

Microscope & cell division

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Light Microscope

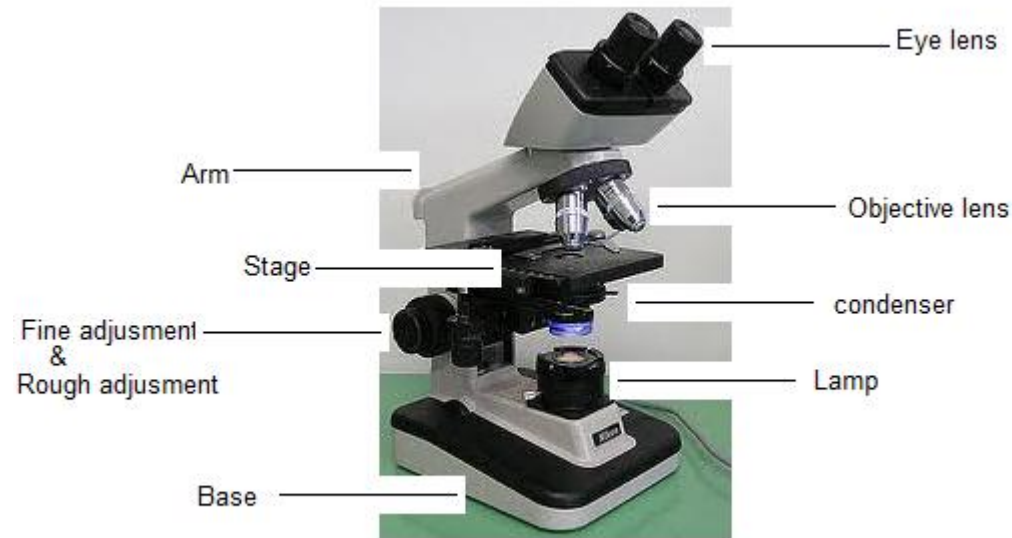
- Simple microscope - uses one magnifying lens
- Compound microscope - use two magnifying lenses

Electronic Microscope

- transmission electron microscope - for very thin object to produce flat images
- scanning electron microscope - for producing three-dimensional images

Microscope

Light Microscope



Cell division

- What is the cell ?
- Cell is the basic unit of all living things.
- Cells make up bones, muscles, skin, and blood
- As the organism grows, the cells must reproduce

2 kinds of cell division

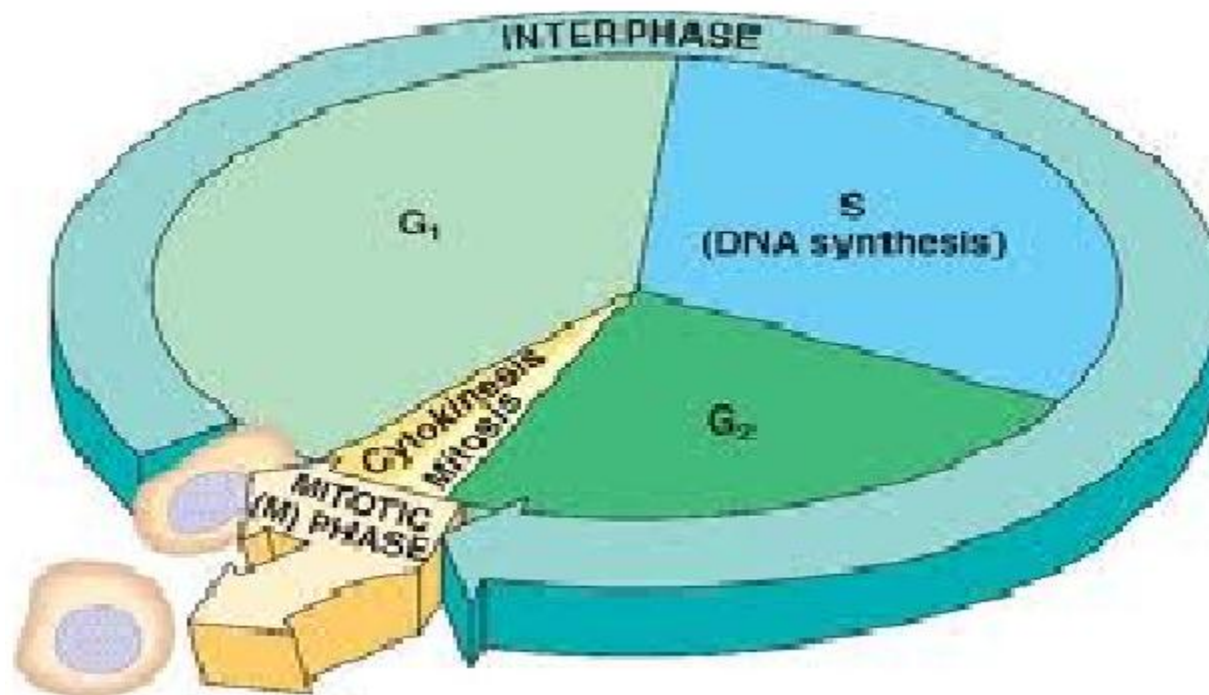
1- Mitosis:

