1.2.1 Chromosomes

Key Aims

1. *Chromosomes in Nucleus*
2. *Chromosomes in Pairs*

Chromosomes

Chromosomes in Nucleus

AQA Specification

The nucleus of a cell contains chromosomes made of DNA molecules. Each chromosome carries a large number of genes.

- **The nucleus contains genetic information.** Most cells have a **nucleus**, which contains the genetic information of the cell. This information affects the make up of the cell, and determines which proteins are made.

- **DNA is packaged in chromosomes.** A **chromosome** is a molecule made up of many coiled up sections of DNA. It is important that the DNA does not become tangled.

- **DNA makes up genes**. **Genes** are sequences of DNA that code for certain characteristics. Each chromosome therefore contains many genes.

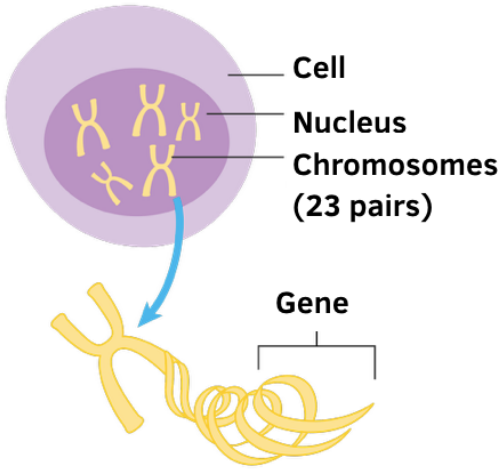

Fig 1. Genes are stored in the nucleus in chromosomes.

Chromosome Pairs

AQA Specification

In body cells, the chromosomes are normally found in pairs.

- **Chromosomes come from biological parents.** Each cell has 23 pairs of chromosomes. Each set of chromosomes gets one copy from the

Knowledge Recall

1. *What is a chromosome?*
2. *What is a gene?*
3. *How many chromosomes are in a human cell?*

father and the other from the mother. Therefore, the chromosomes are found **paired**.

- **If chromosomes are not paired, it could lead to genetic disease.** Many genetic conditions occur due to problems in chromosome pairing. A common example is Down's Syndrome, in which patients suffer from an extra 21st chromosome.

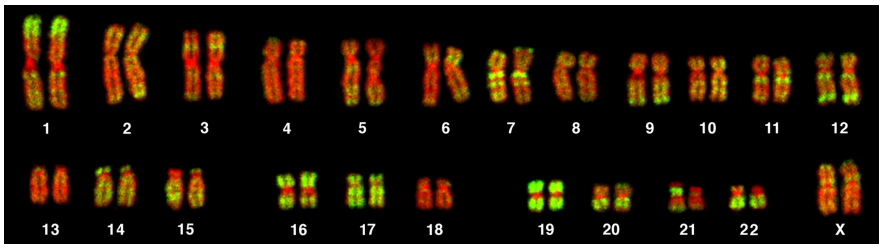

Fig 2. Chromosome Pairs. There are 46 chromosomes in every cell, each paired.