

SUBJECT: Science

UNIT: Y8 Inheritance and Evolution



Lesson 1: Inheritance

1. What is meant by inheritance?
2. Why do children inherit characteristics from their parents?
3. What is a characteristic?

Lesson 2: Inherited or environmental?

1. What is an inherited characteristic?
2. What is an environmental characteristic?
3. What is variation?

Lesson 3: Structure of DNA

1. What is DNA?
2. Where is DNA found?
3. Describe the structure of DNA

Lesson 4: History of DNA

1. Name the scientist who made x-ray images of DNA
2. Name the scientist who showed this image to Watson and Crick.
3. Why is Watson and Crick's work important?

Lesson 5: Continuous and discontinuous variation

1. What is continuous variation?
2. Give an example of continuous variation
3. What is discontinuous variation?
4. Give an example of discontinuous variation.

Evolution

Lesson 1: Natural selection

1. Name the scientist who proposed the theory of evolution.
2. What is natural selection?

Lesson 2: Extinction

1. What is meant by extinction?
2. Give examples of some extinct species of animal.

Lesson 3: Biodiversity

1. What is biodiversity?
2. How do we preserve biodiversity?

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Key Vocab

Characteristic

Features of an organism describing how it looks/behaves.

DNA

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

Chromosomes

Thread-like structures containing tightly coiled DNA.

Gene

A region of DNA that determines an inherited characteristic

Variation

The differences within and between species.

Continuous

Variation

Where differences between living things can have any numerical value.

Discontinuous

Variation

Where differences between living things can only be grouped into categories.

Species

A group of living things that have more in common with each other than with other groups. They can reproduce to have fertile offspring.

Biodiversity

The variety of different living plants and animals and microorganisms in an area.

DNA is the genetic code which makes up genes which are responsible for giving an organism a specific characteristic.

DNA

DNA is a chemical made up of two long strands arranged into a spiral. This is the double helix. DNA carries genetic information that has all the instructions that a living organism needs to grow, reproduce and function., DNA is passed on from parents to their offspring during fertilisation. 4 bases A T C G made up the genetic code the strands are held together by bonds between base pairs.

Chromosomes, Genes and DNA

The DNA is coiled into structures called chromosomes found in the nucleus of each cell. Human body cells contain 23 pairs of chromosomes

A gene is a section of DNA that controls a characteristic e.g. eye colour. DNA makes up genes which make up chromosomes. One copy of all of your chromosomes is called your genome

History of DNA

Name	What they did
Rosalind Franklin	Made x-ray diffraction images of DNA
Maurice Wilkins	Showed Franklin's image to Watson and Crick and supported their model
James Watson and Francis Crick	Used information from Franklin's image to work out and build a model for the structure of DNA

Preserving biodiversity

Biodiversity is maintained by captive breeding programs and the use of gene banks.

Career

Geneticist

Inheriting Characteristics

Gametes (sperm and egg) contain only 23 chromosomes.

When their nuclei join together during fertilisation, the new cell formed contains 23 pairs.

This is why children resemble both parents; they inherit half of their DNA from their mother and half from their father.

Natural selection

Charles Darwin is known as the Grandfather of evolution. He proposed the idea of natural selection or 'Survival of the fittest'. He suggested that organisms with successful characteristics would survive and pass on these characteristics to their offspring.

Extinction

When a species of plant or animal has no more living members, they are said to be extinct. Extinct organisms include; dinosaurs, the Dodo and the Tasmanian wolf.

Continuous Variation

Characteristics which we measure e.g. height length weight. They are usually the product of both genes and the environment. The distribution of these characteristics always forms a bell-shaped curve or normal distribution

Discontinuous Variation

Characteristics where there are just a few categories e.g. eye colour and blood group. They tend NOT to form a bell-shaped curve in a graph.