

Origins of evolutionary thought

Evolution before Darwin

- ▶ Referred to *developmental change* from a pre-formed representation in the embryo, to the final, free-living organism
- ▶ An unfolding of predictable forms in a pre-programmed order during an organism's lifetime
- ▶ "Evolution" did *not* refer to change in a population or species over time

Evolution in Darwin's Time

- ▶ The *progressive* development of life from simpler to more complex species
- ▶ Assumes that evolutionary change of species is progressive (directional), with simpler *species* giving rise to more complex ones over time
- ▶ This theory of progressive evolution was interpreted by some to put humans at the apex of an evolutionary ladder, an elitist view that is *not* what Darwin espoused

Evolution after Darwin

- ▶ Heritable change in one or more characters of a *population* or *species* through time (i.e., over generations)
- ▶ The direction of evolutionary change is *not* pre-programmed
- ▶ The theory of Darwinian evolution does *not* assume that evolutionary change is progressive

Evolution: Modern Biology

- ▶ Genetically-based, heritable change over time in the form of organisms from the DNA-sequence level (the most basic or fundamental level of organismal form), up through more complex characters such as physiology, morphology, and behaviour.
- ▶ **Descent with modification** in a *population* or *species* lineage