

## Key points to learn

Animal competition	Animals compete for food, water, mates and space
Plant competition	Plants compete for light, water, space and minerals
Adaptations	Are characteristics that help an organism to survive and reproduce
Predator and prey	Predator and prey species are interdependent – a change in the population of one animal directly affects the population of the other
Variation	Differences in characteristics within a species are known as variation. There are two types; inherited and environmental. Many characteristics are affected by both.
Inherited variation	Inherited variation comes from characteristics inherited from your parents.
Environmental variation	Variation caused by your surroundings is called environmental variation.
Discontinuous variation	Characteristics that can only have certain values show discontinuous variation. Eye colour is an example.
Continuous variation	Characteristics that can have any values within a range show continuous variation. Height of a person is an example.

## Key points to learn

DNA (Deoxyribonucleic acid)	DNA is arranged in long strands called chromosomes. Each chromosome is divided into sections of DNA. The sections of DNA that contain the information to produce a characteristic are called genes.
Inherited characteristics	You inherit characteristics from your parents in your DNA
DNA structure	Watson, Crick, Franklin and Wilson worked together to produce a model of the structure of DNA
Evolution	All living organisms have evolved from a common ancestor through the process of natural selection where organisms slowly over time show variation and become better adapted to their environment. Fossils provide evidence for evolution.
Extinction	If a species is not adapted to its environment, it will not survive and eventually will become extinct
Gene banks	To help prevent the extinction of organisms we have set up gene banks to store genetic material of organisms

## KS3: B2.3 Adaptation & Inheritance

### Knowledge Organiser

#### Big Picture



Biology

1.1 Cells

1.2 Structure and function of body systems

1.3 Reproduction

2.1 Health & lifestyle

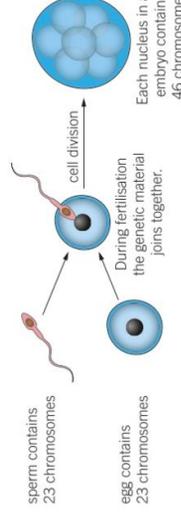
2.2 Ecosystem processes

2.3 Adaptation and inheritance

#### Fantastic fact!

More proof for evolution comes from your DNA. You share about 97% of your DNA with a gorilla and 50% with a banana!

#### Additional Information



▶ You get half of your genetic material from your mother, and half from your father.

Lesson	Developing	Secure	Extending
B2 3.1 Competition and adaptation	I can state some resources that plants and animals compete for. <input type="checkbox"/>	I can describe some resources that plants and animals compete for. <input type="checkbox"/>	I can explain the effect of competition on the individual or the population. <input type="checkbox"/>
	I can state what is meant by the term adaptation. <input type="checkbox"/>	I can describe how organisms are adapted to their environments. <input type="checkbox"/>	I can explain how adaptations help an organism survive in their environment. <input type="checkbox"/>
B2 3.2 Adapting to change	I can name an environmental change. <input type="checkbox"/>	I can describe how organisms adapt to environmental changes. <input type="checkbox"/>	I can explain how organisms are adapted to seasonal changes. <input type="checkbox"/>
	I can give a possible reason for adaptation or extinction. <input type="checkbox"/>	I can describe how competition can lead to adaptation. <input type="checkbox"/>	I can explain how competition or long-term environmental change can lead to evolutionary adaptation or extinction. <input type="checkbox"/>
B2 3.3 Variation	I can state what is meant by the term variation. <input type="checkbox"/>	I can describe how variation in species occurs. <input type="checkbox"/>	I can explain how variation gives rise to different species. <input type="checkbox"/>
	I can state that variation is caused by the environment or inheritance. <input type="checkbox"/>	I can describe the difference between environmental and inherited variation. <input type="checkbox"/>	I can explain that some variation is affected by both environmental and inherited factors. <input type="checkbox"/>
B2 3.4 Continuous and discontinuous	I can state that there are two types of variation. <input type="checkbox"/>	I can describe the difference between continuous and discontinuous variation. <input type="checkbox"/>	I can explain the causes of continuous and discontinuous variation. <input type="checkbox"/>
	I can state the two types of graphs that can be drawn when representing the two types of variation. <input type="checkbox"/>	I can represent variation within a species using graphs. <input type="checkbox"/>	I can represent variation within a species using the appropriate type of graph. <input type="checkbox"/>

Lesson	Developing	Secure	Extending
B2 3.5 Inheritance	I can state what is meant by a gene. <input type="checkbox"/>	I can describe how characteristics are inherited. <input type="checkbox"/>	I can explain how characteristics are inherited through and coded for by genes. <input type="checkbox"/>
	I can state that more than one scientist was involved in discovering the structure of DNA. <input type="checkbox"/>	I can describe how scientists worked together to develop the DNA model. <input type="checkbox"/>	I can explain the contribution of each team of scientists to the development of the model of DNA. <input type="checkbox"/>
B2 3.6 Natural selection	I can state how survival rates differ for successful adaptation. <input type="checkbox"/>	I can describe the process of natural selection. <input type="checkbox"/>	I can explain how natural selection leads to evolution. <input type="checkbox"/>
	I can state that organisms have changed over time, giving examples. <input type="checkbox"/>	I can describe how organisms evolve over time. <input type="checkbox"/>	I can explain how scientists know that organisms have changed over time. <input type="checkbox"/>
B2 3.7 Extinction	I can state what is meant by the term extinct. <input type="checkbox"/>	I can describe some factors that may lead to extinction. <input type="checkbox"/>	I can explain some factors that may have led to extinction. <input type="checkbox"/>
	I can state how scientists try to prevent extinction. <input type="checkbox"/>	I can describe the purpose of gene banks. <input type="checkbox"/>	I can explain the different types of gene bank. <input type="checkbox"/>

Key word	Definition
adaptation	Characteristic that helps an organism to survive in its environment.
chromosome	Long strand of DNA, which contains many genes.
competition	Competing with other organisms for resources.
continuous variation	Characteristic that can take any value within a range of values.
discontinuous variation	Characteristic that can only be a certain value.
DNA	Chemical that contains all the information needed to make an organism.
evolution	Development of a species over time
extinct	When no more individuals of a species are left anywhere in the world.
fossil	The remains of plants and animals that have turned to stone.
gene	Section of DNA that contains the information for a characteristic.
gene bank	A store of genetic samples, used for research and to try to prevent extinction.
interdependence	The way in which living organisms depend on each other to survive, grow, and reproduce.
natural selection	Process by which the organisms with the characteristics that are most suited to the environment survive and reproduce, passing on their genes.
species	Organisms that have lots of characteristics in common, and can mate to produce fertile offspring.
variation	Differences in characteristics within a species.