

Ch. 13 Genetics

A. Gregor Mendel (1822-1884) - The father of genetics.

- Mendel discovered the basic principles of heredity by breeding garden peas in carefully planned experiments.
- Mendel defined different types of hybridization
 - 1.) P generation - parental; true breeding parents
 - 2.) F1 generation - 1st filial or generation of offspring
 - 3.) F2 generation - 2nd filial
- Mendel's Law of Segregation - Mendel's hypotheses about how genes are passed on:
 - 1.) Alternative versions of genes (alleles) account for variations in inherited characters.
 - 2.) An organism inherits 2 genes, one from each parent, for every character.
 - 3.) A sperm or egg carries only one allele for each inherited trait.
 - 4.) If 2 genes differ, one is dominant and one is recessive.
 - A dominant allele is fully expressed in an organism's appearance.
 - A recessive allele has no noticeable effect.
 - 5.) The two genes separate during gamete production.

B. Genetic Vocabulary

- 1.) Homozygous - pair of identical alleles for a character.
- 2.) Heterozygous - having 2 different alleles for a character.

- 3.) Phenotype - an organism's outward appearance.
- 4.) Genotype - an organism's genetic makeup.

C. Ways to determine inherited traits

1.) Predicting traits

- Punnett Square - a square used to show all the possible combinations of gametes.

- A blue-eyed mother mates with a homozygous, brown-eyed father. What ratio of brown-eyed to blue-eyed children will they have?

-Brown eyes is the dominant trait

B- brown eyes

b- blue eyes

	B	B
b	Bb	Bb
b	Bb	Bb

2.) Determining parental genotypes

- Pedigree Test - Test in which you look at the offspring of parents to determine the genotypes of the parents.

- The squares are for males and the circles are for females.

-If the symbol has been darkened it says the person carries the trait.