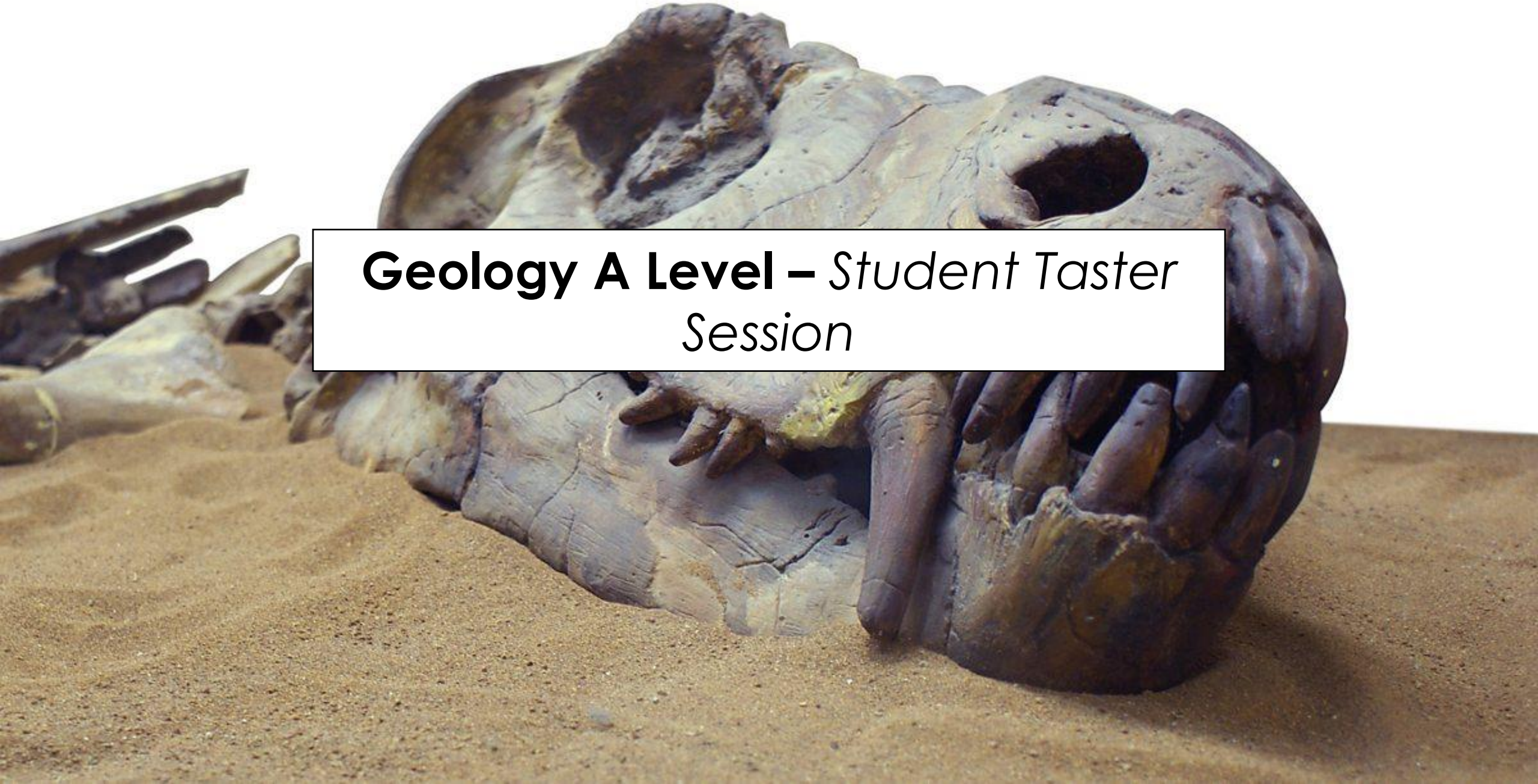


Geology A Level – *Student Taster Session*


What topics will I learn about?
What opportunities might an A Level in Geology provide?
How will I be assessed?
This session will discuss the following areas...
What skills will I acquire?
What can I expect from my first few weeks of A Level study?
Practical Endorsement Certificate
What preparation should I be doing during the summer months?

What topics will I cover?

There are seven teaching modules:

- **Module 1:** Development of practical skills in Geology
- **Module 2:** Foundations in Geology
- **Module 3:** Global tectonics
- **Module 4:** Interpreting the past
- **Module 5:** Petrology and economic Geology
- **Module 6:** Geohazards
- **Module 7:** Basin analysis

How will I be assessed?

There are three examinations in Geology, and no coursework…

- **Fundamentals in Geology (110 marks):** 2 hours 15 minutes
- **Scientific Literacy (100 marks):** 2 hours and 15 minutes
- **Practical Skills in Geology (60 marks):** 1 hour 30 minutes

Practical Endorsement Certificate

In addition to you're A-Level, there is an opportunity to get an extra qualification!

