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Australopithecus Resource Package

In this package you will find:

1. Australopithecus article with references, further reading, and links
2. Skull Comparison Venn Diagram
3. Australopithecus vs. Human Comparison Chart

Instructions:

Read, highlight, make notes on the article. It is recommended that you look at some of the supplementary links and videos as well. Then, complete the Venn Diagram and the Comparison Chart. You will need to use the information in this package but you can also use your knowledge from class discussion and your notes from class presentations and videos as well. An excellent place to look for information is on the Australopithecus page of the Socials 7 Website found here:

http://collingwoodsocials7.weebly.com/australopithecus.html

Assessment:

Venn Diagram

→		
-		+

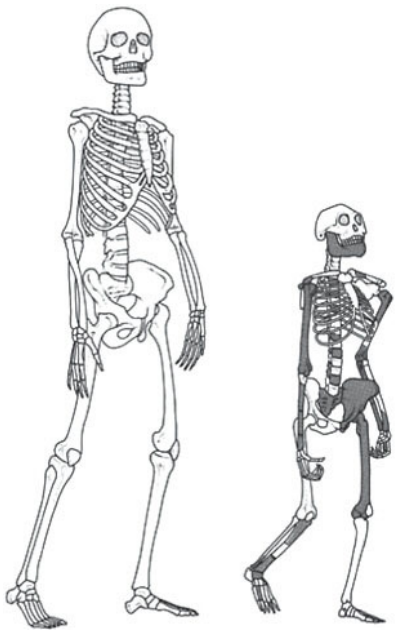
Comparison Chart

→		
-		+

Australopithecus

10 million years ago (MYA), on the continent of Africa, the climate was changing. Ocean currents and landmasses were shifting and weather patterns and temperatures were affected. Consequently, the vegetation changed to adapt to the climate. Grassland was replacing dense forests, and a new species was evolving that was able to spend more time hunting and forging on the land then in the trees. The members of this new species were called ***hominids***. Among other differences, hominids were unique from most apelike species in that they were able to walk upright. As well, their teeth and jaw structures looked different and their brain to body ratios were larger. The first animal to exhibit these features was of the genus ***Australopithecus***. Fossilized remains of this species date back to around 5 to 1 MYA. The remains of Australopithecines have been found in eastern and southern Africa. There is still some debate as to whether humans first evolved in this area, or whether the fossils are just best preserved there. Additionally, due to the lack of extensive evidence, scientists still disagree about the exact relationship between the Australopithecines and modern humans. Finally, there have been some recent discoveries that are beginning to change the timelines and ideas traditionally accepted ideas about the appearance and behaviour of Australopithecus as well as it's role in our evolution, (see links for further reading). Eventually, various species of Australopithecus, including Australopithecus afarensis, A. africanus, A. anamensis, A. bahrelghazali, A. deyiremeda, A. garhi, A. sediba, A. robustus, A. boisei, and A. aethiopicus spread throughout the continent.

Australopithecine species ranged in size from about 120 cm to 170 cm tall. This is about the range of a typical group of grade 7's! The smallest of the species was probably about the size of an upright chimpanzee and the largest equaled heights of modern humans today. In comparing bones from an Australopithecus to that of a gorilla, it was discovered that they walked upright. There are three main reasons we know this:



1. The spinal column on Australopithecus, like a human, **perpendicularly** met the skull. This means the head was balanced on top of the backbone. On a gorilla, the backbone meets the head at an angle, making it better suited for walking on all fours.
2. The **pelvis** on an Australopithecus, also like that of human, was short and broad, helping it to walk upright. The gorilla has a long, narrow pelvis.
3. The feet of an Australopithecus also show humanlike tendencies. A gorilla's big toe sticks out at an angle, much like the thumb on a hand, and is used for grasping. However the foot of an Australopithecus was more like human's, the big toe **aligned** with the others.

