

Standard: Students will evaluate the role of natural selection in the development of the theory of evolution.

Element: Explain how fossil and biochemical evidence support the theory.

EQ: What kinds of fossil evidence support the theory of evolution?

Fossil Evidence of Evolution

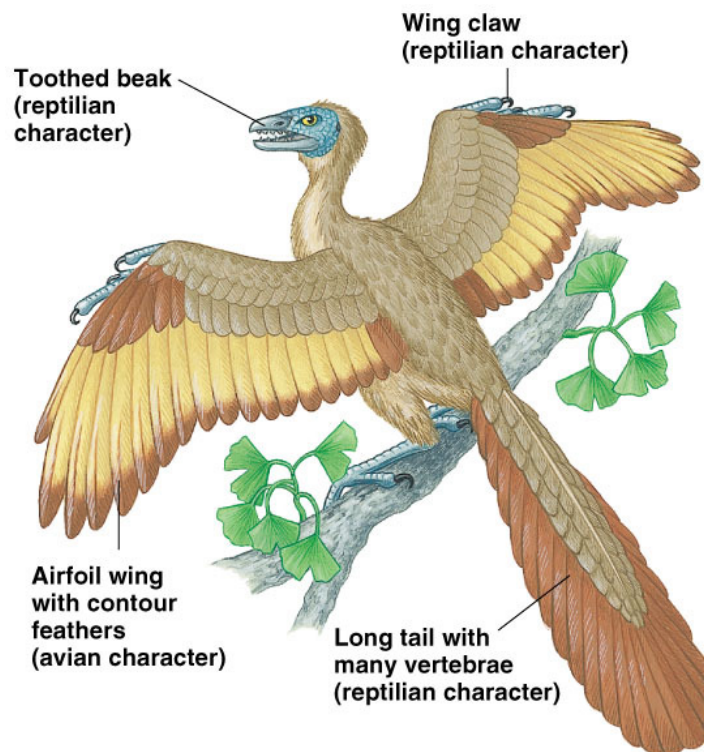
Fossils are the **preserved remains** of once-living organisms



Fossils show that **different species existed in the past** compared with today.

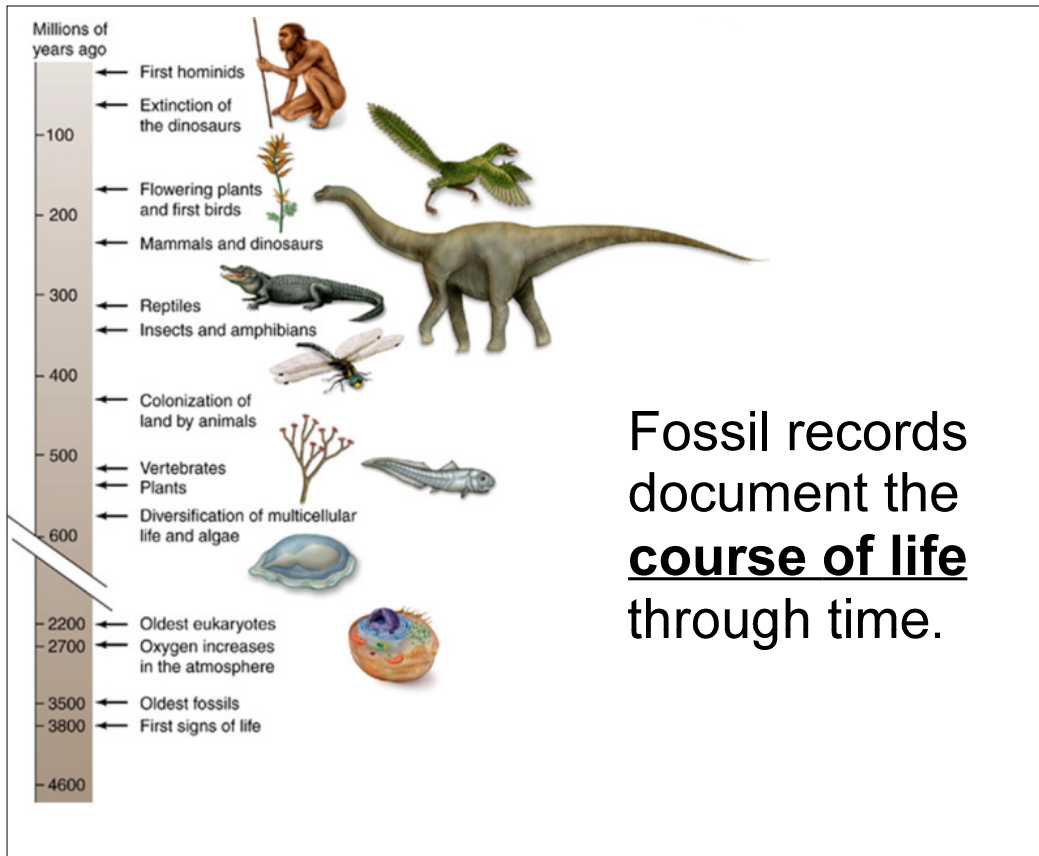
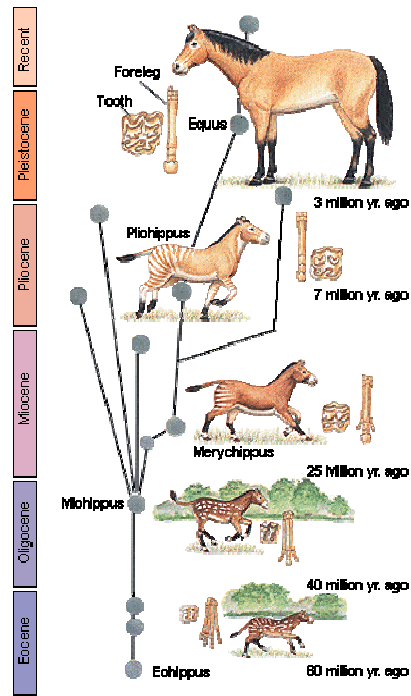


