

## Vocabulary: Meiosis



### Vocabulary

- **Anaphase** – a stage in mitosis or meiosis in which chromosomes or chromatids separate and move to opposite poles of the cell.
- **Chromosome** – A structure that consists of a DNA molecule tightly wrapped around packaging proteins.
  - Throughout most of a cell's life cycle, the DNA is unraveled. The DNA only condenses into chromosomes during cell division.
- **Crossover** – a process in which homologous chromosomes pair up and exchange genetic material.
  - Crossovers occur during the prophase I stage of meiosis.
- **Cytokinesis** – a stage during mitosis or meiosis where the cytoplasm is divided, creating two daughter cells from one parent cell.
- **Diploid** – a cell containing two complete sets of chromosomes, one from each parent.
  - The body, or somatic, cells of an organism (all cells other than the germ cells) are diploid.
- **DNA** – a molecule found in the cell nucleus that encodes genetic information.
  - DNA is short for deoxyribonucleic acid.
- **Dominant** – a trait that is always expressed when it is present.
  - Dominant alleles are usually represented by capital letters, such as F.
- **Gamete** – a mature, haploid reproductive cell that is created as a result of meiosis.
  - Male cells that undergo meiosis produce gametes called sperm cells.
  - Female cells that undergo meiosis produce polar bodies and gametes called egg cells (ova).
- **Genotype** – the genetic makeup of an organism.
- **Germ cell** – a sexual reproductive cell that has the potential to develop into gametes.
  - Germ cells include gametes as well as the diploid cells that divide to produce gametes.
- **Haploid** – a cell containing a single set of unpaired chromosomes.
  - Haploid cells contain half the number of chromosomes as diploid cells.
  - The gametes (sperm and egg cells) of an organism are haploid.



- Homologous chromosomes – a pair of chromosomes that are similar in length as well as gene and centromere position.
- Interphase – a phase in a cell's life cycle where it grows, replicates DNA, and prepares for cell division.
- Meiosis – a type of cell division in which a parent cell divides twice, producing four daughter cells.
  - During meiosis, DNA is replicated only once, resulting in four daughter cells with half the amount of genetic material (haploid) as the parent (diploid).
- Metaphase – a stage during mitosis and meiosis in which the chromosomes line up along the metaphase plate and chromosomes attach to spindle fibers.
- Mitosis – a type of cell division in which a parent cell divides once, producing two daughter cells.
  - During mitosis, the DNA is replicated once, resulting in two daughter cells that have exact copies of the parent cell's DNA.
- Ovum (egg cell) – a female germ cell involved in reproduction.
  - An ovum can grow into an organism after it is fertilized by a sperm cell.
- Phenotype – the physical appearance of an organism.
  - Organisms with different genotypes can have the same phenotype. For example, an RR fruit fly and an Rr fruit fly both will have red eyes.
- Prophase – a stage during mitosis and meiosis in which the nuclear envelope breaks down, the chromosomes condense, and centrosomes move to opposite poles of the cell.
  - In meiosis only, homologous chromosomes pair up and crossovers occur during prophase I.
- Recessive – a trait that is not expressed when the dominant allele is present.
  - Recessive alleles are usually represented by lowercase letters, such as f.
- Sister chromatids – two identical strands of DNA in a chromosome connected by a centromere.
  - Sister chromatids are formed by DNA replication during interphase.
- Sperm cell – a male germ cell involved in reproduction.
  - Immature spermatids develop into sperm cells.
  - Sperm cells can fertilize egg cells during reproduction.
- Telophase – a stage during mitosis and meiosis in which the DNA unwinds and the nuclear envelope reforms around the chromosomes or chromatids.
- Zygote – a fertilized cell that forms from the fusion of an egg cell and a sperm cell.