Progression - Geology

Contents:

I. Introduction

It is great that you are considering studying Geology at A Level.
This pack contains a set of tasks and resources to prepare you to start an A Level in Geology. It should be completed after you complete your GCSE exams, throughout the remainder of the summer term and over the summer holidays to ensure you are ready to start your new A level course in September.

The pack will touch on a range of key topic areas and some skills linked to A level Geology: Fundamental Geology (types of rock and mineral), Past Climates, Fossils, Earth Structure.

"The best geologist is [the one] who has seen the most rocks" (H.H. Read, 1940)

II. 'Think like a geologist'

TASK 1: Observe and notice.

Over the course of your A level Geology, you will learn new skills which help you to apply your knowledge learnt to the subject and conduct important field work. Your first task is to look at the world around you and notice differences in the rocks you see. Conduct a sketch of a rock that you have (perhaps you have one from a holiday, or have a rock in a garden, if not see what interesting rocks you can find online and draw one – try to include some observations such as colour, shape, lustre – whether it is shiny/dull/metallic/resinous, what it contains – any fossils or minerals present etc.).

III. Things to read or watch

OCR geology specifications – more about what is in the course:
https://www.ocr.org.uk/qualifications/as-and-a-level/geology-h014-h414-from-2017/
Geological Society London: https://www.geolsoc.org.uk/
https://www.geolsoc.org.uk/Geology-Career-Pathways/What-is-Geology

TASK 2: Research

Things to read or watch

Some good general geology sources:

Geology: https://geology.com/

Ted talks:
https://www.ted.com/talks/kenneth_lacovara_hunting_for_dinosaurs_showed_me_our_place_in_the_universe/footnotes

Summarise the Ted talk you chose to watch in 150 words.

What is happening to the plates?
https://www.newscientist.com/article/mg22329843-000-earths-tectonic-plates-have-doubled-their-speed

A really good source of scientific research for all of your studies and something to keep an eye on for university/personal statements is:

THE CONVERSATION

Subscribe to their daily email newsletter here: https://theconversation.com/uk and see what interesting geology articles you can find.

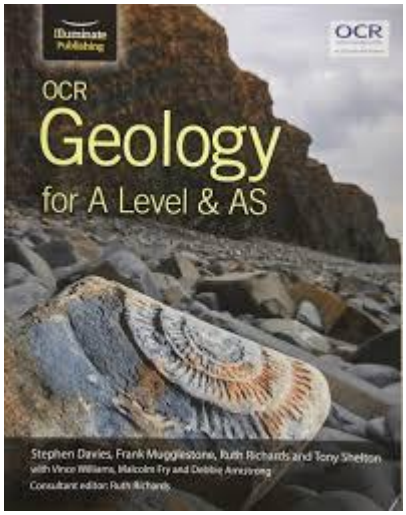
Summarise a Conversation *geology article/discovery which has happened over the summer in 250 words.*

Geology DVD's:

Earth Story
Earth the power of the planet

Reference guides:

OCR Geology (course textbook- Publisher: Illuminate Publishing, ISBN: 9781911208143)



Understanding Earth (ISBN: 9780716776963)

IV. Topic based tasks – research and make observations

In Geology it is vital that you learn how to make and record observations. Research and nomenclature (names of things) is a big part of learning a new subject and with geology there are lots of classifications.

TASK 3: Study, research and complete the table and questions below.

The table below shows descriptions of different modes of life.

Complete the table by filling in the correct term chosen from the list provided. Terms may be used once, more than once or not at all.

