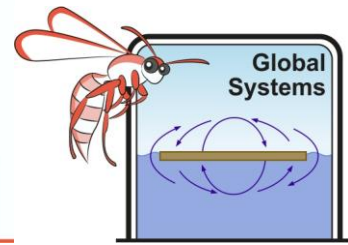


Megafauna – Student Activity



Piltdown Man

Sensible scientists are skeptical.

In 1913 in Victorian England, a hoaxer took the skull of a modern human and the jaw of an orangutan and “planted it” in Piltdown quarry where it was later found. There had been much discussion on the possible evolution of humans from apes. Up until then no evidence had been found to support that view.

This skull appeared to provide the missing link in the chain of evolution. The hoax was later uncovered in 1953 when fluorine dating clearly demonstrated that the two bones were of different ages and came from different geographical sources. This had already been suspected as the bones were quite differently weathered and the jaw was much more robust than the skull. Geology students were suspected of planting it as a prank. Discoveries of other skulls of our ancestors have since shown that humans and apes have a common ancestor.



Why do you think the hoaxer planted the skull? _____

CSIs say, “Trust the data, only the data”

How can you select reputable sources of information when you use the Internet to collect data?
Write down 5 points that may help other students make good choices

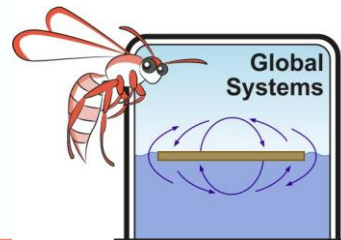
1. _____
2. _____
3. _____
4. _____
5. _____



The extinction of Australian megafauna

As recently as 50,000 years ago Australia was home to many species of megafauna. Megafauna are species with a body mass over 45kg or being 30% or more massive than their present relatives. Giant marsupials such as Diprotodont, an herbivore, 2m tall, 3m long and weighing 2,700kg roamed the forests whilst Thylacoleo, a marsupial lion, hid up in the branches to jump down on its prey. Thylacoleo had massive jaws three times more effective than any lion. By 40,000 years ago 90% of our megafauna was extinct. The remnant population of red kangaroos, emus and saltwater crocodiles are all that now remains of this group.

Megafauna footprints in SW Western Australia (Sthenurus?)



Megafauna – Student Activity

For comparison, you have been given a photograph of a fossilised Diprotodont skull found in Victoria and dated 50,000 years ago and another of a horse skull found at 80 Mile Beach on the north coast of Western Australia. Any data you collect should reflect consideration of its source, scale and its scientific integrity.



Skull found in Victoria (megafauna, Diprotodont) and recent horse skull found at 80 Mile Beach near Broome

What information do you need before you even start to compare these skulls?

Source _____

Scale _____

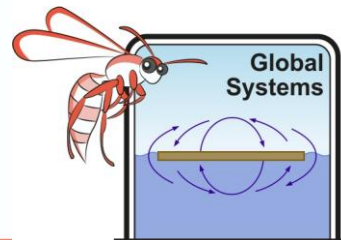
Integrity _____

How old can the horse skull be? Explain your answer. _____

Are the skulls from the same type of creature? Explain your answer. _____

How can we use the modern horse skull on the right to interpret the life of the animal whose skull is on the left? What clues can we use?

Can we definitively state that both creatures were herbivores and about the same size? _____



Megafauna – Student Activity

How did the megafauna become extinct?

Materials per student or group of three

- Scrap paper
- Internet access and reference books

Scientists have suggested that:

1. Higher levels of oxygen in the atmosphere caused low global atmospheric moisture levels decreasing rainfall and resulting in the loss of megafauna food sources
2. As part of normal climate variation cycles, Australia became drier changing the vegetation from rainforest and soft grasses to hard leaved eucalypts and rough grasses such as spinifex.
3. Megafauna being large were less able to compete with smaller competitive species for their increasingly restricted food sources
4. The drying climate brought an increased frequency of droughts and lightning strikes which resulted in more fires
5. The arrival of Aboriginal people caused them to be hunted to extinction.
6. The use of Aboriginal firestick farming favoured the survival of hardy rough grasses such as spinifex that were a poor food source for megafauna.

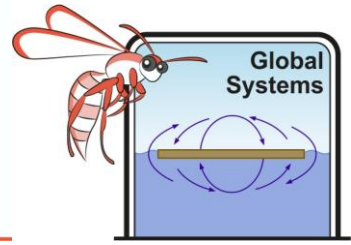
You will be given one of the above suggestions to rapidly research. Note your findings below

Source 1 _____

Findings _____

Source 2 _____

Findings _____



Megafauna – Student Activity

Share your findings with others of your small group and come to a consensus on the main points you agree upon. Write these below.

Appoint a spokesperson to report on you group’s findings to the class. The teacher may board these.

Discuss which (if any or all) were the major forcing factors in the long-term demise of most of our megafauna.



The class found that _____