Archaeopteryx:
early "bird" species that appears to be a mix of both bird and reptile characteristics.



Many fossils show a clear transition from **one group or species** to the next.

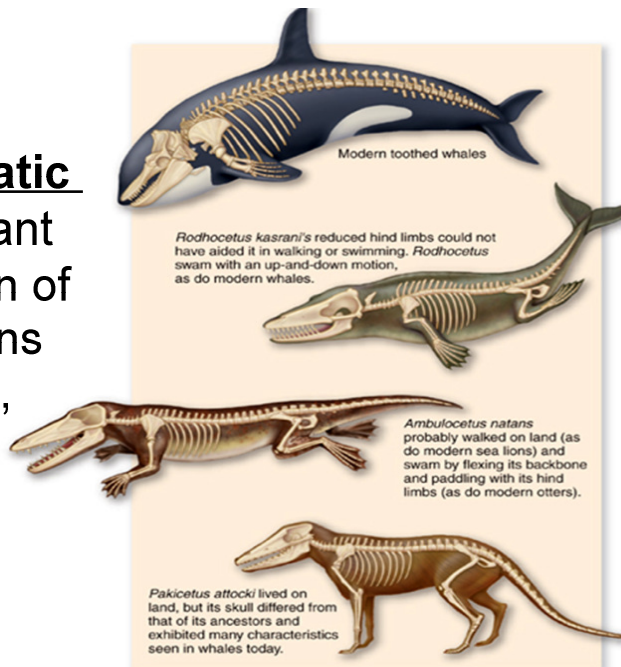
Example:
prehistoric ancestors of modern horses.



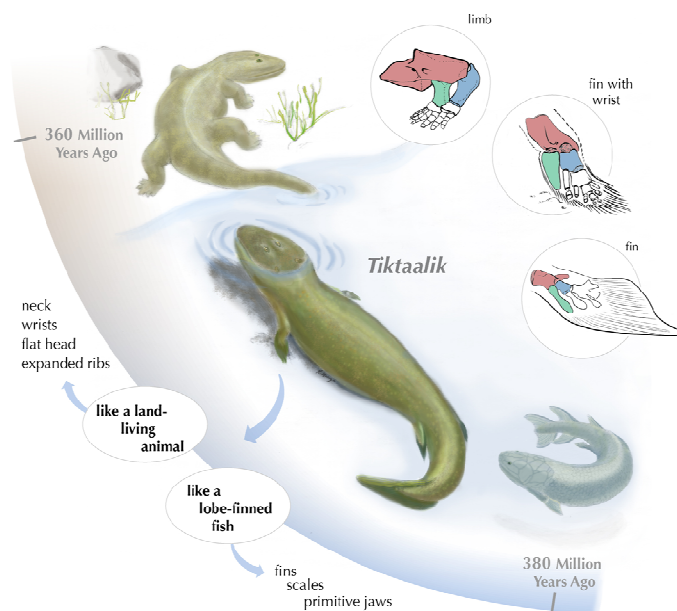
Fossil records document the **course of life** through time.

