

**All species on this planet evolved from a few simple organisms**

Evolution -genetic change in a population of organisms that occur over time

Gene Pool- all of the genes present in a population

Artificial Selection- selecting desirable traits of species for breeding

Synthetic theory of evolution- modern twist on Natural Selection using current knowledge of genetics.

**Evolution by Natural Selection is supported by numerous amounts of evidence. For example:**

**Fossils**

Provide an insight into what species looked like in the past

**Comparative anatomy of different organisms**

Homologous organs- structures of different species have similar morphology and sharing a common ancestor (Fig. 17-7)

Analogous organs- similar in function but not in origin  
Ex. Insect and bird wings

Convergent Evolution- organisms with separate ancestries adapt in similar ways to similar environmental demands. (Fig 17-9)

Vestigial organs- a remnant formerly functional structure  
Ex. Tail bone in humans, wisdom teeth

**Distribution of Plants and Animals**

Biogeography –study of the distribution of plants and animals

Center of Origin- the particular place where a species originated or evolved (Fig 17-11)

### **Related Species have similar development**

-embryos of different vertebrates are very similar in appearance and structure      Why?      (Fig 17-12)

### **Biochemical and Molecular Comparisons**

- all life is based of the same genetic code--- DNA

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-proteins from different species have similar compositions