

Key Stage 3 Precise Learning Points



Unit Number

B3

Unit Title

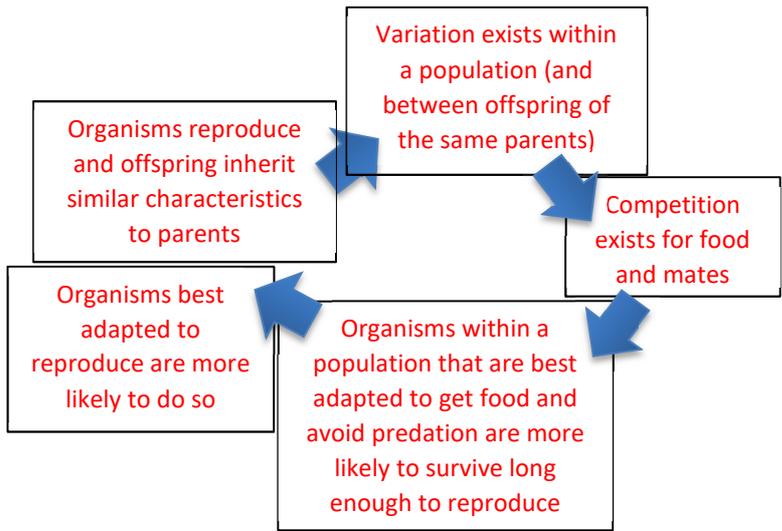
Respiration, Reproduction & Inheritance

Chapter

Inheritance, Genetics & Evolution

Key Scientific Points

1. During sexual reproduction DNA from the nuclei of the sex cells combine to make the first cell of the new organism.
2. The DNA defines the characteristics of an organism and so offspring inherit some of the characteristics of both parents through their DNA.
3. DNA is a long molecule; chunks of it are called genes and each gene 'codes' for a specific characteristic.
4. Many strands of DNA organize together into clusters called chromosomes.
5. Heredity is passing of genetic information from one generation to the next. Genetic information is passed on in the form of chromosomes.
6. The differences between individuals of the same species are called variation. Variation (and diversity) in a gene pool is good for species evolution and survival.
7. Variation largely arises from the shuffling of genes through sexual reproduction. There is usually extensive variation in a population of a species.
8. New genes arise from mutations (changes to DNA) from a number of causes e.g. exposure to radiation and errors during cell replication.
9. If the differences between organisms of the same species become so great that individuals are unable to produce offspring that themselves are able to reproduce then the one species has branched into two.
10. Variation is either continuous (described by numbers that can take any value) or discontinuous (either categoric which are described by labels or discrete which have one of two values, often either / or). Continuous variation e.g. height is shown in a line graph (unless you group into ranges = bar) and discontinuous is bar graph (e.g. blood group, eye colour).
11. Evolution is the observation that organisms have changed gradually over many millions of years.
12. Sometimes the change becomes so significant new species are formed.
13. Natural selection is Darwin's theory of how evolution occurs and can be summarized as:



14. Artificial selection is where humans choose which individuals from a population to breed to develop 'desired' characteristics.