The Practical Endorsement Certificate is a *pass/fail* component which runs throughout the entirety of the course.

Practical tasks will be completed in the field and in a laboratory.

Entry Requirements

You do not have to have done Geology at GCSE to study Geology at A Level… You just need to have an interest in Earth Sciences.

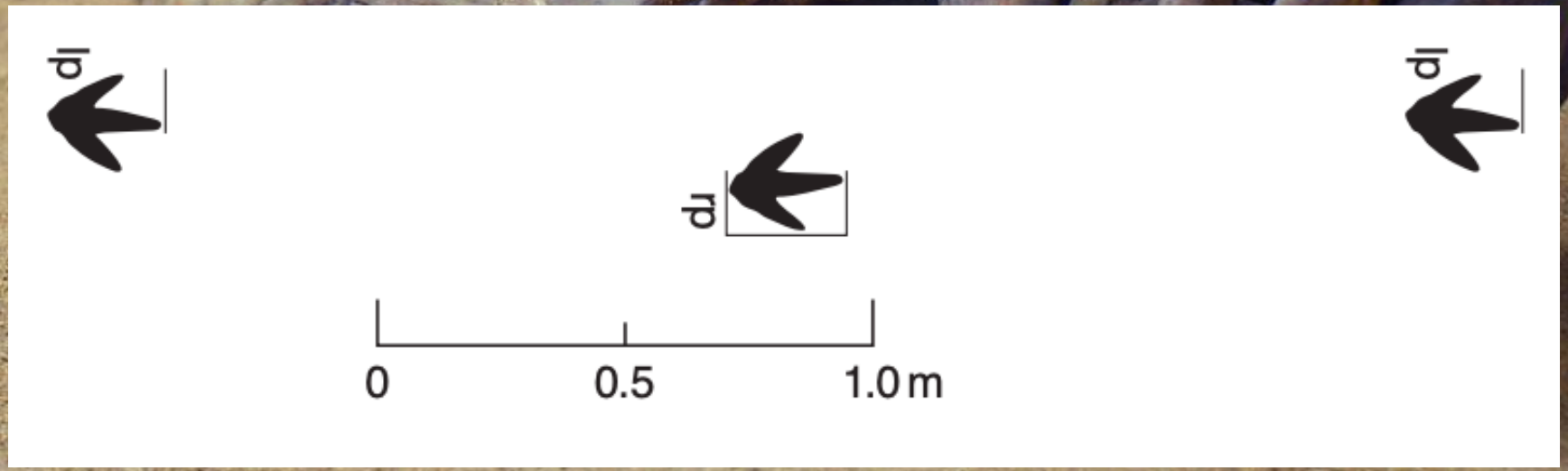
We, however, do require a **5 in Mathematics (GCSE)** and a **6 in Science (GCSE)**

Note: There is a compulsory residential to Dorset in year 2.

An example of what we get up to...

We can use fossilised dinosaur tracks to figure out morphological aspects of the species, such as leg length, mass, and speed...

The distance between the same point on the 'print' of consecutive right or left feet gives the stride length of the dinosaur. Use the scale on the trackway diagram below to determine the stride length of the dinosaur.



