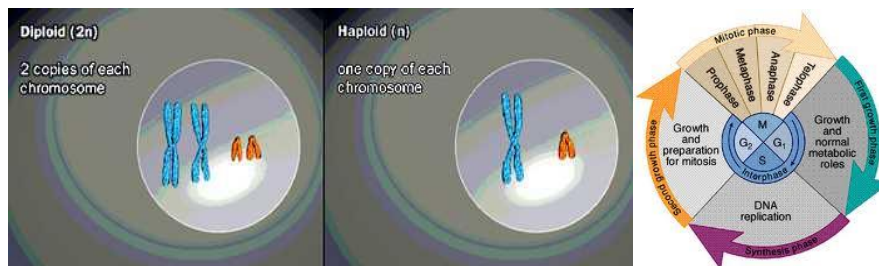


# Cell Division | Topic Notes

- **Cell continuity** refers to living cells arising from living cells of the same type.
- **Chromosomes** are tightly coiled and highly organised structures of D.N.A and protein. (*referred to as **chromatin** when cell isn't dividing*)
- **Genes** are short regions of chromosomes that contain a code for the production of a protein.
- **Homologous chromosomes** are pairs of chromosomes. (*humans have 23 pairs*)
- **Haploid cells** have one set of chromosomes (sperm and egg, i.e.23)



- **Diploid cells** have two sets of chromosomes (all other body cells, i.e. 46)
- **Interphase** is a long period of the cell cycle in which the cell spends most of its life carrying out everyday activities.
- **Mitosis** is nuclear division in which the number of chromosomes in the daughter nuclei is the same as the parent nucleus. its stages include:
  1. **Prophase**: chromatin-chromosomes, chromosomes attach at centromeres, nuclear membrane begins to dissolve and centrioles produce spindle fibres.
  2. **Metaphase**: chromosomes line up along equator and spindle fibres attach to centromeres.
  3. **Anaphase**: spindle fibres pull duplicated chromosomes apart at centromere to either pole.
  4. **Telophase**: nuclear membranes begin to reform and spindle fibres dissolve. A *cleavage furrow* forms in animal cells while in plants a *cell plate* forms.
- Mitosis is used in single celled organisms for **reproduction**.
- Mitosis is used in multicellular organisms for **growth and repair**.
- **Cancer** is a group of disorders in which the cells lose control over the rate of mitosis and cell division. There are two types :
  1. **Benign**-forms a tumour and stays in one position.
  2. **Malignant**-have the ability to leave tumour. (more serious)
- Causes of cancer include **UV light, cigarette smoke** and **radon gas**.

- Cancer can be treated by **surgery, radiotherapy** or **chemotherapy**.
- **Meiosis** is a type of cell division in which four daughter cells are produced, each containing half the nr. Of chromosomes as the parent cell.
- Meiosis is important in multicellular organisms for sexual reproduction to occur, it doesn't occur in single celled organisms.