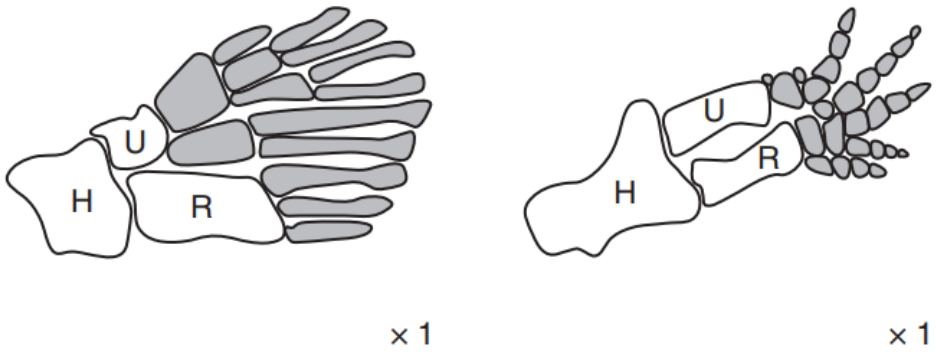
articulated benthonic infaunal nektonic planktonic sessile vagrant

mode of life	term
lives in sediment, usually in a burrow	
bottom dweller that lives on or in the sediment substrate	
actively swims in the water column	
moves around the sea bed	
floats in the water column, carried by currents	

Evolution and fossils

The limbs of an early fish and an early amphibian are shown below.

fish **amphibian**



× 1 × 1

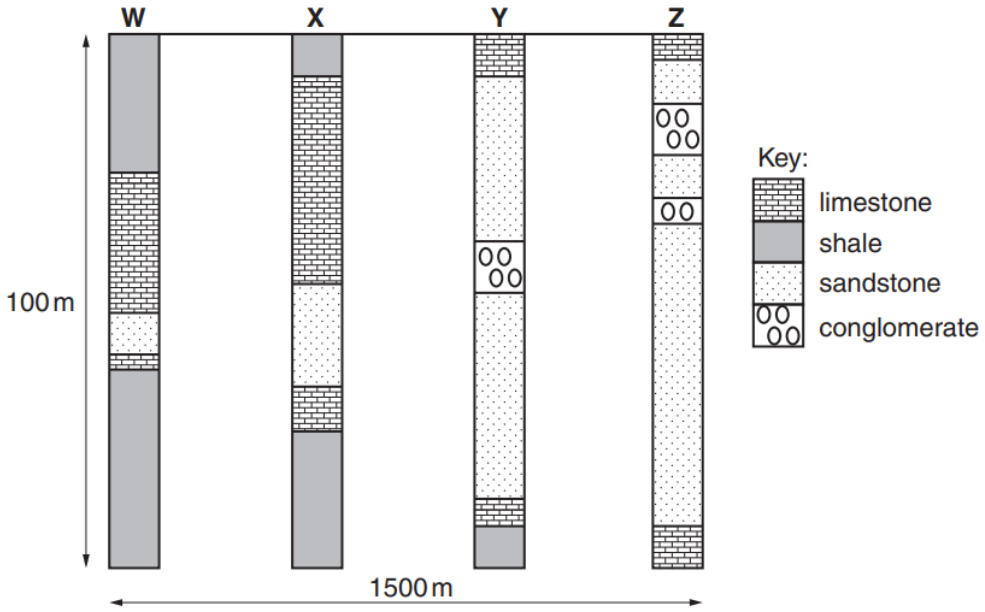
KEY: U = ulna, R = radius and H = humerus

A) analyse the diagrams of the fish and the amphibian above – what are the main similarities and differences you can see?

(B) what other evolutionary change in morphology (body shape) happened between fish and amphibians

(C) make links between different geology spatially and temporally (in space and time).

Four boreholes (**W**, **X**, **Y** and **Z**) were logged and are shown in the diagram below.

