

# Variation, Evolution & Inheritance

## Keywords

<b>Adaptations</b>	Characteristics that help an organism survive in a particular environment.
<b>Natural selection</b>	Species change over time in response to environmental changes and competition.
<b>Extinct</b>	When no more individuals of a species remain.
<b>Biodiversity</b>	The variety of living things.
<b>Competition</b>	When organisms struggle against each other to get the same resource.
<b>Evolution</b>	Theory that the organisms living today descended from species that existed in the past.
<b>Population</b>	Number of organisms living in a particular area or habitat.
<b>Ecosystem</b>	A habitat and all the living things in it.

## 1. Natural selection

Most widely accepted theory from Charles Darwin. Darwin concluded:

1. All organisms produce more offspring than needed
2. Organism have a fairly constant population size
3. There is a wide range of features within a species. Some variations of features allow an organism more likely to survive
4. The 'fittest' organisms are mostly likely to survive to reproduce.

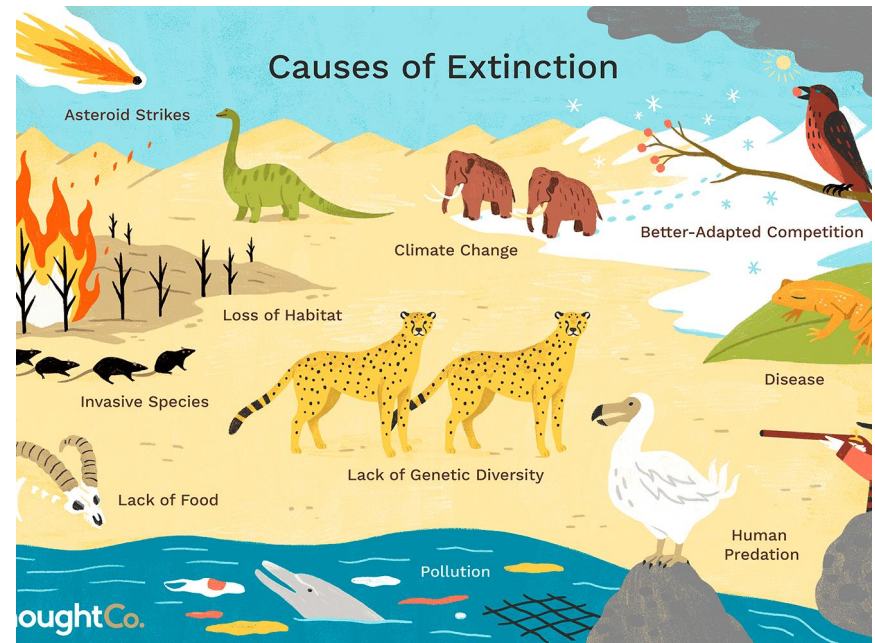
## 2. Biodiversity

Biodiversity is a variety of living things within an ecosystem. It is measured by either the number of different species with an ecosystem or the difference between individual of the same species.



## 3. Extinction

Species can become extinct due to natural disasters and disease. Humans are causing a rapid decline in biodiversity results in many species being pushed into extinction. This is caused by hunting, habitat destruction and exploitation of wildlife.



## Keywords

<b>Inherited characteristics</b>	A feature or characteristic that has been passed from parents to offspring.
<b>Allele</b>	Different forms of a gene, they can be recessive or dominant.
<b>Dominant</b>	Controls the characteristic whether there are one or two copies of it present.
<b>Recessive</b>	Controls the characteristic only when there are two copies of it present.

## 4. Gene banks

Gene banks are used to preserve the genetic material of a plant or animal that is endangered. Plants are either stored as a cutting or as seeds. Animals are stored as sperm, eggs, embryos or blood in liquid nitrogen at  $-196^{\circ}\text{C}$



## 5. Variation

Variation is the differences in characteristics between individual organisms.

There are 2 types of variation:

1. Genetic Variation: Genes control the development of characteristics. Eg, eye colour.
2. Environmental Variation: Characteristics may be changed by the environment. Eg, personality.

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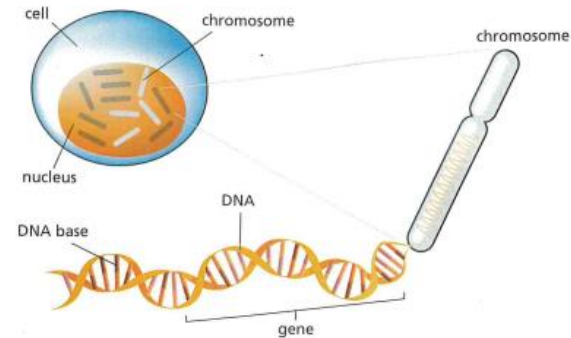
## 6. Genetics

Our genetic information is stored inside the nucleus of all cells.

DNA consists of two long strands wound together in a double helix structure.

In our cells, long DNA strands form structures called chromosomes.

A gene is a specific section of a chromosome (eg. the gene for eye colour).



Humans get 23 chromosomes from their Father (sperm) and 23 chromosomes from their Mother (egg), which combine to make an embryo with 23 pairs of chromosomes.