In terms of comparing and contrasting the Australopithecus to an ape we can look, initially, at the skull. Both animals had a low sloping forehead, large protruding eyebrow ridge, flat nose, and jutting jaw. The two creatures were still different in crucial ways. The Australopithecus's muzzle was much shorter than that of an ape's and its teeth were arranged more like humans with the sides of the jaws sloping outwards. Although the Australopithecus jaw was shaped like that of a modern human, it was far more powerful and held larger teeth which could be used for chewing tough plants, roots, and raw meat.

The brains of the Australopithecines ranged from 450 to 500 mL in volume. This is only one third the size of a modern human brain (approximately 1500 mL) but we are not three times larger. The Australopithecine's larger brain size from its predecessors gave them access to greater intelligence and communication skills, as well as the ability to work cooperatively. Although no evidence is been found showing that they made tools, scientist believe that the Australopithecines probably used branches or stones to occasionally kill weakened prey and to defend themselves from other predators and rival groups of hominids. For a protein source these early creatures ate any animals that they managed to kill, scavenged any meat they could find, ate bird's eggs, and insects. Their diet was also made up significant plant-based foods such as berries, nuts, leaves, fruits, and roots.

References and further reading

- Map of Australopithecus remains

http://australopithecus.webs.com/antropologistslocations.htm

- Skeleton photo

http://www.nap.edu/openbook.php?record_id=11876&page=34

- General information

http://humanorigins.si.edu/evidence/human-fossils/species/australopithecus-afarensis

http://www.britannica.com/EBchecked/topic/44115/Australopithecus

http://www.bbc.co.uk/nature/life/Australopithecus

- Links (further reading)

Humanity's Closest Ancestor Was Pigeon-Toed, Research Reveals
http://www.livescience.com/28656-closest-human-ancestor-was-pigeon-toed.html

Australopithecus sediba hominin: New study reveals how human ancestor walked, chewed, and moved
http://phys.org/news/2013-04-australopithecus-sediba-hominid-reveals-human.html

(Video) New research on Australopithecus sediba raises questions about human origins
http://www.youtube.com/watch?v=Zvide_t84QQ

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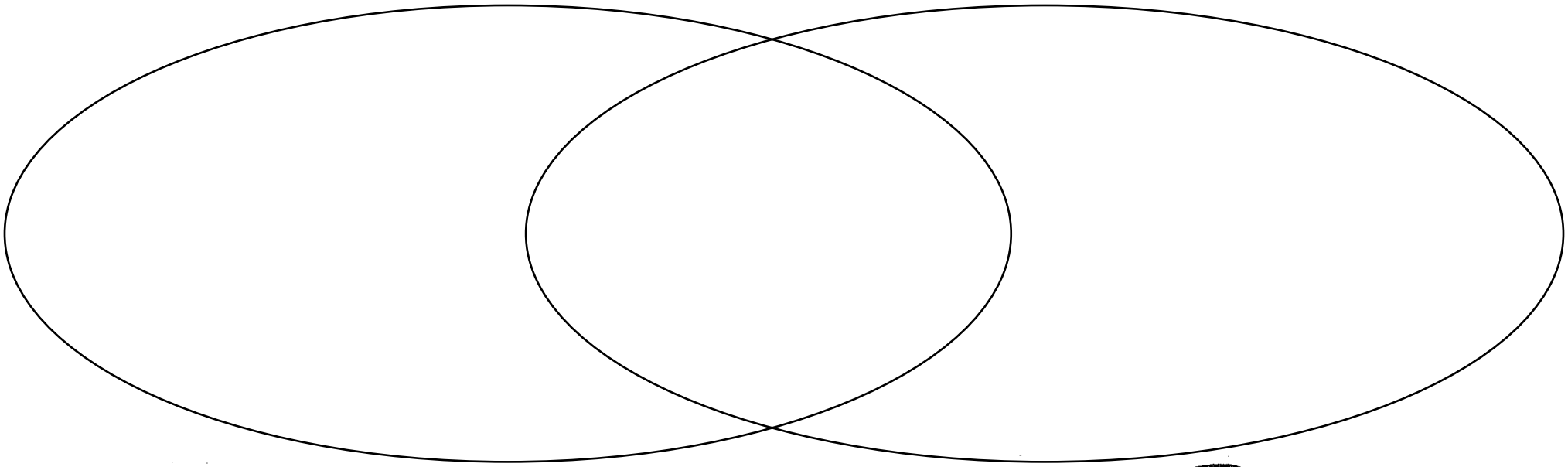
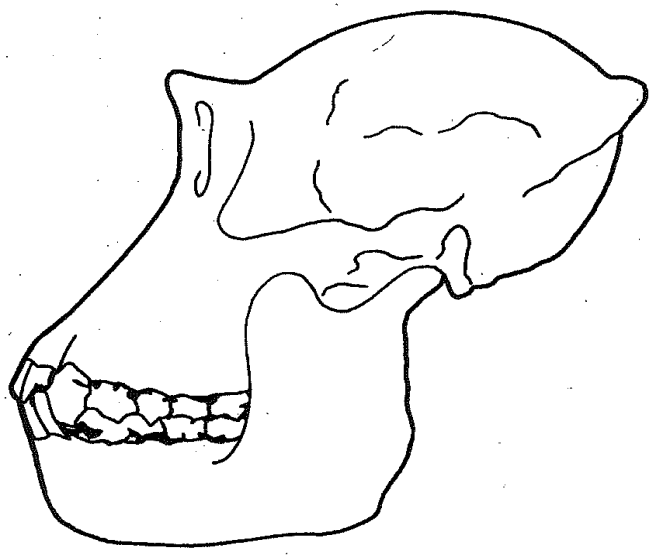
Skull Comparison Venn Diagram

