starting point:

Professor Iain Stewart (BBC) - some of these can be watched free on YouTube, or bought 2nd hand very cheaply – I suggest focus on the free ones

- Men of Rock
- How Earth Made Us
- Earth: The Power of the Planet
- Climate Wars
- How Oil Made Us
- Journeys from the Centre of the Earth
- Making Scotland's Landscape
- Rise of the Continents

Sir David Attenborough (BBC) - lots of geological content, even in the wildlife documentaries

- Life on Earth
- Planet Earth

- Lost Worlds Vanished Lives
- Blue Planet
- Frozen Planet

https://www.bbc.co.uk/iplayer/group/p06m42d9

• Walking with Dinosaurs

This is really just a starting point. There are some wonderful books that will be pointed out throughout the course, as well as some useful websites that deliver key geological concepts, and provide interactive activities:

https://www.bgs.ac.uk (British Geological Survey)

<u>https://www.geolsoc.org.uk</u> (The Geological Society of London) <u>https://www.usgs.gov</u> (U.S Geological Survey)

in the opening lessons I will be looking at what you produced and asking you to tell me about what you have watched – the most important thing about this transition work – I want you to be excited to begin the course and ready to commit to doing the work needed to excel at it. Enjoy!