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WORKSHEET

Life Science 12

Week 18+19

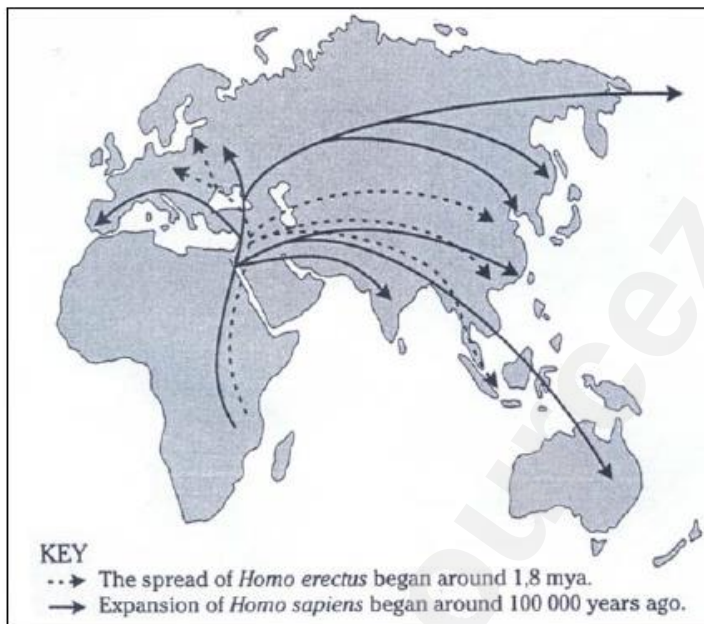
Once your work has been uploaded, I will choose a few questions at random, and it will be for marks.

Lesson 1-4 in week 18+19

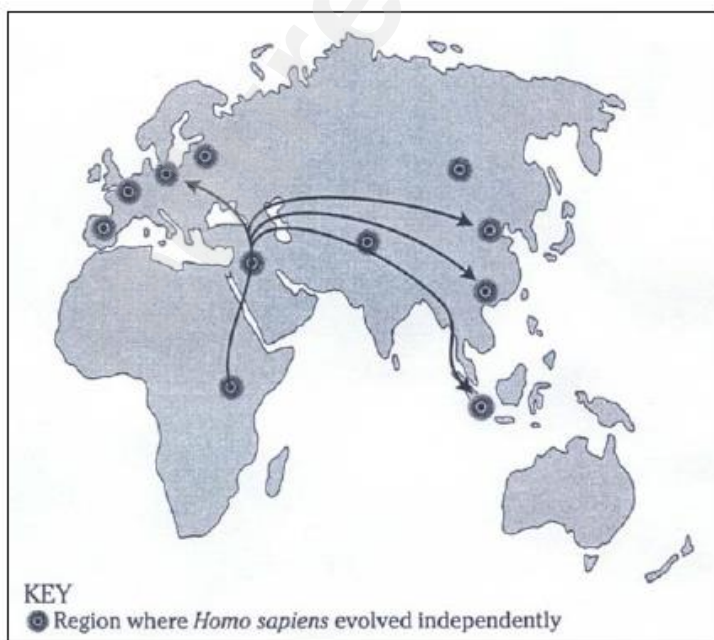
Question 1 [12]

{Adapted from: IEB Paper 2, 2010}

3.1 Early human migration according to the Out-of-Africa hypothesis



Early human migration according to the multi-region hypothesis



[Clitheroe et al. 2007]

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1. Currently there are two scientific hypotheses concerning the origin of modern humans. Briefly describe the two hypotheses as illustrated in the maps above. (6)
2. Suggest a reason for the overall population movements shown on the maps. (2)
3. There are many explanations for the origin of humans on Earth. State your personal viewpoint and explain why you hold this belief. (4)

Question 2 [22]

[Adapted from: IEB Paper 1, 2011]

Read the following extract and answer the questions below using the text and your own knowledge.

In April 2010, Professor Lee Berger, a paleoanthropologist, unveiled fossils of a new species of early human ancestor. Named ***Australopithecus sediba***, the fossilised skeletons of a young female and a boy were discovered in late 2008. They were estimated to have lived in the Cradle of Humankind about 1,78 to 1,95 million years ago. This exciting find is believed to be a **transitional species** between the more primitive ape-men, or **australopithecines**, and human's direct ancestors the **Hominid** species.

Australopithecus sediba has a combination of the primitive features seen in australopithecines, and the more advanced ones seen in humans.