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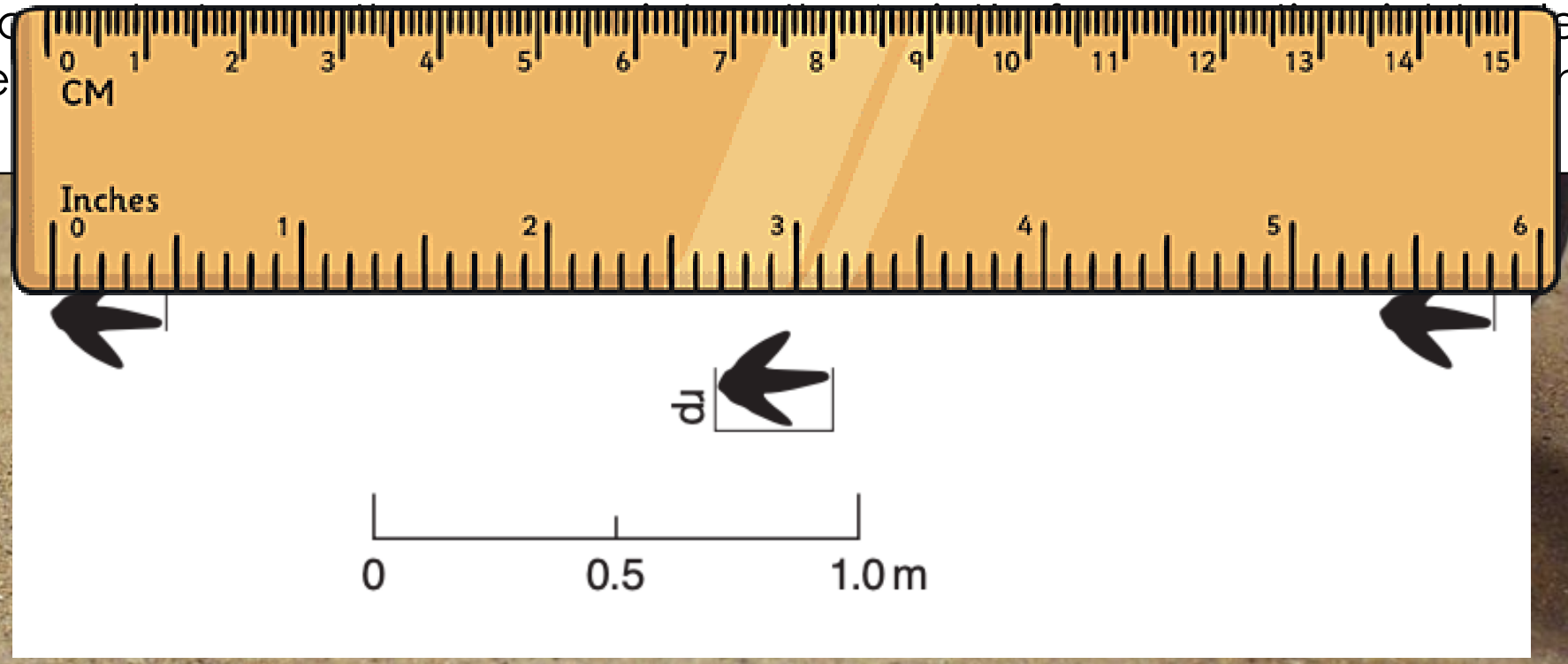
The dist eft feet gives the n below



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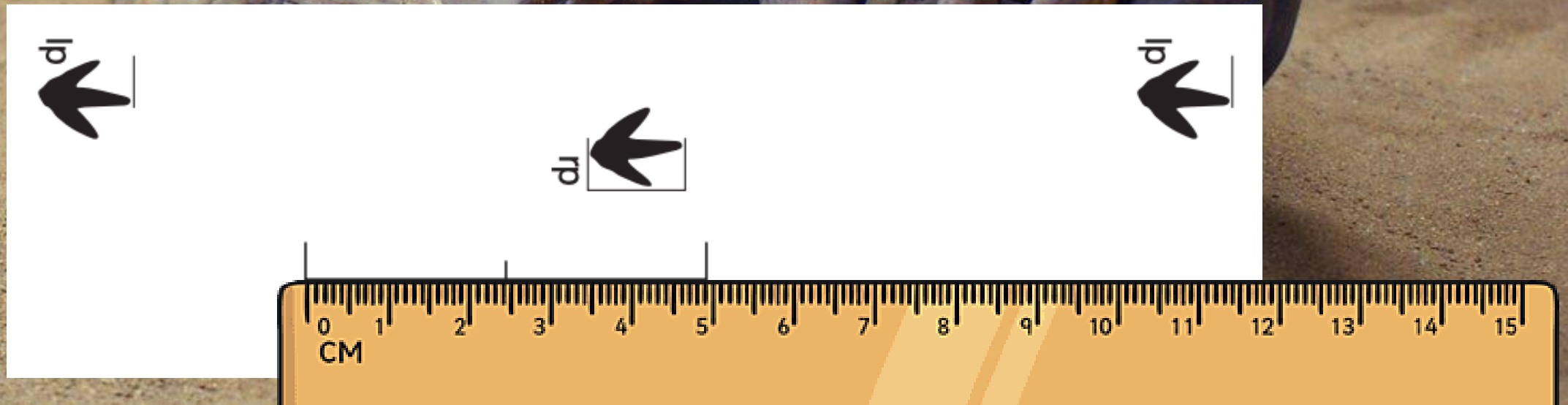