Recent discoveries in fossil evidence for evolution:

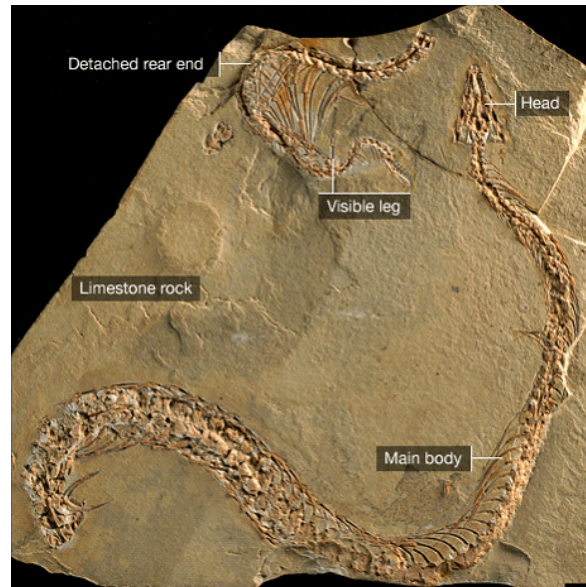
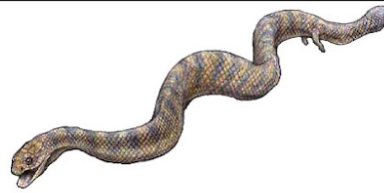
Four-legged aquatic mammal- Important link in the evolution of whales and dolphins from land-dwelling, hoofed ancestors



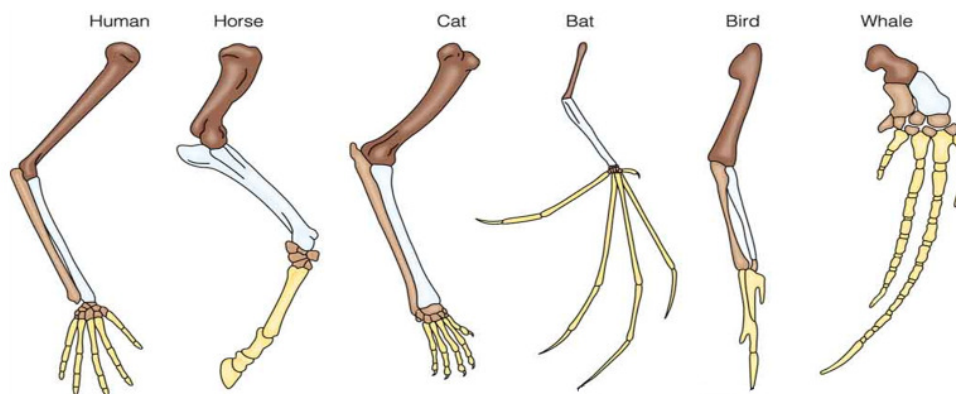
Tiktaalik: a species that bridged the gap between fish and the first amphibian



