

7. The Restless Earth

1. Discuss in pairs or small groups.

What crucial events in the Earth's history can you name? Do you know when they happened?

2. Here is a description of the events in which the geological history is compared to human life. Notice when the events happened in the different time scale.

A simplified history of the Earth

*We can **depict** Mother Earth as a lady of 46, if her 'years' are megacenturies. The first seven of those years are wholly lost to the biographer, but the deeds of her later childhood are to be seen in old rocks in Greenland and South Africa. ... Most of what we **recognize** on Earth, including all substantial animal life, is the product of the past six years of the lady's life. Her continents were quite bare of life until she was getting on for 42 and flowering plants did not **appear** until she was 45, just one year ago. At that time, the great reptiles, including the dinosaurs, were her pets and the break-up of the last supercontinent was in progress. The dinosaurs **passed away** eight months ago and the upstart of mammals **replaced** them. In the middle of last week, in Africa, some men-like apes **turned into** ape-like men and, at the weekend, Mother Earth began **shivering** with the latest series of ice ages. Just over four hours ago Homo sapiens started **chasing** the other animals and in the last hour it has **invented** agriculture and **settled down**. Just one minute has passed, out of Mother Earth's 46 'years', since man began his industrial revolution, three human lifetimes ago. During that time he has **multiplied** his numbers and skills prodigiously and **ransacked** the planet for metal and fuel.*

N. Calder, The Restless Earth, 1972,

abbreviated

3. Vocabulary. Match the verbs from the text with their synonyms:

increase in number

start a stable way of life

take the place of, substitute

come into existence

die out

describe

change into

shake with cold, tremble

follow in order to catch

know or identify

search through

create something new

4. Geologic time scale

D. Waugh, Geography, 2002, p.8, <http://www.britannica.com/media/full/66800>

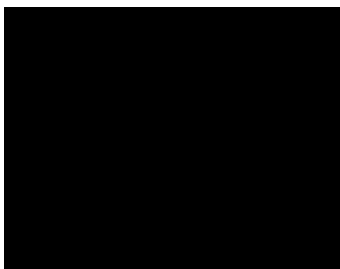
ERA	PERIOD	Millions of years ago	EVENT
CENOZOIC	Quaternary	Holocene	0.01
		Pleistocene	2.6
	Tertiary	Pliocene	5
		Miocene	23
		Oligocene	34
		Eocene	56
		Paleocene	66
MESOZOIC	Cretaceous	145	
	Jurassic	201	
	Triassic	252	
PALAEOZOIC	Permian	298	
	Carboniferous	358	
	Devonian	419	
	Silurian	443	
	Ordovician	485	
	Cambrian	541	

4. When did these events happen? Place them in the table above.

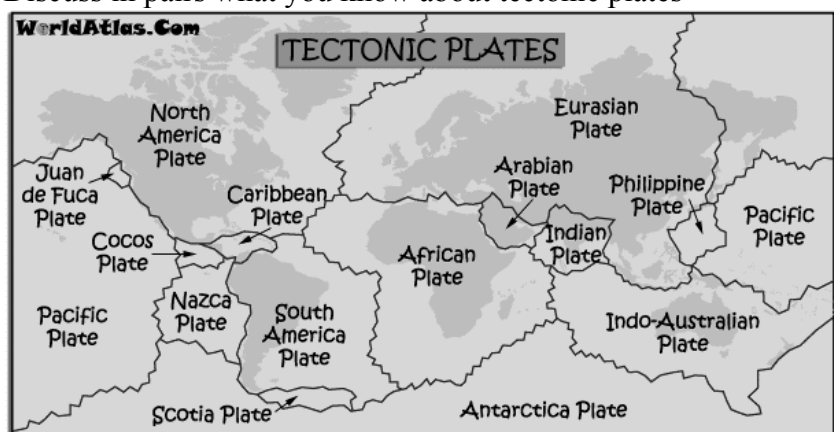
1. end of dinosaurs
2. formation of Pangaea
3. first mammals emerged
4. first vertebrates
5. formation of the Alps
6. emergence of the human
7. the Himalayas begin to form
8. Trilobites
9. first land plants
10. first amphibians and insects

5. The Theory of plate tectonics

Describe the Earth's structure:



Discuss in pairs what you know about tectonic plates



Video

Plate Tectonics Theory <https://www.youtube.com/watch?v=mB2pzhWUaiU>

1. 0-0.50 Watch the first part. Check your terms for the Earth's structure .
What other information was given about the parts?