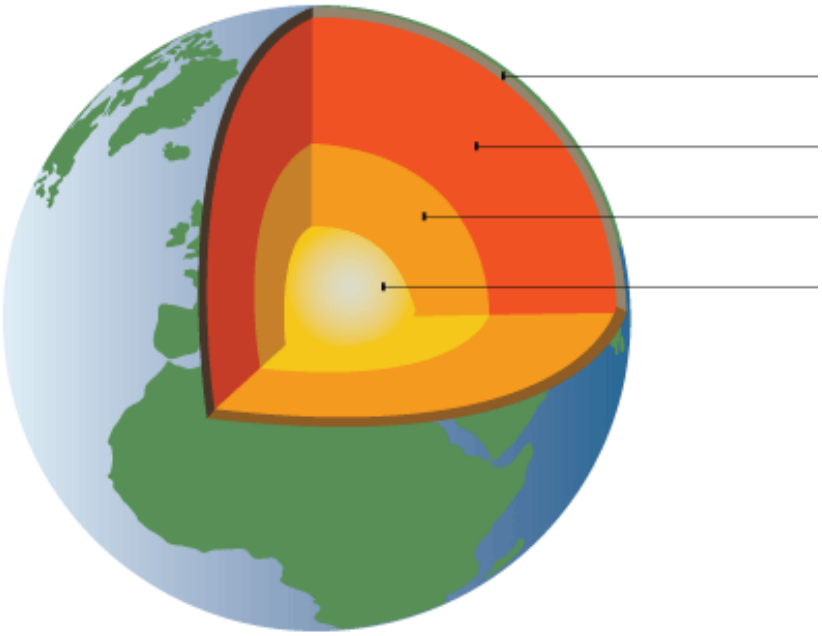


(i) Correlate the beds by drawing lines between the four boreholes.

(D) watch the video and summarise the "nebular theory" in < 300 words.

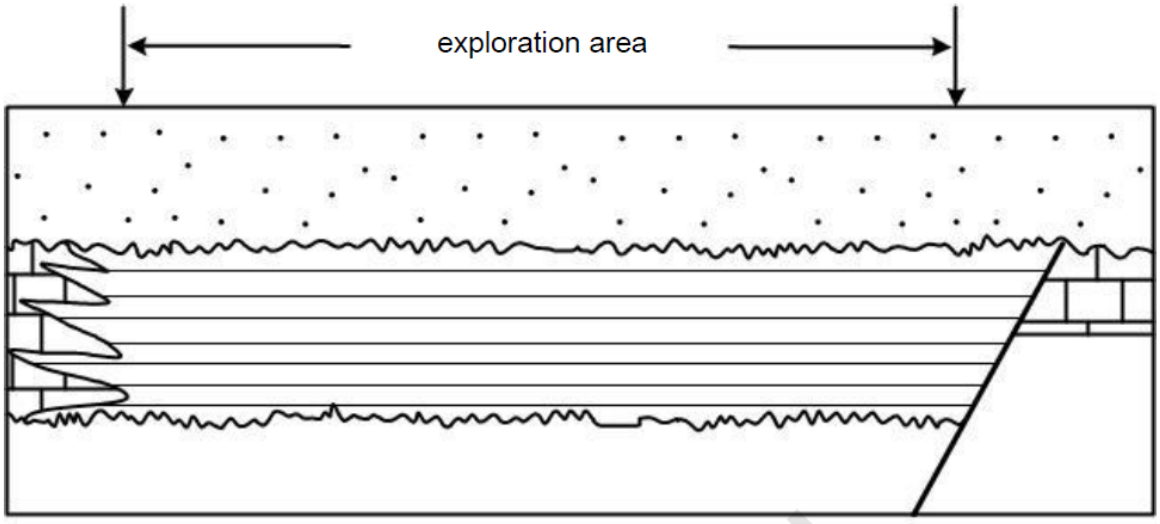
https://www.youtube.com/watch?v=PL3YNQK960Y

(E) using the link:
http://www.bgs.ac.uk/discoveringGeology/hazards/earthquakes/structureOfEarth.html
research and complete the diagram below (make sure to include the depths of each boundary in the earth).



(E - i) what evidence do we have for the layers of the earth?

(F) the figure below shows a cross section of an area that an oil/gas company is looking to extract hydrocarbons from. The exploration area is circular.



horizontal scale 1 cm: 5 km
vertical scale 1 cm: 1 km

Calculate the volume of the shale rock (horizontal striped) in the exploration area to the nearest whole number. Make sure you include units.