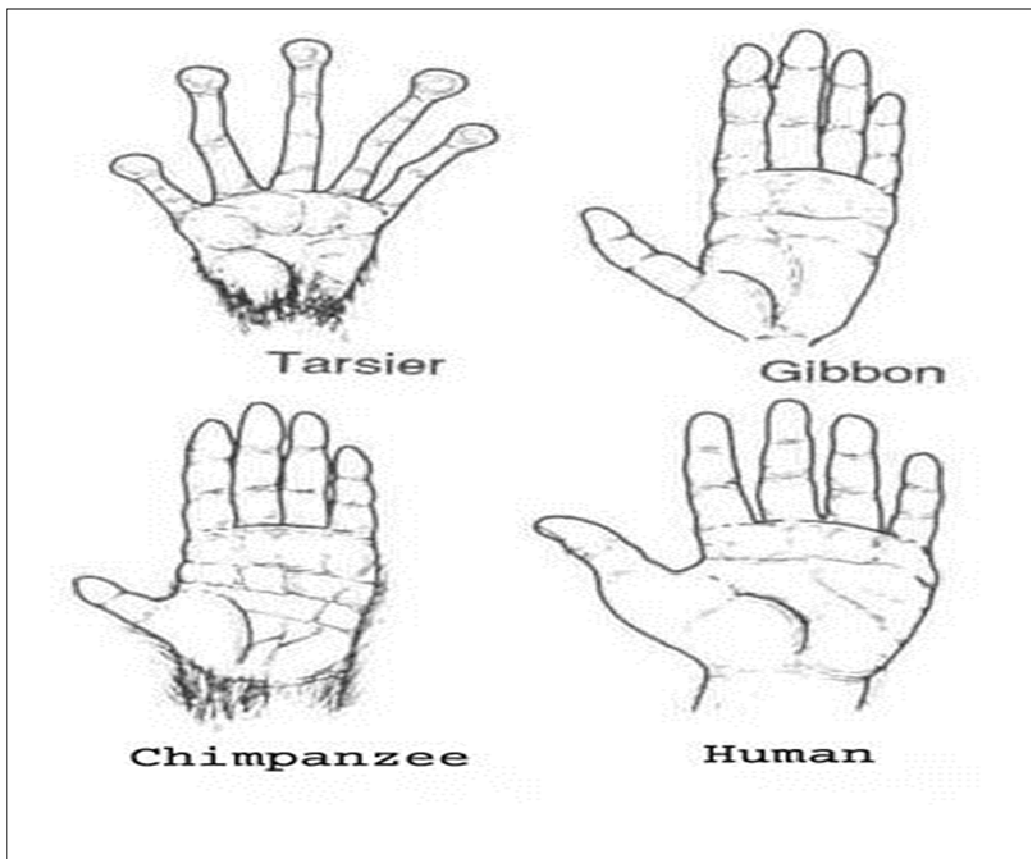
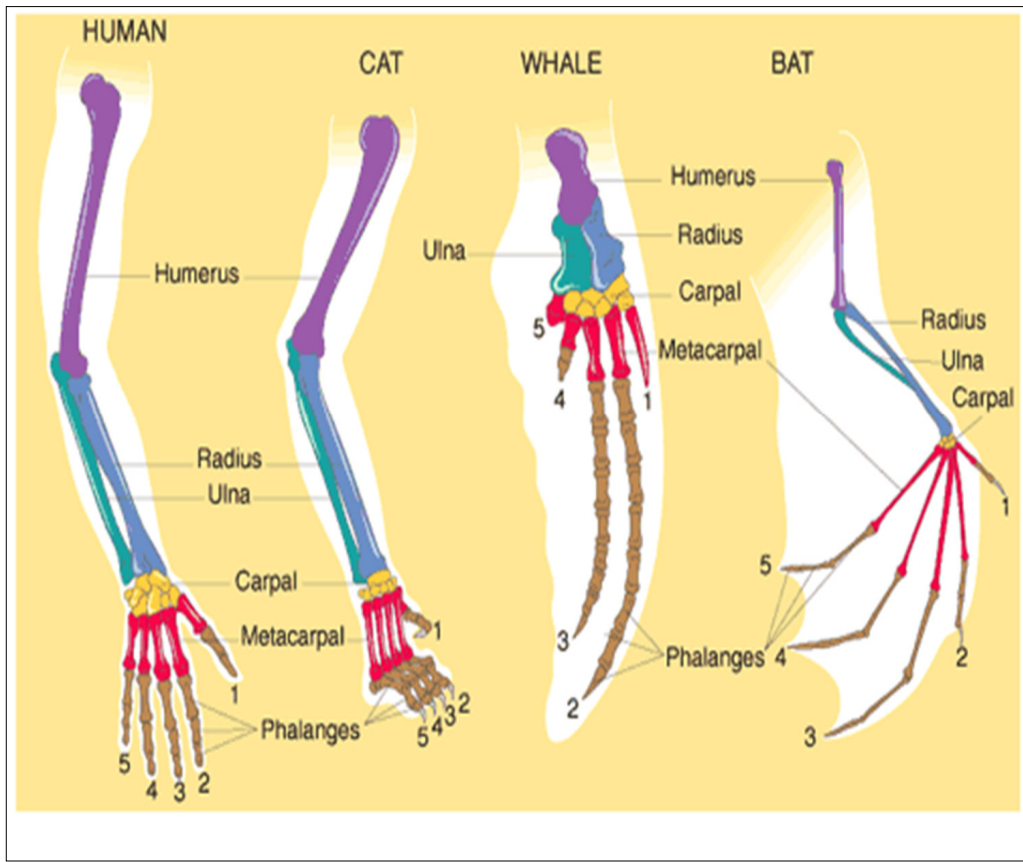
Fossil snake with legs

