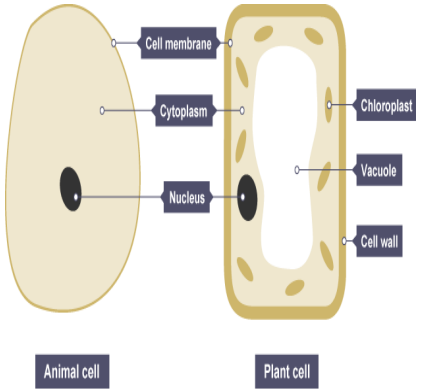
Knowledge Organiser – Year 7 Variation & Inheritance

Key words

Term	Definition
Species	Able to reproduce to produce fertile offspring
Variation	Difference between individuals
Continuous variation	Differences that show a wide range of intermediate values between two extremes
Discontinuous variation	Differences between individuals that can be only put into different categories
Genetic	To do with inheritance because of genes
Inherited variation	Differences between individuals of a species due to their genetic information
Environmental variation	Differences between individuals of a species due to factors in their surroundings
Classification	The act of grouping organisms together based on their similarities and differences
Biodiversity	The variety of species in an ecosystem or the world
Evolution	The gradual change in inherited characteristics over time
Selective breeding	The act of choosing to breed individuals with a desired characteristic
Extinction	When there are no more of a certain species alive.

What's in a cell?



Cell part	Function
Cell membrane	Controls what enters/leaves the cell
Cytoplasm	Where chemical reactions happen
Nucleus	Contains DNA
Cell wall	Supports plant cells
Vacuole	Contains cell sap
Chloroplast	Site of photosynthesis

Species vs. hybrid

A species are a group of organisms that can reproduce to have fertile offspring. This means they can have a baby that itself is able to have a baby. For example two lions can produce a lion cub that can grow to have lion cubs.

Some organisms can reproduce to have offspring, but these offspring are not fertile. In these cases, the offspring is known as a hybrid.

Evolution and selective breeding

The variation between individuals of a species can give a natural advantage to some individuals. These are more likely to survive and pass on their genetics, making their advantageous trait more common in the population. This is the basic principle of evolution through natural selection.

Selective breeding is the act of humans choosing to breed or reproduce organisms with a desired trait. For example choosing to breed dogs with a certain shaped face and then repeating the process with the offspring.

Variation

Variation is the difference between organisms of the same species. There is normally more variation between different species than within a species.

Environmental variation

Variation caused by the environment, for example your language or religion. For some plants, their flowers will be different colours based on their soil.

Inherited (genetic) variation

Variation caused by the genes of the organism. For example eye colour, hair colour or skin colour.

Biodiversity

Biodiversity is the range of species. The more species there are, the higher the biodiversity is. Biodiversity is important for many reasons – for example animals and plants can provide chemicals for medicines.

However human activity is lowering biodiversity by causing environmental damage which causes extinctions – the loss of a species.

Classification

Organisms can be classified (grouped into categories) based upon their similarities and differences. One of the largest groups is kingdoms. There are five kingdoms: plants, animals, fungi, protists, bacteria.

Each kingdom can be further classified. For example the animal kingdom can be split into which include mammals, reptiles, fish, amphibians and birds

Categorising variation

Continuous variation is that which has a wide range between two extremes and can be measured. For example height ranges from the smallest person to the tallest person and any height in between is possible.

Discontinuous variation is that with a limited number of possible values. For example human blood group, biological sex or eye colour.