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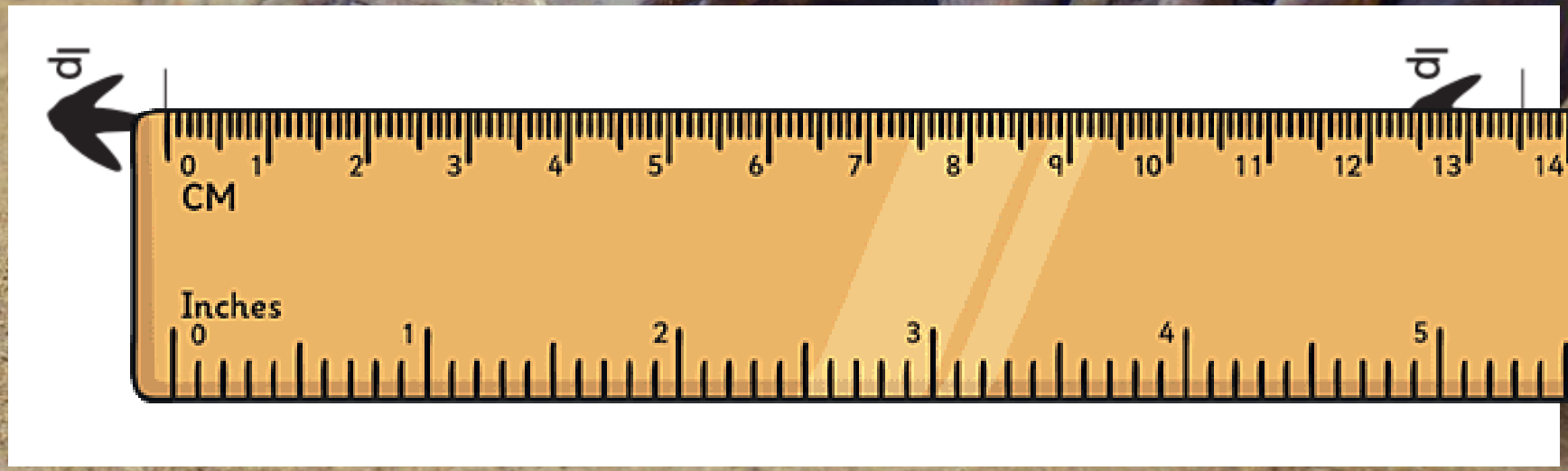


An example of what we get up to...

So... Our Tyrannosaurus has a stride length of 13.5cm according to our ruler, but we need to apply a conversion.

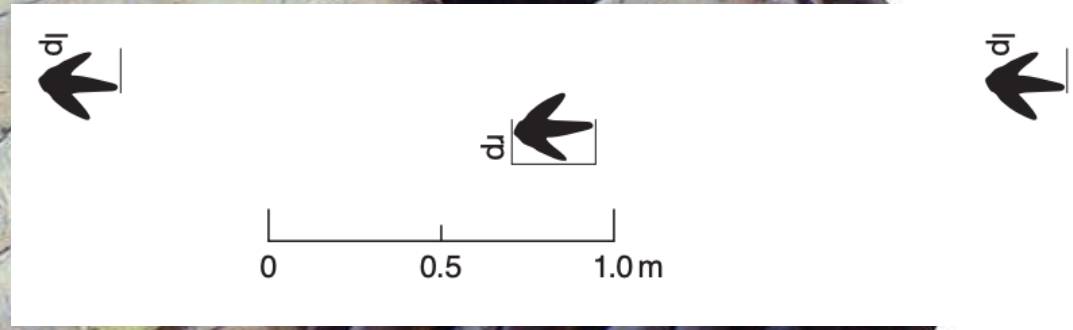
5cm = 1m

Hence, we need to work out what 1cm is in metres:

$$\frac{5}{1} = 0.2m$$

Now, we need to multiply 0.2 by 13.5...

$$0.2 \times 13.5 = 2.7m$$



An example of what we get up to...

The length of stride can be used to find the actual speed of the dinosaur. The method relies on experimental data collected from mammals to compensate for the size of the animal and uses two dimensionless variables:

- the relative stride (which is the stride divided by the leg length)
- the dimensionless speed.

