



## 9A Genetics and Evolution

1. Environmental Variation	
<b>Environment</b>	An organisms surroundings - affected by physical environmental factors and living organisms.
<b>Characteristics</b>	The features of an organism.
<b>Variation</b>	The differences between characteristics of organisms.
<b>Environmental Variation</b>	Variation caused by an organism's environment <i>e.g. hairstyle</i>
<b>Continuous Variation</b>	Variation that can have any value between two points <i>e.g. height, mass</i>
<b>Discontinuous Variation</b>	Variation that can only have a value from a limited set of values <i>e.g. eye colour</i>
<b>Classification</b>	Sorting organisms into groups.

Species	
	The smallest group an organism is classified into. Members of the same species can reproduce together and produce fertile offspring.
2. Inherited Variation	
<b>Inherit</b>	Offspring / children get a mixture of characteristics from their parents.
<b>Inherited Variation</b>	The variation in characteristics inherited from parents <i>e.g. blood group</i>
<b>Genetic Information</b>	The instructions for inherited characteristics stored inside the nuclei of cells.
<b>Gametes</b>	Sex cells (sperm and egg)
<b>Sexual Reproduction</b>	Two gametes fuse together during fertilisation.
<b>Zygote</b>	Fertilised egg cell formed during fertilisation. Contains genetic material from both parents.

3. DNA	
<b>Chromosomes</b>	DNA is found in structures called chromosomes inside nuclei of cells.
<b>Human DNA</b>	Human cell nuclei contain 46 chromosomes (23 pairs).
<b>Genes</b>	A gene is a section of DNA / a chromosome.
<b>Sex Chromosomes</b>	Determines sex of offspring. Girls have two X chromosomes, boys have an X and a Y.
<b>Cell Division</b>	The splitting of a parent cell to form two daughter cells.

<b>Competition</b>	Organisms fighting over the resources that are available.
<b>Native</b>	A species that has always lived in an area.
<b>Biodiversity</b>	The number of different species within an area.
<b>Preserving Biodiversity</b>	Banning hunting, set up nature reserves, start breeding programmes and gene banks.
<b>Gene Banks</b>	Storing parts of organisms (seeds, gametes etc.) to grow if they become extinct.

5. Natural Selection	
<b>Natural Selection</b>	A change in the environment causes certain characteristics to be 'selected' to pass on to the next generation.
<b>Evolution</b>	A change over time in the characteristics of organisms.
<b>New Species</b>	As populations evolve they can become new species.