

KEY VOCAB

Key Word	Definition
Inherited characteristics	Features that are passed from parents to their offspring.
DNA	A molecule found in the nucleus of cells that contains genetic information.
Chromosomes	Thread-like structures containing tightly coiled DNA.
Gene	A section of DNA that determines an inherited characteristic.
Double Helix	The shape of DNA molecule with two strands twisted together in a spiral.
Base Pair	The pair of nitrogenous bases that connects the complementary strands of DNA
Bond	The chemical link that holds molecules together.

KEY KNOWLEDGE

Scientists worked out the structure of DNA in the 1950s. Rosalind Franklin made 'X-ray diffraction' images of DNA. James Watson and Francis Crick used information from one of her images to work out a model for the structure of DNA. Work by Maurice Wilkins, a colleague of Franklin, supported their model.

Watson and Crick were able to work out how DNA was arranged and the tiny distances between its different features. They worked out that in a DNA molecule:

- there are two strands
- the strands are twisted around each other to form a **double helix**
- the strands are held together by **bonds** between **base pairs**

Watson, Crick and Wilkins were awarded the 1962 Nobel Prize in Physiology or Medicine for their discovery. Franklin had died before then and so could not be awarded it with them.

KEY KNOWLEDGE

The DNA of every individual animal is different, except for identical twins. There is more than one version of each gene e.g. different blood groups (A,B,AB,O). It is the inheritance of these different versions that lead to different characteristics

KEY KNOWLEDGE

DNA molecules are so long and thin, it is coiled into structures called **chromosomes**.

The chromosomes are found in the nucleus of each cell.

Human body cells each contain 23 pairs of chromosomes, half of which are from each parent.

Human gametes (eggs and sperm) each contain 23 chromosomes.

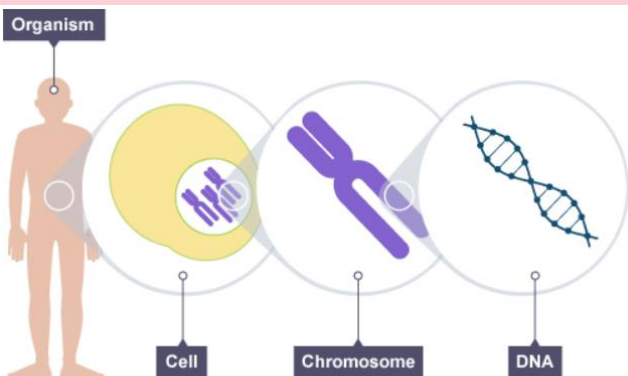
When an egg is fertilized by a sperm, it becomes a cell with 23 pairs of chromosomes.

This is why children resemble both their parents – half of their chromosomes and DNA come from their mother, and half from their father.

A **gene** is a section of DNA that is responsible for characteristics such as eye colour.

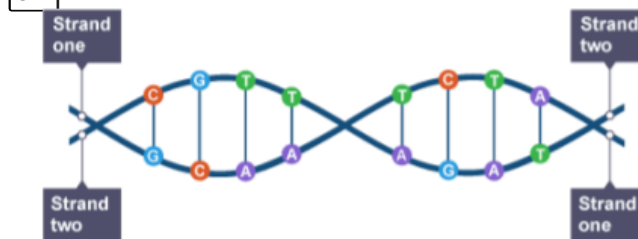
Humans have around 20,000 genes. One copy of all your chromosomes is called your genome.

KEY KNOWLEDGE



Each cell with a nucleus contains chromosomes, which are made from DNA

KEY KNOWLEDGE



A DNA molecule showing its base pairs, G-C and A-T

Y9 Inheritance

ARTICULATE
THINK
QUESTION
WRITE
SPELL



FURTHER READING

<https://www.bbc.co.uk/bitesize/guides/zp7thyc/revision/1>