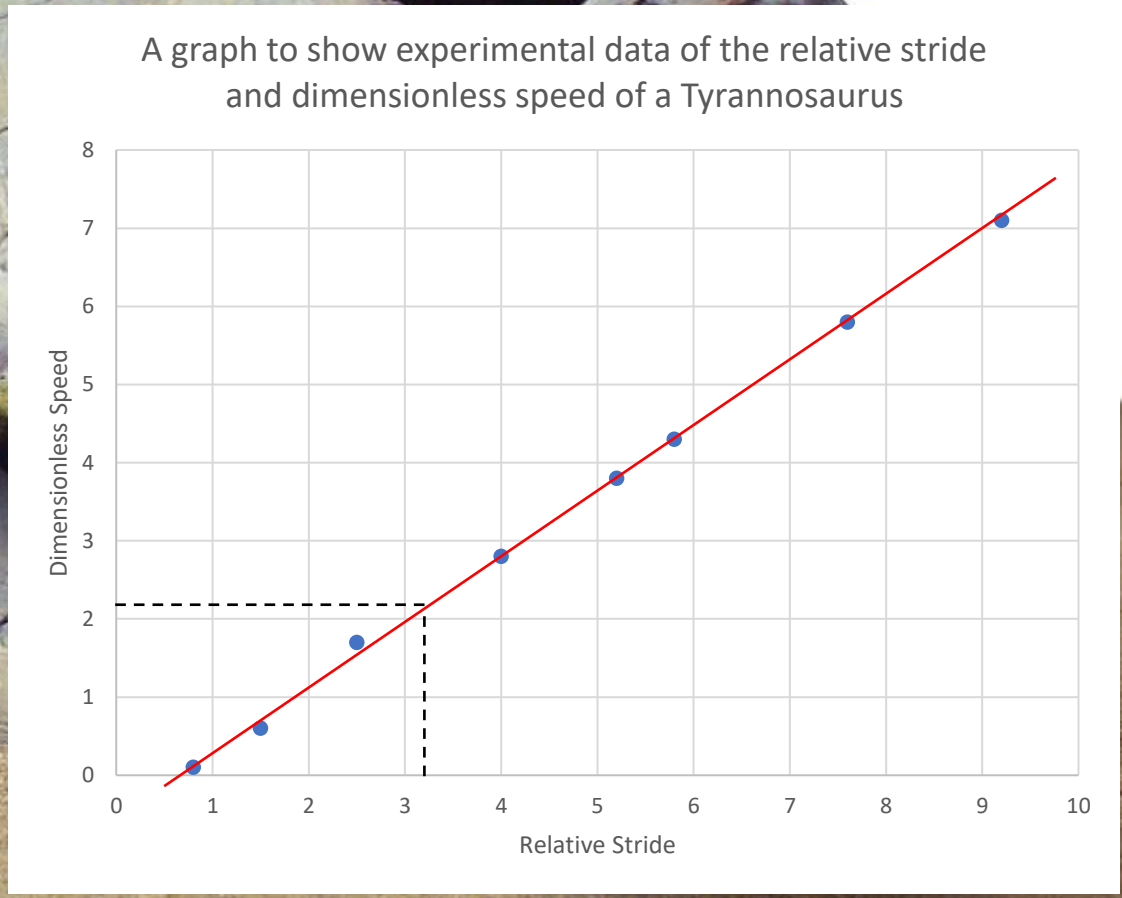
Relative stride	Dimensionless speed
0.80	0.1
1.50	0.6
2.50	1.7
4.00	2.8
5.20	3.8
5.80	4.3
7.60	5.8
9.20	7.1

An example of what we get up to...

We can plot this graphically...

And draw a line of best fit.

A Tyrannosaurus rex with a leg length of 2.5 metres had a relative stride of 3.2. Using the line of best fit, we can determine the dimensionless speed of this dinosaur.



An example of what we get up to...

Using the formula below, we can calculate the actual speed of the dinosaur.

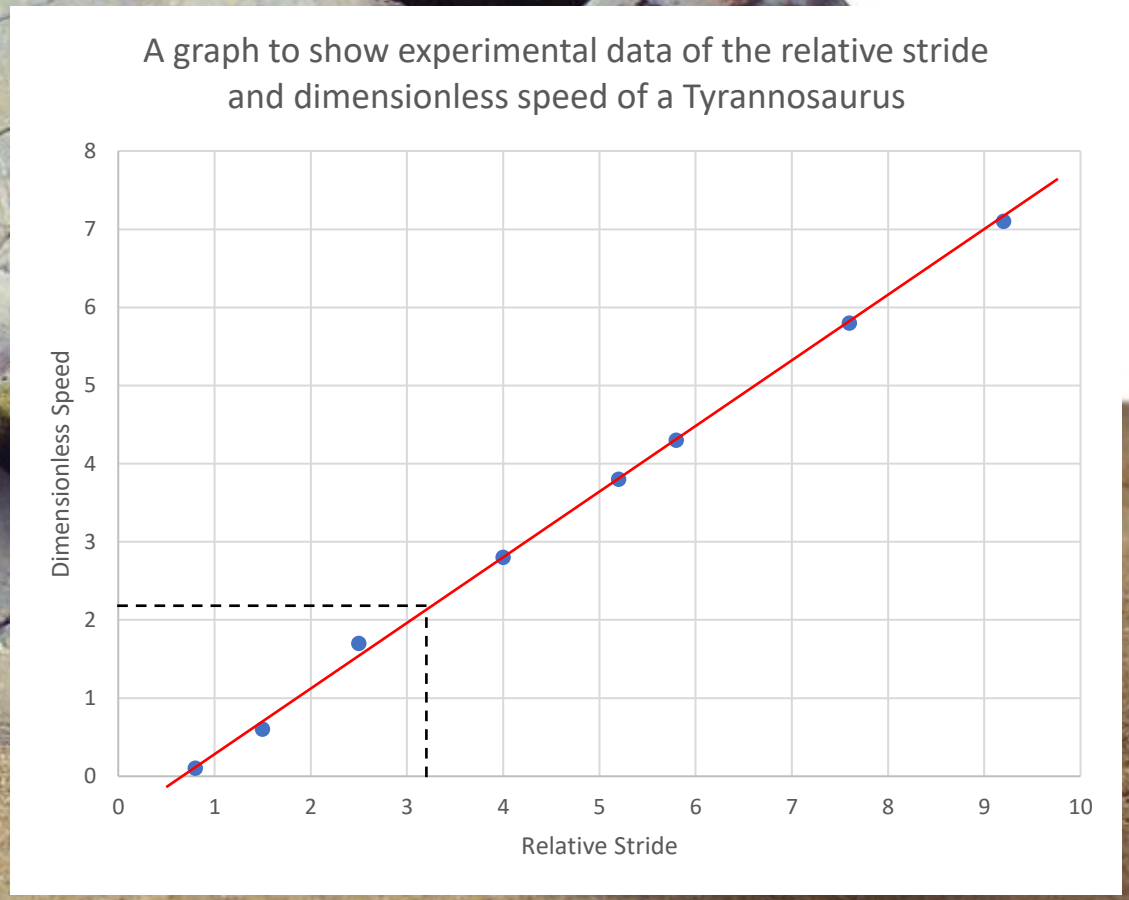
$$Actual\ speed = dimensionless\ speed \times \sqrt{(leg\ length \times g)}$$

