Cell Division | Notes

Key Terms

Chromosomes: Composed of DNA and protein; only visible during cell division
Gene: Part of a chromosome that contains information to produce a protein
Diploid Cell: A cell that has a full set of chromosomes

Mitosis

- Cell divides to produce two genetically identical daughter cells
- 4 stages;
- Prophase
- Metaphase
- Anaphase
- Telophase

Prophase

- Chromosomes are visible
- Chromosome duplicate themselves
- Chromosomes appear as two strands
- They join in the centre
- Chromosome is attached to an identical copy of itself
- Nuclear membrane and other cell organelles disappear
- Spindle fibres form in the cell
- Centriole pairs migrate to opposite poles of cell

Metaphase

- Chromosomes line up in the centre of the cell
- Spindle fibres attach to the centromere of the chromosome

Anaphase

- Spindle fibres contract
- Each separated strand is called a chromosome

- Chromosomes are pulled to opposite poles of the cell

Telophase

- Final stage in cell division
- Cytoplasm divides to form two cells
- Chromosomes begin to uncoil to form chromatin
- Nuclear membrane reforms around the chromatin
- In plant cells, a cell plate grows between the new cells separating the cells

Significance Of Mitosis

- Produces two identical daughter cells
- Genetic information is identical
- Growth and repair of dead and worn-out cells
- Some organisms reproduce asexually by mitosis
- Bacteria reproduces by mitosis in binary fission

Meiosis

- Known as reduction division
- Testes and ovaries of animals
- Produces four non-identical cells
- Called gametes or sex cells
- Called haploid or n
- Crossing over can occur where the pair of chromosomes will swap DNA
- Results in variation

Significance Of Meiosis

- Reduces the chromosome number by half
- New combination of genes (Variation in offspring)