wiped clean of ALL living things and new and more advanced forms colonised the regions. The new forms arose from other recent "creation events". \*\* this was the reasoning for increased complexity in species \*\*

### 1744 - 1829 - Jean-Baptiste Lamarck

He was the first to suggest a mechanism for evolution. He correctly identified the environment as the key factor in evolutionary change. He stated that evolutionary change explains the patterns in fossils and the match between organisms and their environment. While Lamarck was the first to notice the underlying mechanism for evolution, he is known for his theory of the inheritance of acquitted characteristics. As the environment changes, an animal's activity patterns also change to accommodate this new environment. This would result in certain body parts being used more than others. This led to the idea of 'use and disuse' which states that the parts of bodies that are used become larger and stronger while those that aren't deteriorate. The stronger parts are then inherited as they would benefit the organism more. He also suggested that evolution happens because organisms have an innate drive to become more complex. This is incorrect as we now know that acquired traits can't be inherited; somatic cells are not inherited. (Example of an antelope like animal developing a longer neck to form a giraffe for the purpose of eating leaves on a tree). But despite this, he was the first to formulate the idea of interactions between organisms and the environment in the evolutionary process.

### 1766 - 1834 - Thomas Malthus

He wrote the *Essay not the Principle of Population*. This work contributed significantly to the development of evolutionary theory as it proposed that populations have a limitless potential for reproduction, unless they are kept in check by limited food supplies. So, while populations can increase exponentially while food resources remain relatively stable, in reality this reproductive potential is greater than the available food supplies. The population growth is then controlled by resource availability, resulting in a struggle for existence.

\*\*Essay on the principle of population\*\*

In this essay he states two postulates:

y on the principle of population\*\* essay he states two postulates: 1. Food is necessary to the existence of man **OLES** 2. The passion between sexes is necessary and will remain nearly in its present states yen that these are true, he states having hower of complete is related to the And given that these are true, he states has he power of put any is indefinitely greater than the power in earth to produce subsistence to han'

# 1795 - James Hutton

He proposed the principle of gradualism - change comes about gradually, variation occurs gradually in nature.

## 1797 - 1875 - Charles Lyell

He published the "Principles of Geology" in the 1830s. He argued, in this publication, his theory of uniformitarianism, where the geological processes that that are observed on earth today are the same as those that had occurred in the past. This means that the mechanisms of change are constant over time, geologic process are operating today as in the past and at the same rate. He incorporated Hutton's thinking into his own, leading to the idea that the "present is the key to the past". This opposed Cuvier's theory of Catastrophism and the idea of "multiple creations". This also opposed the idea of a young earth, implying that the earth was actually ancient and millions of years old; an important development in evolutionary thinking.

## 1809 - 1882 - Charles Darwin

Was on the HMS Beagle, this was where his idea on the fixity of species was challenged as he observed the ever-changing world and the evidence for a deep time-scale of the earth. His observations were controversial to Cuvier's ideas of Catastrophism as what he observed was a continuity of species, which was not possible in the case of catastrophes. Uniformitarianism was a more suitable proposal. HIs observations of fossils and species across geographical topographies implied that the earth was volatile and ever-changing. He also notices that there were gradual changes in animals as you moved across different regions, and recognised that there must have been a common ancestor. Finches were an important part of his development of evolutionary theory as he noticed different varieties of finches.