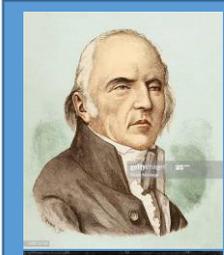




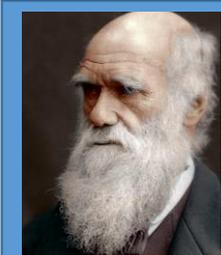
Evolution

Jean-Baptiste Lamarck (1801 theory of 'acquired inheritance')



All organisms have evolved from much simpler lifeforms over a long time. They evolve new features to help them live in their habitats.

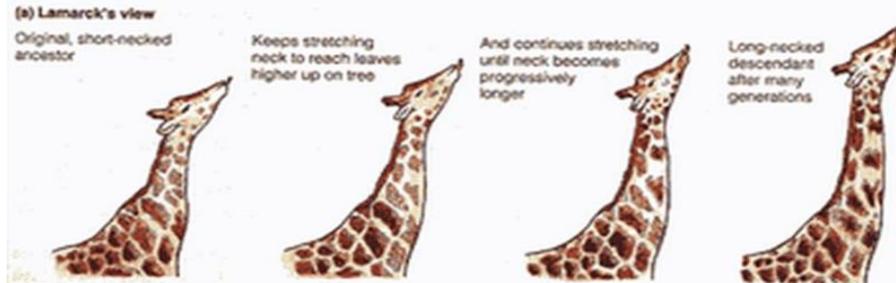
Charles Darwin (1859 theory of 'natural selection')



Darwin's theory was VERY similar and built on Lamarck's. Organisms evolved over time. So how did the theories differ?

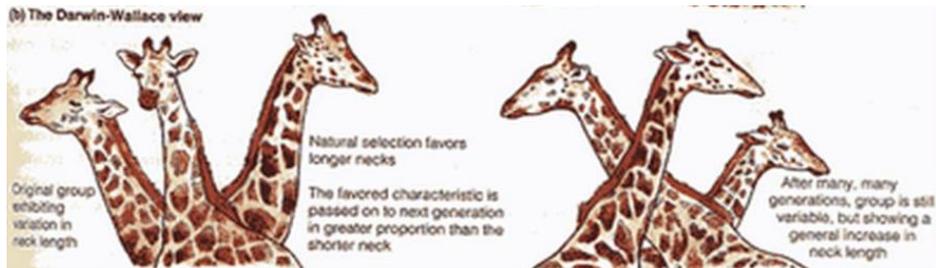
Lamarck's theory was new and revolutionary. It explained how animals and plants had come to look so different from one another. But he suggested that **during an animal's lifetime**, its features and abilities changed as it tried to get better at things, such as hunting and feeding. The next generation would be born slightly better at these things as a result.

Because the giraffe spends so much time trying to stretch its neck, it gets a bit longer in its lifetime. Its offspring are born with slightly longer necks because its neck had stretched a bit by the time it reproduced.



Darwin's natural selection theory argued that animals were born with random differences. Some of these features might happen to be useful to the animal in its habitat and others less so. Useful features tended to help the animal feed and live long enough to reproduce, so more of these features would be present in the next generation. This led to gradual change over many generations.

Giraffes are born with different neck lengths. Those with longer necks can reach high leaves, so live long enough to reproduce. More of the next generation have longer necks because they come from a long-necked parent, NOT because their parent's neck got longer during its lifetime.



Key Vocabulary

generation	all the babies / offspring of a parent/s. The next generation starts when those offspring reproduce. In humans, this is around a 30-year period, but in fruit flies, each generation lasts 2 weeks!
reproduce	one of the seven life processes common to all living things. It means to have babies. In nature, this is crucial because it ensures the survival of your species
inherit	When parents pass on features / characteristics biologically to their offspring, the offspring are said to inherit these things.
offspring	is the next generation of a species / a parent's babies
adapt / adaptation	Although adapt means to change, an adaptation – according to Darwin's theory – is not a deliberate change; it is a feature or ability that an organism has because it has inherited it from its parents.
DNA	The complex genetic code that determines all the features / characteristics of a living thing. Darwin didn't know about DNA when he developed his theories.