

Chapter 6 Meiosis & Mendel

“Lets Talk about Sex”

Objectives

- Students will be able to identify the difference between sex cells and somatic cells and explain why these two types of cells are different.
- Students will be able to identify the number of chromosomes present in sex cells versus somatic cells.

6.1 Notes

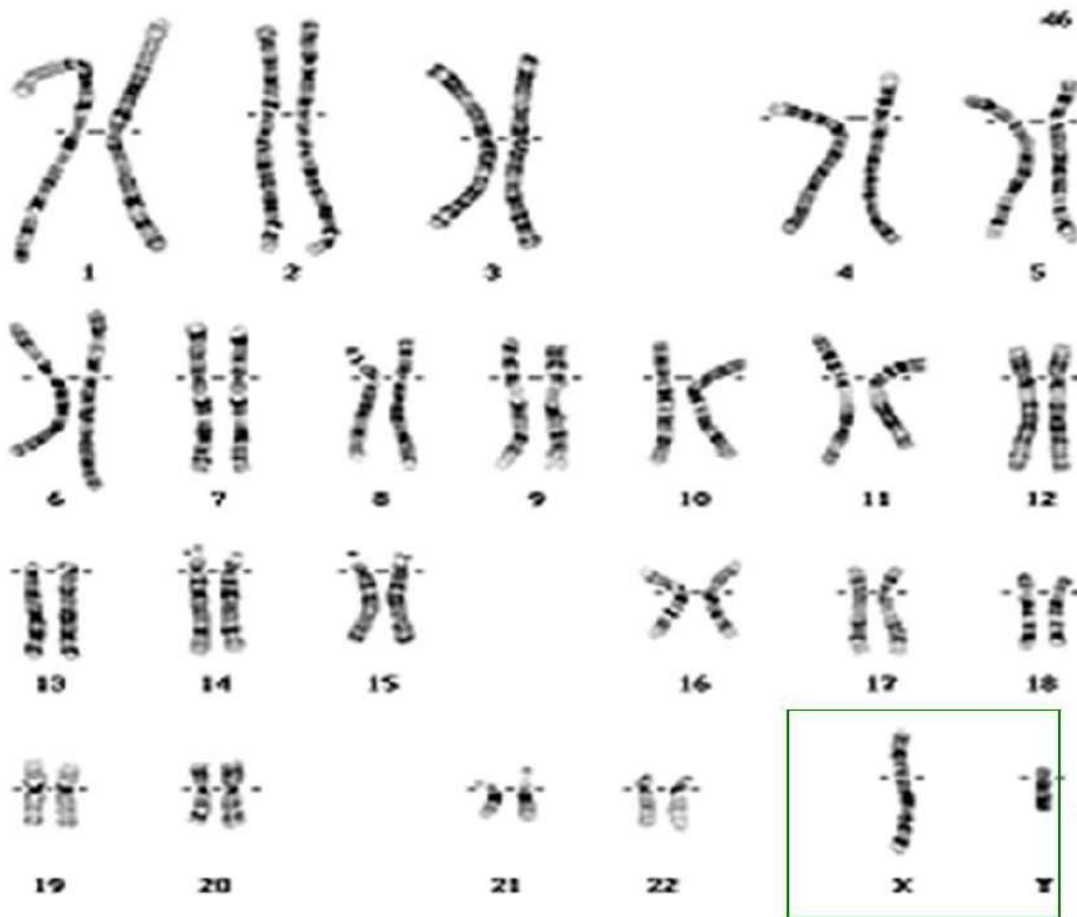
- There are body cells and gametes
 - **Somatic cells:** body cells, make up most of your body tissues and organs
 - DNA in body cells not passed on to children
 - **Gametes:** sex cells, egg in the female and sperm in the male
 - Germs cells- cells in reproductive organs (ovaries, testes) that develop into gametes.
 - DNA in gametes can be passed to children
- Each species has characteristic number of chromosomes per body cell (different for gametes typically)
 - Each body cell contains set of 46 chromosomes (23 pairs)
 - Genetically identical to each other (unless mutations)