g = 10m/s^2

$$Actual\ speed = 2.2 \times \sqrt{(2.5 \times 10)}$$

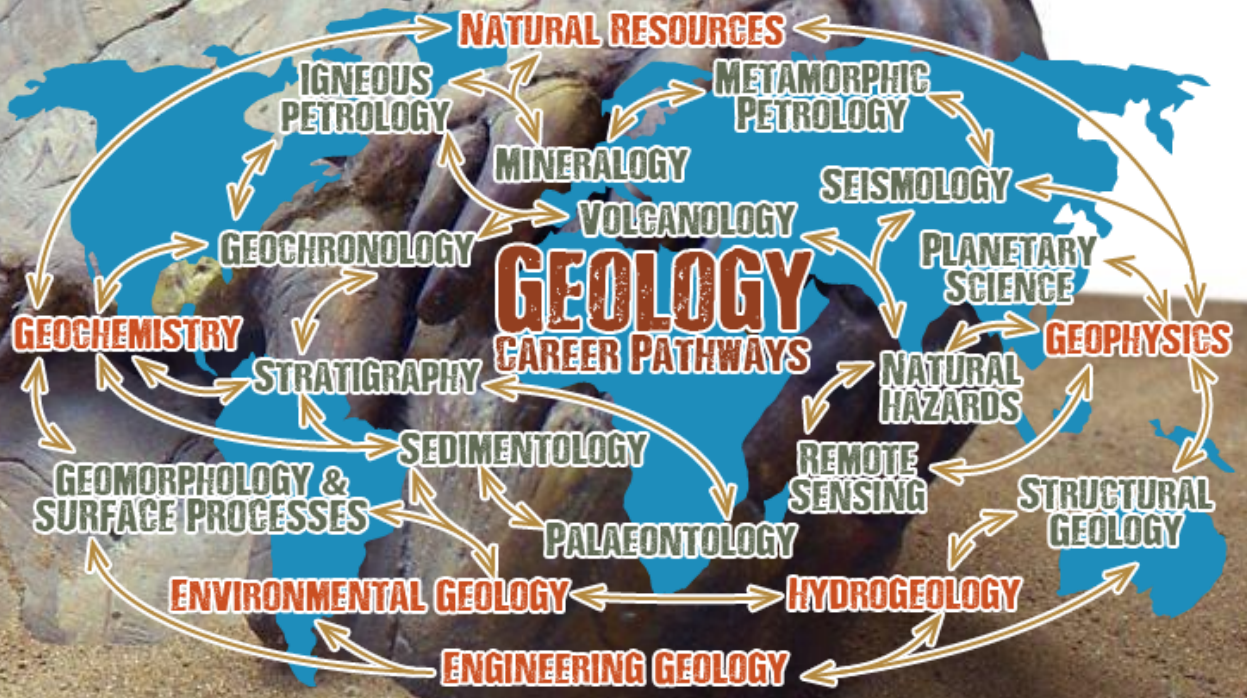
= 11m/s

Which is nearly 40kmph!



Why study Geology?