Some of its distinctive human features are:

- short, powerful hands
- small generalised teeth for a more omnivorous diet
- long legs which were capable of walking and running

The australopithecine features are:

- the long 'orangutan' arms
- a small cranium for a small brain size

These early humans lived in a mixed savannah grassland and forest area and shared it with some fierce predators such as sabre-toothed cats and long legged hyenas.

[Adapted from various scientific sources]

1. What is meant by the term 'transitional species'? (2)
2. What type of work do the following do?
 - (a) Paleontologist
 - (b) Anthropologist (2)
3. *Australopithecus sediba* displayed bipedal features. What is the importance of bipedalism in the evolution of humankind? (3)

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4. Professor Berger described *Australopithecus sediba* as 'becoming a terrestrial biped, but has a reserve safety parachute with its ape-like arms, and is still climbing trees.' What do you think he means by this description? (3)
5. Some scientists agree with Professor Berger's hypothesis that *Australopithecus sediba* is a transitional species. What would scientists still need to do before they could state with certainty that this idea has become a scientific theory? (2)
6. Below are photographs of the skulls of *Homo sapiens* and *Australopithecus sediba*. These skulls are not shown to the same scale.

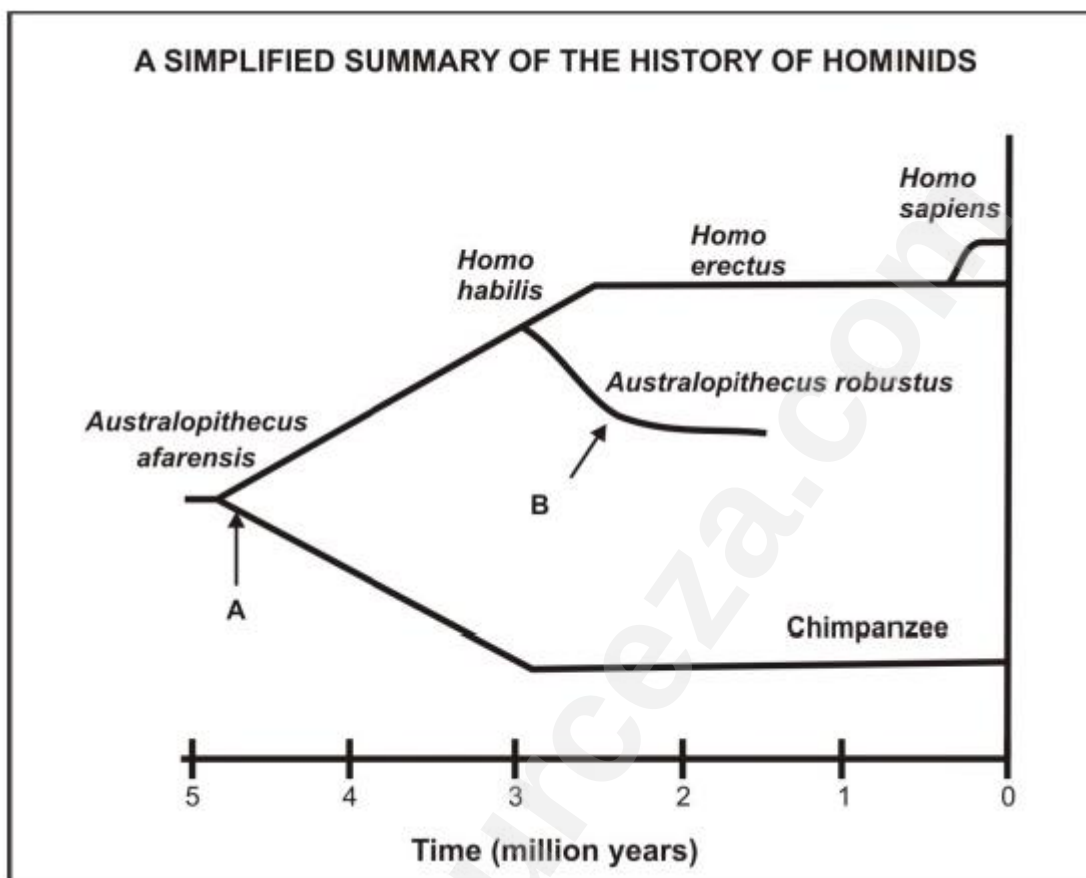


- List TWO differences between the skulls as seen in the photographs above, that show evolutionary trends in the development of modern humans. (4)
7. Study the diagram below and answer the questions that follow.

