

Genes – Evolution and Inheritance

Key words	
Species	Individuals with similar characteristics that can breed to produce fertile offspring.
Fossil	Preserved remains of organisms formed over millions of years.
Extinction	No more organisms of that species alive on Earth today.
Dominant	Only 1 copy needed to be expressed e.g. B
Recessive	2 copies needed to be expressed e.g. b

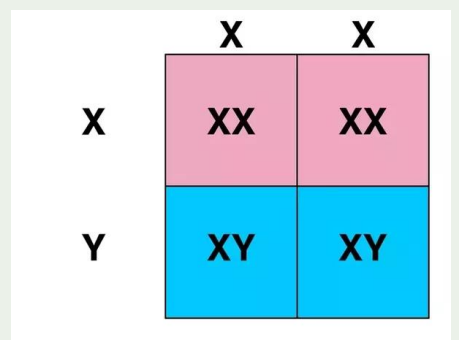
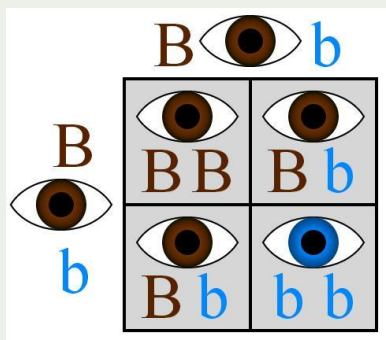
Key diagram – Evolution by Natural Selection

Variation among individuals in a population
 Inheritance – these characteristics are passed down from parent to offspring in DNA
 Selection – changes in environment can mean some are better adapted for survival than others
 Time – over time those with the advantageous alleles survive and reproduce and the others die – this can lead to new species

Key knowledge
Types of Variation
Genetic – inherited from parents e.g. eye colour
Environmental – caused by the environment e.g. tattoos and dying hair
Mixture of both – e.g. weight and height
Structure of DNA worked on by Maurice Wilkes, Rosalind Franklin, James Watson and Francis Crick.
DNA has double helix structure with 4 bases: A and T C and G
Sex chromosomes
Males have X and Y chromosomes Females have X and X chromosomes

Genetic diagrams

The dominant allele controls the characteristic whether there are one or two copies of it present.
 The recessive allele controls the characteristic only when two copies of it are present.



Key process – Fertilisation

Gametes are sex cells with half the number of chromosomes.
 In humans, sperm and egg cells only have 23 chromosomes instead of the normal 46. When they join nuclei this makes 46 chromosomes in the zygote.