2. 0.50-2.20 **Watch and complete:**

- Two kinds of crust:
 continental -
 oceanic -
- Why plates move:
- In what directions: 1.
 2.
 3.

3. **Watch the rest of the video and make notes about the types of meeting zones.**

Vocabulary. Check in pairs the meanings of these words:

<i>margin</i>	<i>trench</i>	<i>plume</i>
<i>ooze</i>	<i>fertile</i>	<i>edge</i>
<i>solidify</i>	<i>release</i>	<i>fold</i>
<i>friction</i>	<i>ash</i>	<i>jagged</i>

	NAME	TYPE OF MOVEMENT	EXAMPLE
A)			
B)			
C)			
D)			

4. Summary of plate tectonics

Read the text and put the missing words in the gaps. There are more words than gaps, you will not need three of them.

<i>located</i>	<i>sideways</i>	<i>creates</i>	<i>divided</i>	<i>zones</i>	<i>consists</i>
<i>categories</i>	<i>boundaries</i>	<i>moved</i>	<i>summarizes</i>	<i>composed</i>	

The lithosphere (the earth's crust and the rigid upper part of the mantle) is _____ (1) into seven large and several smaller plates. The plates, which are rigid, float on the underlying semi-molten mantle (the asthenosphere) and are _____ (2) by convection currents. There are two types of plate: continental and oceanic. However, these terms do not refer to actual continents and oceans but to different types of crust or rock. Continental crust is _____ (3) of older, lighter rock of granitic type. Oceanic crust _____ (4) of much younger and denser rock of basaltic composition.

As a result of convection currents generated by heat from the centre of the earth, plates may move towards, away from, or _____ (5) along adjacent plates. It is at plate _____ (6) where earthquake, volcanic and mountain-building zones are _____ (7).

The table _____ (8) the major landforms resulting from different types of plate movement.

HOMEWORK

Complete the first column of the table with the types of zones.

- constructive margins (divergent plates)
- collision zones
- passive margins
- destructive margins (subduction zones)

TYPE	DESCRIPTION	EXAMPLE
	plates move away from each other, new oceanic crust appears forming mid-ocean ridges with volcanoes	Mid-Atlantic Ridge (Americas moving away from Eurasian and African Plates)
	Oceanic crust moves towards continental crust but, being heavier, sinks and is destroyed forming deep trenches and islands with volcanoes	Nazca sinks under South American Plate (the Andes)
	two continental crusts collide and, as neither can sink, are forced up into fold mountains	the Himalayas, the Alps
	two plates move sideways past each other, land is neither formed nor destroyed	San Andreas fault in California

D. Waugh, Geography, 2002, p.14

Key to ex. 4

1 divided, 2 moved, 3 composed, 4 consists, 5 sideways, 6 boundaries, 7 located, 8 summarizes

GRAMMAR – tenses

Put the verbs in the right forms.

1. (you / see) that movie many times?
2. Peter was in London last Friday. He (arrive) from the airport at 8:00, (check) into the hotel at 9:00, and (meet) the others at 10:00.
3. (you/ still watch) TV?
4. The weather is terrible. It (rain) for days.
5. I (study) English in England in summer 2010.
6. We saw an accident when we (cross) the street.
7. Sorry but you(stand) on my foot.
8. The department(locate) here since 2012.
9. How many projects(you / do) in your present role?
10. For many years analysts(develop) new ways to improve learning strategies.
11. As yet, a solution(not find), although three attempts(make).
12. In the last two years we(investigate) new ways to do this.