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- Why does the line B with *Australopithecus robustus* end in the middle of the diagram? (2)
- Between which TWO species of human ancestors on the diagram in Question 7 above would you place *Australopithecus sediba*? (2)
- When the fossils of *Australopithecus sediba* were found they were embedded in rock and soil. Fossils can be very fragile and need to be carefully handled. How do you think the scientists would ensure that they were carefully removed from the rock and soil? (2)

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Question 3 [10]*{Adapted from: IEB Paper 1, 2013}*

Select the term in Column B that best matches the description in column A. Write the letter of the term in the corresponding space provided between the brackets. Each letter may only be used once.

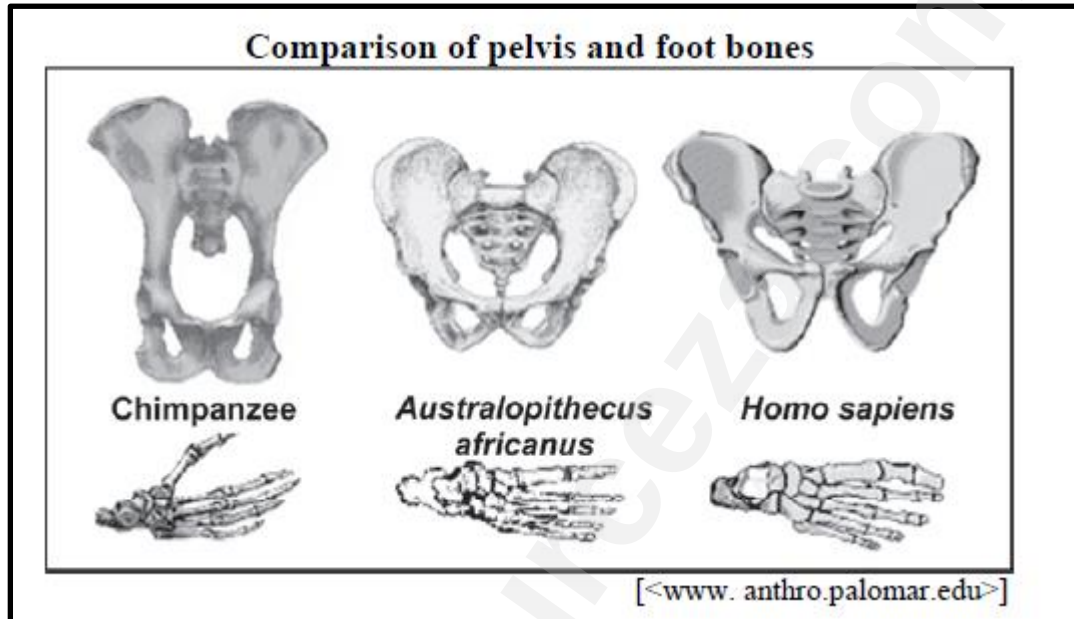
Column A	Column B
1. Study of cultural human artefact remains of past human groups.	A Hominids
2. A newly found hominid fossil that has features of both the Australopithecus and Homo species.	B <i>Australopithecus africanus</i>
3. A living people with the oldest genetic history in Africa	C Palaeontology
4. The increased incidence of a recessive allele in an isolated human population (e.g. atherosclerosis in the Afrikaner population).	D Multiregional model Africa.
5. 'Handy man' making early stone tools.	E Species
6. An early bipedal human ancestor such as the fossil of the Taung child found at Sterkfontein	F Archaeology
7. Collective term for fossilised human ancestors.	G <i>Australopithecus sediba</i>
8. A group of organisms that closely resemble each other and can interbreed to produce viable offspring.	H Founder effect
9. Study of human fossil remains.	I The San
10. A viewpoint that suggests that modern humans evolved in Africa.	J 'Out-of-Africa' model
	K <i>Homo neanderthalensis</i>
	L <i>Homo habilis</i>

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Question 4 [10]

{Adapted from: IEB Paper 1, 2013}

Study the diagram below showing the pelvic and foot bones of three primates.



1. Which ONE of the above organisms is not bipedal? (1)
2. Describe TWO observable features of this named organism in Question 1. that support your answer. (4)
3. Explain fully the importance of bipedalism in the evolution of modern humans. (5)

[Total: 54 Marks]