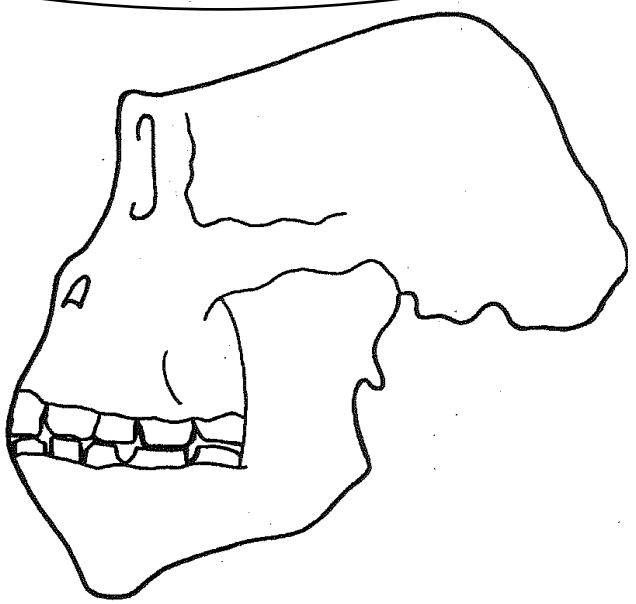
Using the Australopithecus article, fill in the Venn diagram to compare and contrast various aspects of the Ape and Australopithecus skulls. You should be able to find at least 3 similarities and 3 differences. (5 marks)

Ape Skull

Australopithecus Skull







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Australopithecus Vs. Humans

Using the Australopithecus article, your notes from the Prezi, class videos, and the suggested links, complete the comparison chart in as much detail as possible. Use your experience of being a human to complete that aspect of the chart. (15 marks, 12 for Australopithecus, 3 for human)

	Australopithecus	Human
Dates and Place of Existence When and where do they live?		
Description of Physical Appearance What do they look like? Height/weight		
Shelters What is their shelter like? Materials used		
Food What type of food do they eat? Where did they get it?		
Description of Daily Life What did they do daily? Hunt, gather, work etc?		
Communication How did they communicate? Did they have written language?		