

Evidence of common descent

Scientists researching many disciplines accept that many pieces of evidence support the idea that life on Earth comes from a single common ancestor. That evidence is organized in the chart below.

	Evidence that supports a universal common ancestor
Natural Selection and Sexual Selection	<ul style="list-style-type: none">• Natural selection is one of driving forces of evolution and can be observed in lab experiments• Natural selection can cause two populations of the same species to change drastically over time if they live in different environments.• Sexual selection causes changes in populations over time due to reproduction preferences, suggesting another mechanism that can cause species to change over time
Comparative Anatomy and Adaptations	<ul style="list-style-type: none">• Species with different lineages but with similar roles in an ecosystem community often develop analogous features, giving evidence of natural selection and the process of adaptation.• Species with the same lineage often have homologous features that may have different functions but still maintain a similarity to their common ancestor.
Comparative Genomics	<ul style="list-style-type: none">• Almost all organisms use the same genetic code.• There is a high degree of similarity in the DNA in different species, especially in similar species and especially in protein coding regions.• Some genes like Hox genes have the same or similar functions across species in early embryonic development.
Fossils	<ul style="list-style-type: none">• The fossil record shows some organisms that do not exist in the modern age and the fossil record also shows mass extinction events.• The fossil record shows the development of complex organisms over millions of years - from simple cells to eukaryotic to multicellular organisms, showing evidence that all life came from a common ancestor.
Biogeography	<ul style="list-style-type: none">• Evolution from a common ancestor is the best way to explain how species have now been distributed around the earth, taking into account fossil evidence, continental movements, and plate tectonic evidence.
Speciation	<ul style="list-style-type: none">• Over time, new species have developed.• Artificial speciation can be induced in a lab.• Different populations have been observed in the wild to be undergoing speciation.

Name: _____

Evidence For Evolution