**Objective 5 – Charles Darwin**

* 1831 – 22-year-old Darwin travelled the World aboard the Beagle, observing and collecting specimens.
* He observed how life forms change over time (fossil remains) and vary from place to place.
* Organisms he saw in South America were similar structurally but very different from what he had seen back home in England

**Galapagos Islands** – five-week stop. 20 small islands 1000km off the coast of Ecuador. Animals found there were similar to animals on the west coast of South Africa. A ‘single act of creation’ didn’t support what Darwin saw.

* He was told that tortoises were different from island to island.
* He studied different species of finches – each type of finch had an adaptation that suited its food source. Ex. Tree finches had beaks that were suited for eating insects, while ground finches had beaks for eating cacti or seeds.
* He discovered that new species can come from ancestral ones in response to the local environment.
* He noticed that slow subtle changes over time could lead to big changes overall.

When he arrived home he spent eight years studying barnacles. He also studied dogs, pigeons, and flowers.

* After reading **Malthus’** book, he realized that individuals struggled to survive. Only some survived to produce offspring. Those best suited to the current environment survived to reproduce. The traits that were advantageous were passed to offspring.
* In 1858, he received a paper **Wallace** who had come to conclusions similar to him, and asked him if it should be published. Darwin passed his work onto **Lyell** and figured all his work was for nothing.
* He released his book in 1859 – *On the Origin of Species by Means of Natural Selection.*
* He waited long after he had collected his data before sharing his work, as the topic was controversial at the time and went ‘against’ religious teachings.
* His research was so well done he received much recognition for his work.

**Descent with modification** – Charles Darwin’s theory that natural selection does not demonstrate progress (or evolution) but merely results from a species’ ability to survive local conditions at a specific time.

Darwin was unable to account for the mechanism of inheritance of traits because it was before Mendel’s time (1853) of study of pea plants.