Division of somatic cells .(Diploid $2N$)

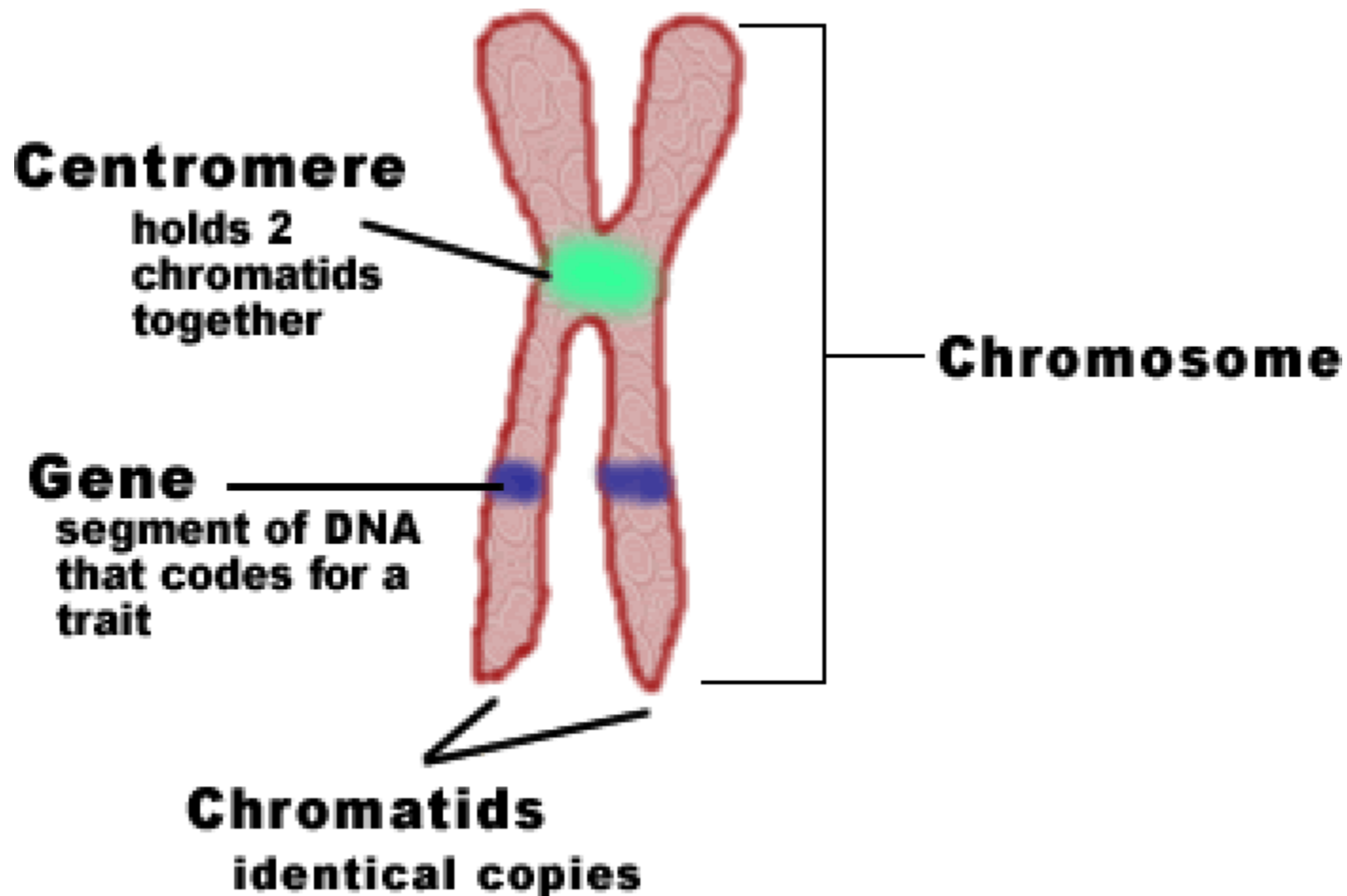
2- Meiosis:

Creation of new sex cells (egg or sperm)(Haploid $1N$)

Cell cycle

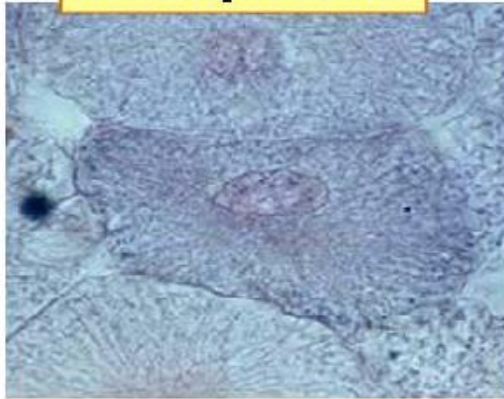


Chromosome Structure

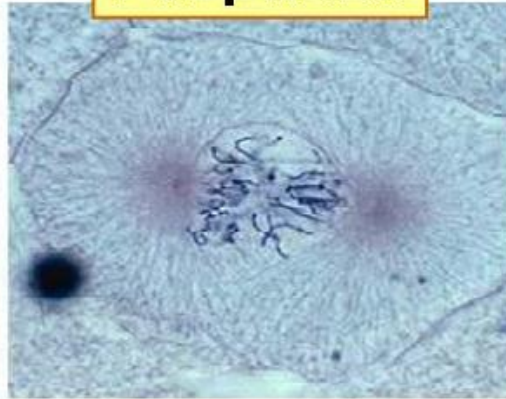


Mitosis

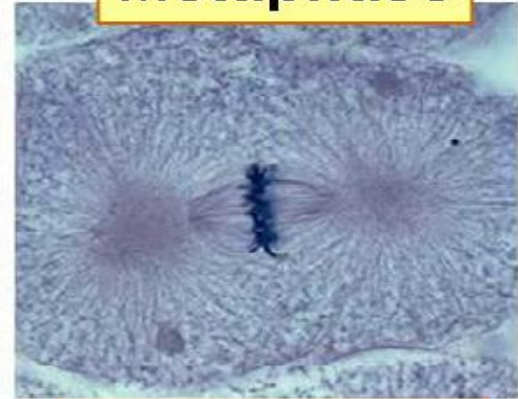
Interphase



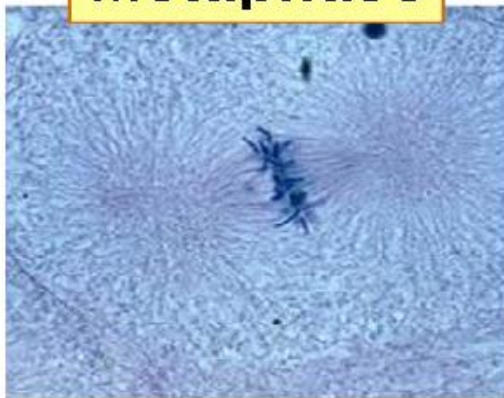
Prophase



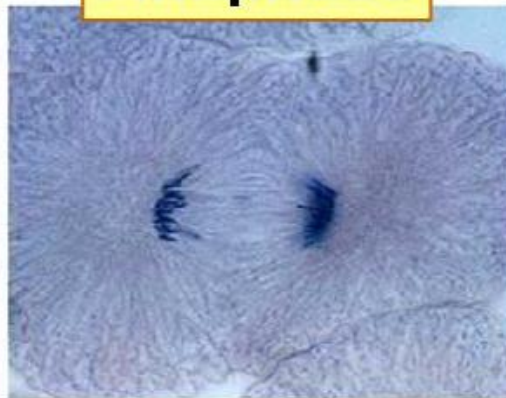
Metaphase



Metaphase



Anaphase



