



Year 8 Science knowledge organiser

Module – Organisms

Topic – Evolution and inheritance

Length of topic – Approx. 10 lessons

Method of assessment – Summative assessment

Links to prior learning

KS2 Year 4 Living things and their environment topic

- Recognise that environments can change and that this can sometimes pose dangers to living things.

KS2 Year 5 Living things and their environment topic

- Describe the life process of reproduction in some plants and animals.

KS2 Year 6 Evolution and inheritance topic

- Recognize that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
- Recognize that living things have changed over time.
- Identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Knowledge to be taught.

- Natural selection is a theory that explains how species evolve and why extinction occurs.
- Biodiversity is vital to maintaining populations.
- Within a species variation helps against environment changes, avoiding extinction.
- Within an ecosystem, having many different species ensures resources are available for other populations, like humans.
- Inherited characteristics are the result of genetic information, in the form of sections of DNA called genes, being transferred from parents to offspring during reproduction.
- Chromosomes are long pieces of DNA which contain many genes. Gametes, carrying half the total number of chromosomes of each parent, combine during fertilisation.

Skills to be covered

- Review and interrogate theories of extinction.
- Use research to justify and formulate your opinions on theories such as extinction

Working scientifically strands covered

Analyse patterns	
Discuss limitations	
Draw conclusions	✓
Present data	
Communicate ideas	✓
Construct explanations	✓
Critique claims	✓
Justify opinions	✓
Collect data	
Devise questions	
Plan variables	
Test hypothesis	
Estimate risks	
Examine consequences	
Review theories	✓
Interrogate	✓

Assessment

Summative assessment based on knowledge taught through the topic

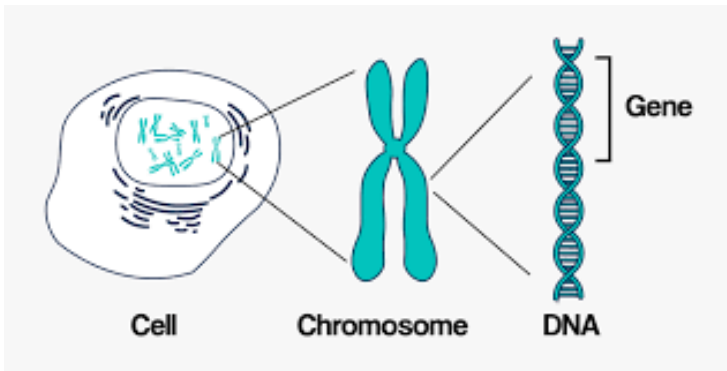


Year 8 Science knowledge organiser

Facts

Charles Darwin's theory of evolution was not the only one.

The DNA of every individual is different, except for identical twins.



There is more than one version of each gene e.g. different blood groups.

Changes in the environment may leave individuals less well adapted to compete successfully for resources such as food, water and mates.

Individuals that are poorly adapted to their environment are less likely to survive and reproduce.

The dodo was a flightless bird found on the island of Mauritius. It became extinct in the 17th century because of human activities.



Seed banks are an example of a gene bank.

Keywords

Biodiversity: The variety of living things. It is measured as the differences between individuals of the same species, or the number of different species in an ecosystem.

Chromosomes: Thread-like structures containing tightly coiled DNA.

Competition: When two or more living things struggle against each other to get the same resource.

DNA: A molecule found in the nucleus of cells that contains genetic information.

Extinct: When no more individuals of a species remain.

Evolution: Theory that the animal and plant species living today descended from species that existed in the past.

Gene: A section of DNA that determines an inherited characteristic.

Gene bank: A store of genetic material such as sperm, embryos or seeds.

Genetic engineering: Process which involves the artificial transfer of genetic information from one donor cell or organism to another.

Inherited characteristics: Features that are passed from parents to their offspring.

Natural selection: Process by which species change over time in response to environmental changes and competition for resources.

Population: Group of organisms of the same kind living in the same place.

Species: A type of organism that is the basic unit of classification. Individuals of different species are not able to interbreed successfully.

Variation: Difference between individuals, distance from the norm.