

Chromosomes and Mitosis

Chromosomes:

- **Structure:** A thread like structure found in the **nucleus** of most living cells and have two copies (pairs) of each chromosomes as shown in Human cell figure: 1
- **Composition:** composed of nucleic acids and protein
- **Function:** carrying genetic information in the form of genes.
- Each Chromosomes has double helix structure coiled with each other called **DNA Molecule**
- Each chromosomes has a different types of **genes (part of the DNA)** carrying genetic information for example: eye colour, height etc. Figure 2

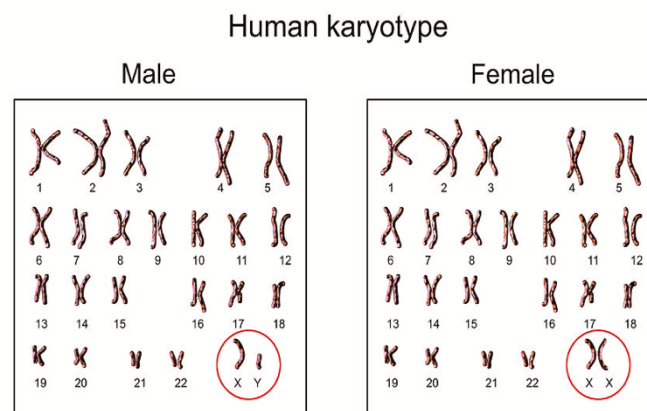


Figure:1 Male and females chromosomes

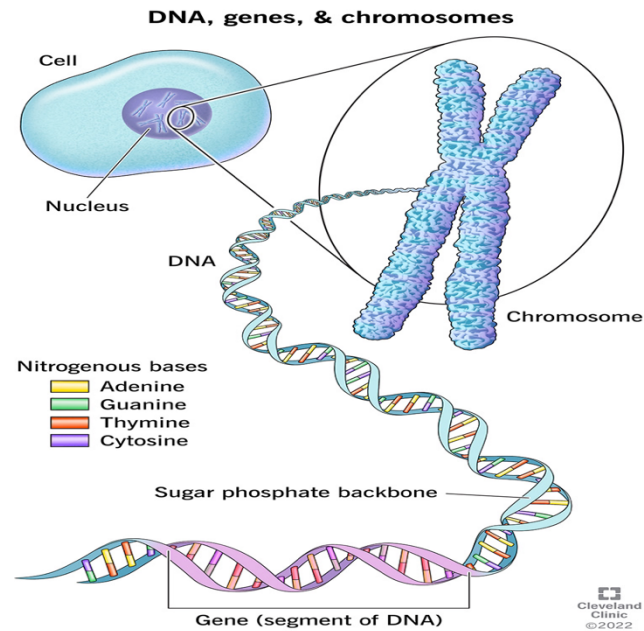


Figure:2 Chromosomes, DNA and Genes

Common Name	Genus and Species	Diploid Chromosome Number
Buffalo	<i>Bison bison</i>	60
Cat	<i>Felis catus</i>	38
Cattle	<i>Bos taurus, B. indicus</i>	60
Dog	<i>Canis familiaris</i>	78
Donkey	<i>E. asinus</i>	62
Goat	<i>Capra hircus</i>	60
Horse	<i>Equus caballus</i>	64
Human	<i>Homo sapiens</i>	46
Pig	<i>Sus scrofa</i>	38
Sheep	<i>Ovis aries</i>	54

Some animals with their chromosomes number

Cell Cycle: Growth-Development-Replication-Repair

- Cell cycle is a repeating series of events that takes place in a cell as it grows and divides in multi- cellular organism.

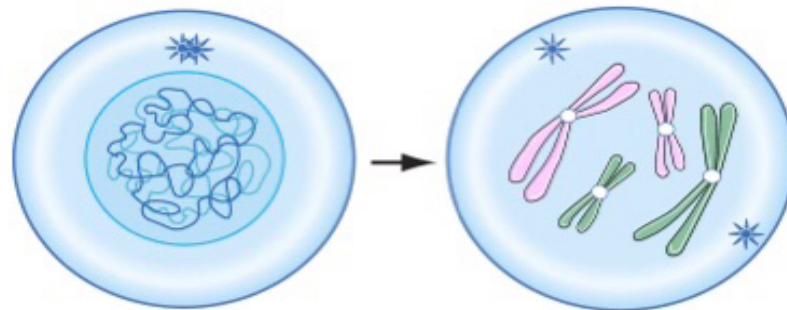
Main Stages of Cell cycle

I- Growth and DNA Replication

II- Mitosis

I- Growth and DNA replication:

- ☐ DNA in the nucleus are spread long thread like form
- ☐ Before Division cell grown and increase the amount of sub cellular structure like mitochondria.
- ☐ DNA replicate and make its copies



II- Mitosis

- ☐ After chromosomes make copies, chromosomes lined up at the centre and cell fibre pulls apart
- ☐ Arms of each chromosomes move towards opposite spindle poles
- ☐ Membrane form around each set of chromosomes, nucleus has divided into two nuclei
- ☐ Lastly cytoplasm and cell membrane divided and form Two daughter cells.