**Telophase,
cytokinesis**

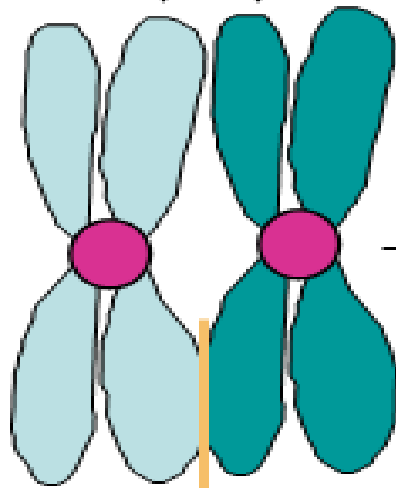


Meiosis

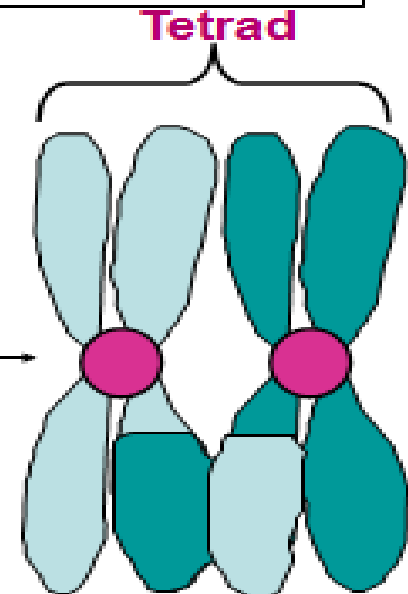
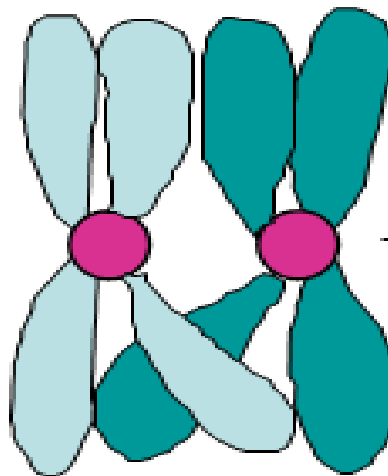
Crossing Over

creates variation (diversity) in the offspring's traits.

nonsister chromatids



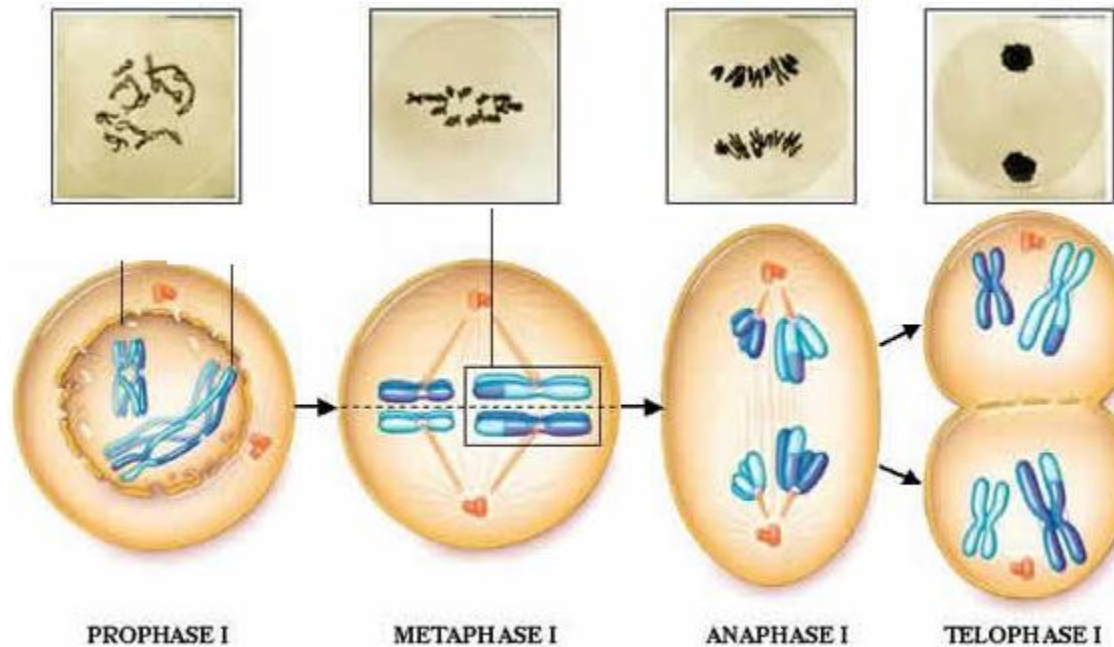
chiasmata: site
of crossing over



variation

Meiosis

meiosis 1



Meiosis 2