Your body cells have autosomes and sex chromosomes

- **Homologous chromosomes:** 2 chromosomes
 - “having the same structure”
 - One from mother, one from father
 - Have copies of the same genes although the copies may be different
- Numbered from the largest chromosome to the smallest
- **Autosomes:** chromosomes numbers 1-22
 - Chromosomes contain genes for characteristics not directly related to the sex of the organism

Your body cells have autosomes and sex chromosomes

- **Sex chromosomes:** directly control the development of sexual characteristics
 - All mammals are based on the X and Y system
 - This is the 23rd pair of chromosomes
 - X and Y are paired together but they are not homologous
 - X chromosome is larger, contains many genes, even some unrelated to sexual characteristics
 - Y chromosome is smallest, carries fewest genes, contains genes in direct development of male traits



22 pairs
Autosomes

1 pair sex
chromosomes

Body cells are diploid, Gametes are haploid

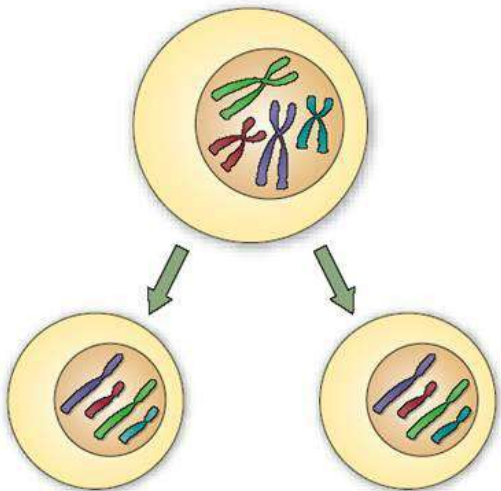
- **Sexual Reproduction:** fusion of two gametes which results in the production of offspring that are a genetic mixture of both parents
 - Fertilization: actual fusion of egg and sperm
 - Nucleus of sperm & egg fuse to form one nucleus (must have correct # chromosomes for healthy new organisms to develop)
- **Diploid:** (body cells) a cell has two copies of each chromosome
 - One from mother, one from father
 - $2n$
 - In humans, diploid number is 46
 - ***What would the haploid number be?***

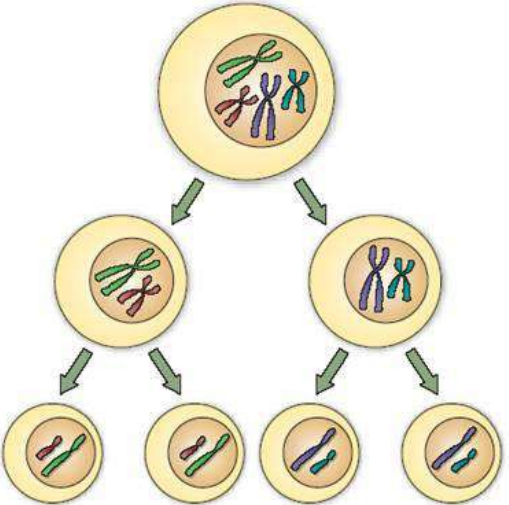
Body cells are diploid, Gametes are haploid

- **Haploid:** a cell has only one copy of each chromosome
 - n
 - Human gametes
 - Egg- sex chromosome is always X; sperm can be X or Y.
- Maintaining the correct number of chromosomes is important to the survival of all organisms
 - Typically change in number is harmful, but on occasion increasing number of sets can give rise to new species
 - Played important role in plant evolution (some plants species- tetraploidy $4n$)

Intro to Meiosis

- Germ cells in reproductive organs undergo meiosis to form gametes
- Meiosis- a form of nuclear division that divides a diploid cell into haploid cells

MITOSIS	
	Produces genetically identical cells
	Results in diploid cells
	Takes place throughout an organism's lifetime
	Involved in asexual reproduction

MEIOSIS	
	Produces genetically unique cells
	Results in haploid cells
	Takes place only at certain times in an organism's life cycle
	Involved in sexual reproduction

6.1 Assessment

- Do 6.1 #1-6 in your notes. Title it “3/13 exit slip” I will check this tomorrow.