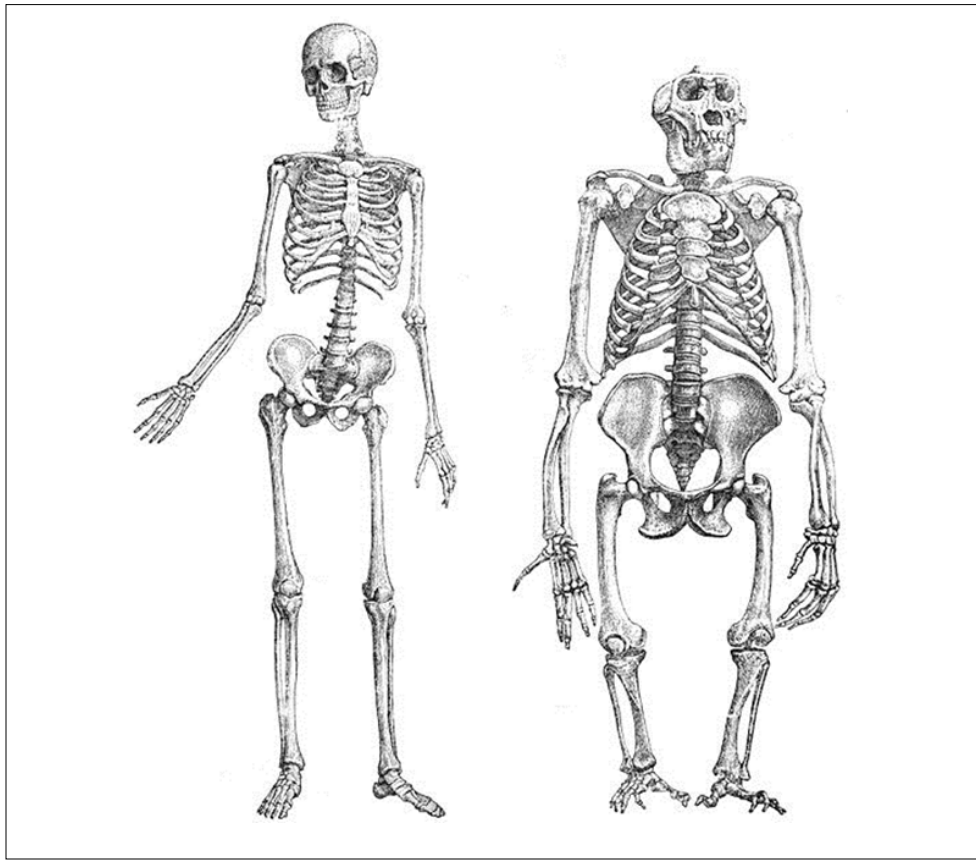


Comparative Anatomy- comparison of the body structure of different species, either from fossils or recent organisms.



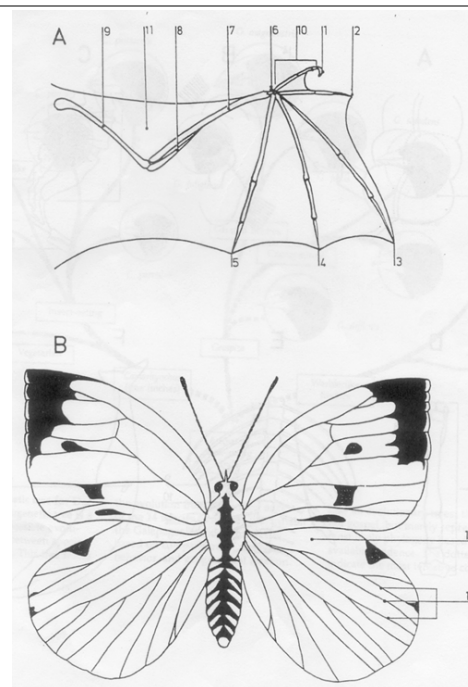
Homologous Structures- characteristics that are similar in two or more species and may have been inherited from a common ancestor.