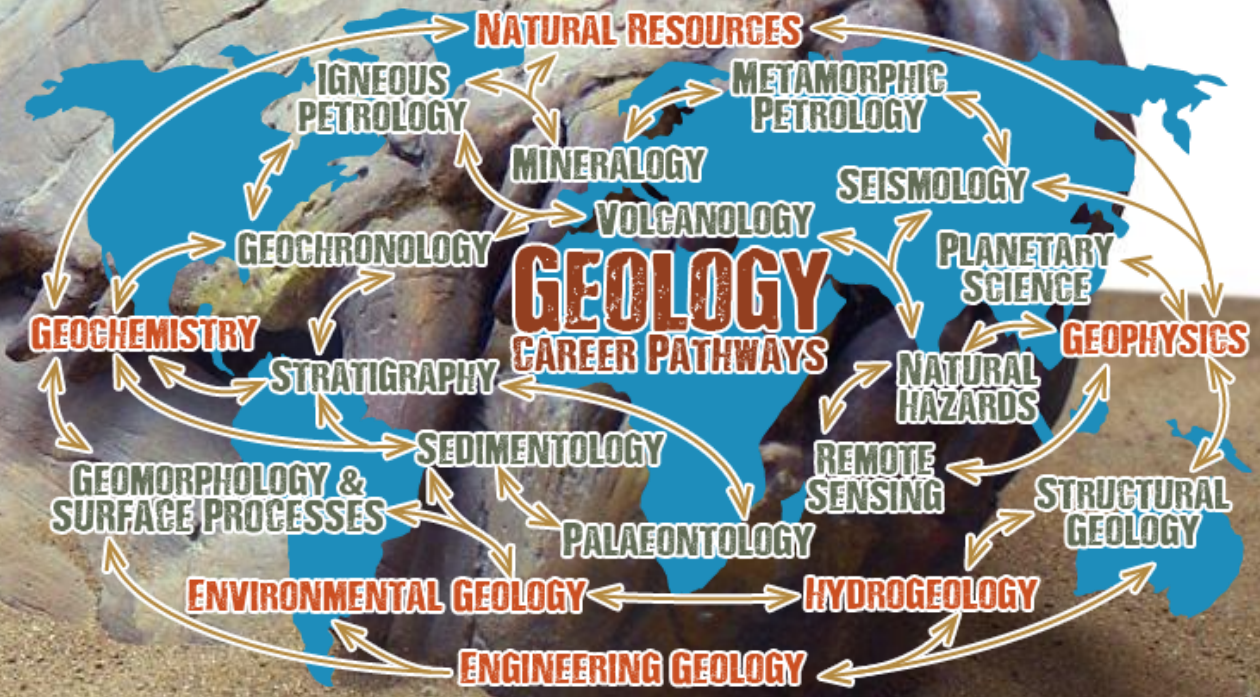
Geology is the study of the Earth – how it works and its 4.6 billion-year history. Geologists study some of society's most important problems, such as energy, water, and mineral resources; the environment; climate change; and natural hazards like landslides, volcanoes, earthquakes, and floods.



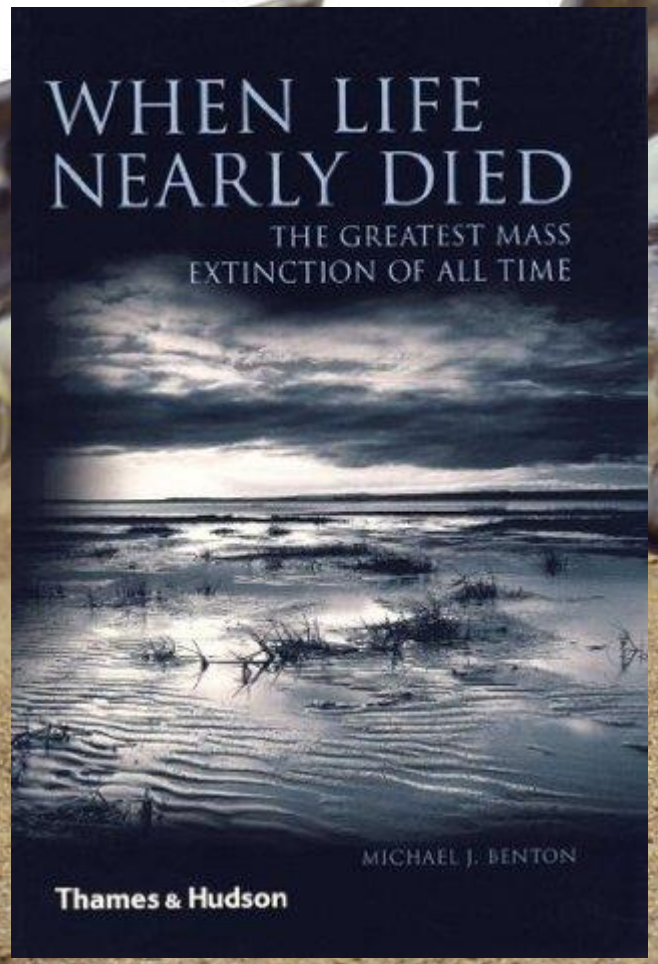
Why study Geology?

There is currently a shortage of well-trained geoscientists and the **demand is growing**. If you like science, care about the earth, are fascinated by the natural world, and like working outdoors, consider geology.

Earth is calling...

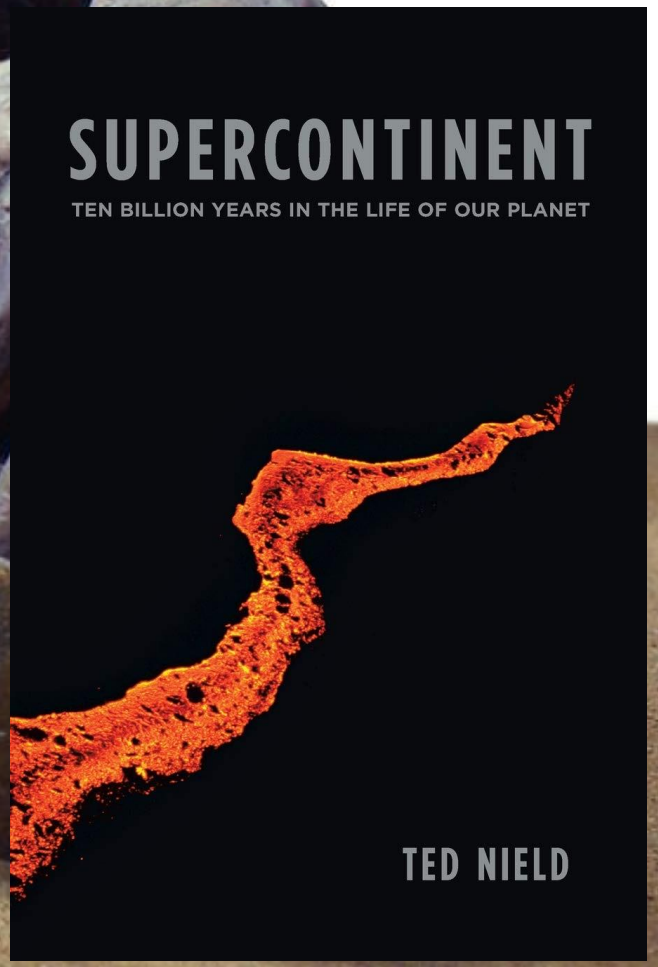


What work can I complete over the summer?



You could read…

- Snowball Earth – Gabrielle Walker
- Supercontinent – Ted Neild
- Night Comes to the Cretaceous – James Lawrence Powell
- Richter's Scale – Susan Elizabeth Hough
- When Life Nearly Died – Michael Benton

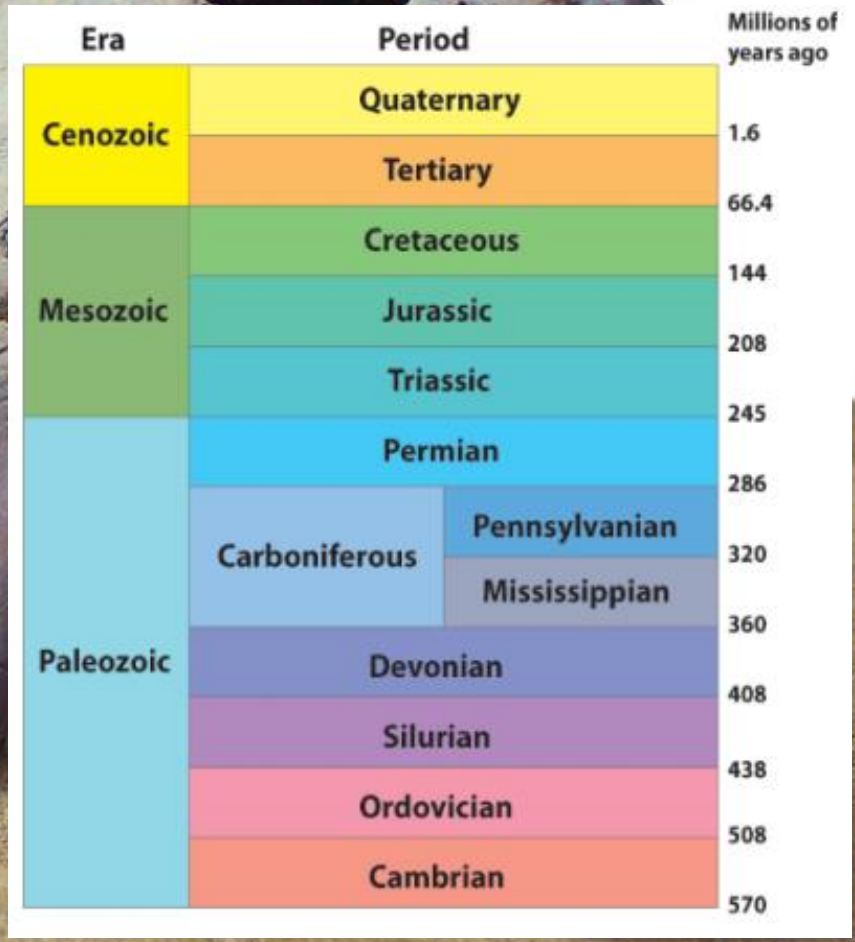


What work can I complete over the summer?

You could watch…

- Deep Time (*oil exploration*)
- Blood Diamond (*African diamond mining*)
- The History of Earth – How Our Planet Formed (*YouTube documentary*)

It would also be useful to… Start getting to grips with geological history. Print out a copy of the geological column and familiarize yourself with the sub-divisions of time.



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