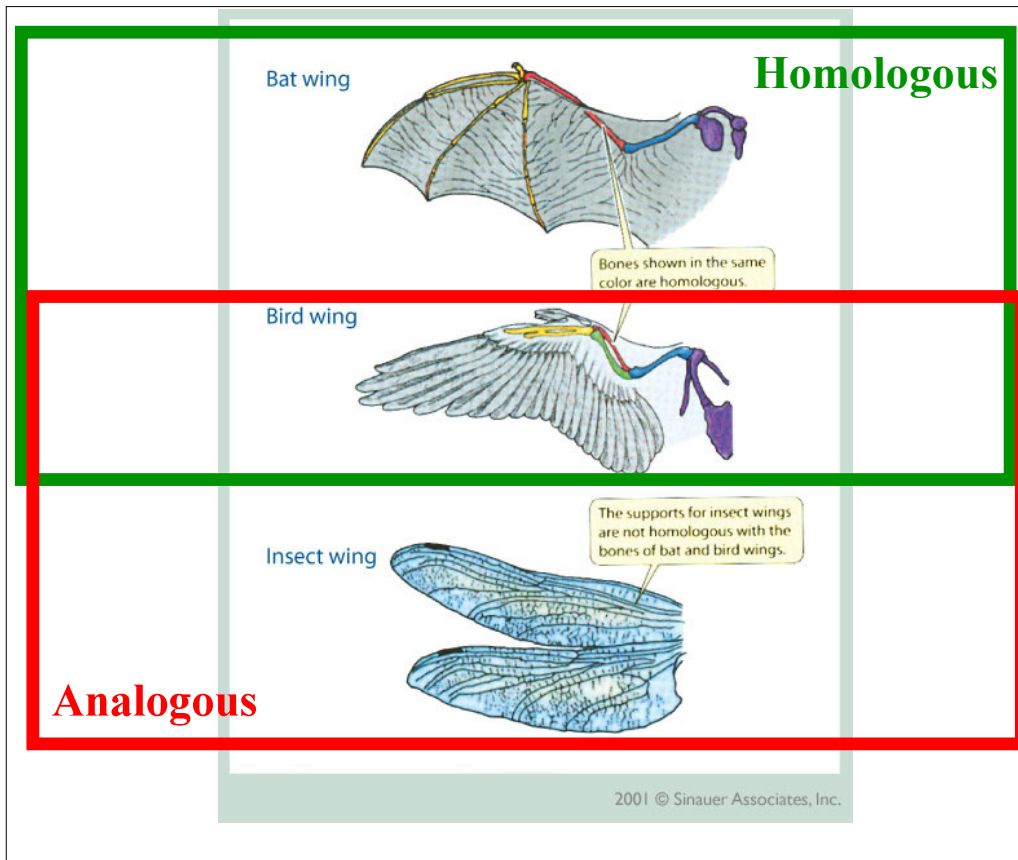




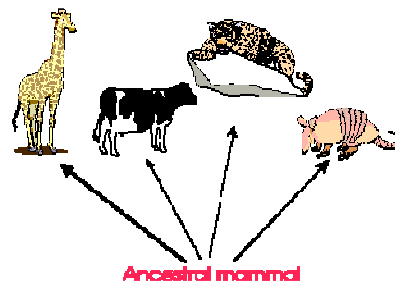
Analogous Structures:
structures that have a similar *function*, but are very different in structure

Ex: butterfly and bat wing





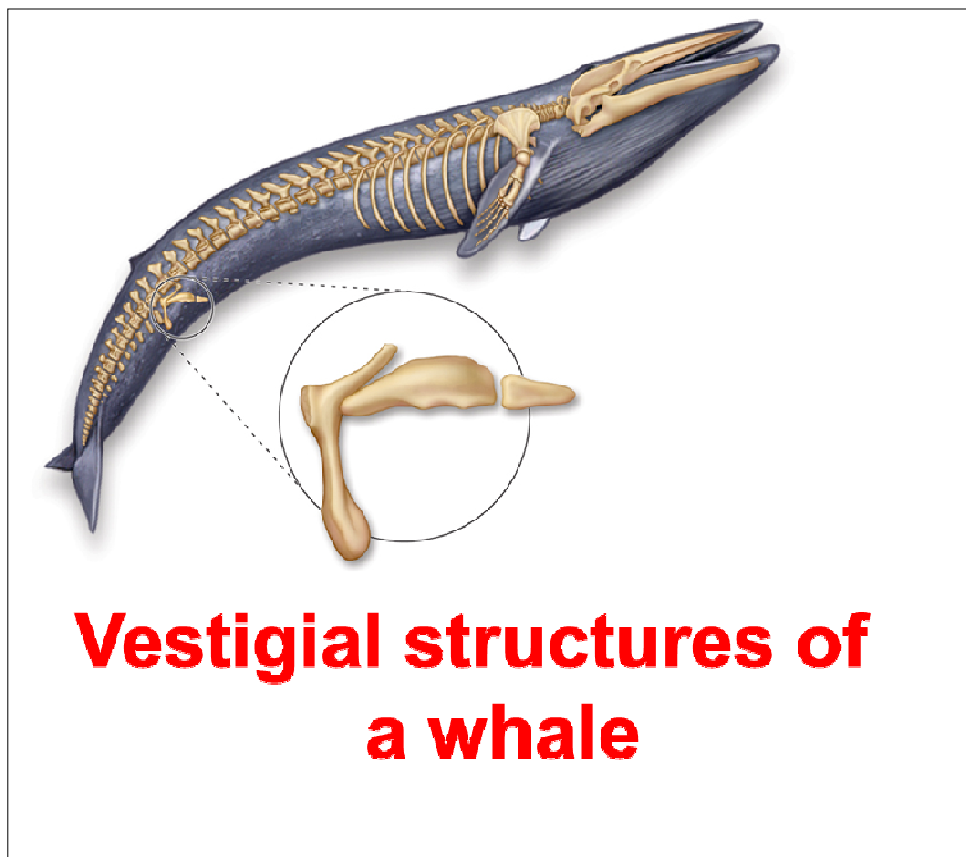
Homologous structures suggest that organisms had a **common ancestor**.



Analogous structures suggest that organisms both evolved independently of each other. That is, they evolved to live in similar ways but did **NOT** have a **common ancestor**.

Vestigial structures- structures that serve no useful function.

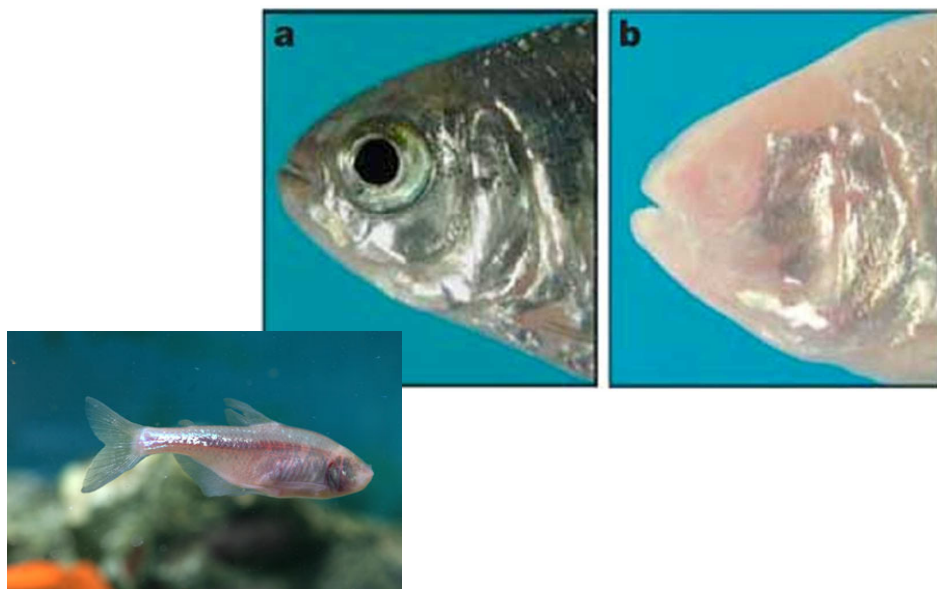
Vestigial structures have no apparent function, but resemble structures that an organism's **ancestors** possessed



Manatees- Fingernails on their fins



Blind cave fish- Nonfunctional eyes



Boa constrictors- Hip bones and rudimentary hind le

