**Mendelian Genetics**

Terminology to Learn

•Trait

•Heredity

•Genetics

•Punnett Square

•Monohybrid Cross

•Dihybrid Cross

•Phenotype

•Genotype

•Genotypic ratio

•Phenotypic ratio

•Homozygous

•Heterozygous

•Dominant

•Recessive

•Allele

•Law of Segregation

•Law of independent assortment

•Laws of Inheritance

•Law of Dominance

•Incomplete Dominance

•Codominance

•Sex-linked Traits

[•http://quizlet.com/10807965/genetics-flash-cards/](http://quizlet.com/10807965/genetics-flash-cards/)

Gregor Johann Mendel

* Austrian monk
* Studied the inheritance of traits in pea plants
* Developed the laws of inheritance
* Mendel's work was not recognized until the turn of the 20th century

Gregor Johann Mendel

* Between 1856 and 1863, Mendel cultivated and tested some 28,000 pea plants
* He found that the plants' offspring retained traits of the parents
* Called the “Father of Genetics”
* Work lost in journals for 50 years!

Particulate Inheritance

* Mendel stated that physical traits are inherited as “particles”
* Mendel did not know that the “particles” were actually **Chromosomes** & **DNA**

Genetic Terminology

* **Trait** - any characteristic that can be passed from parent to offspring
* **Heredity** - passing of traits from parent to offspring
* **Genetics** - study of heredity
* **Alleles** - two forms of a gene (dominant & recessive)
* **Dominant** - stronger of two genes expressed in the hybrid; represented by a capital letter (**R**)
* **Recessive** - gene that shows up less often in a cross; represented by a lowercase letter (**r**)

Types of Genetic Crosses

* Monohybrid cross - cross involving a single trait
e.g. flower color
* Dihybrid cross - cross involving two traits
e.g. flower color & plant height

Genetic Terminology

* genotype: total set of alleles of an individual (e.g. RR, Rr, rr)
	+ PP = homozygous dominant
	+ Pp = heterozygous
	+ pp = homozygous recessive
* phenotype: the physical feature resulting from a genotype (e.g. red, white)

Punnett process

* Here we have some more interesting results: First we now have 3 genotypes
* –(TT, Tt, & tt) in a 1:2:1 **genotypic ratio**.
* We now have 2 different phenotypes

–(Tall & short) in a 3:1 **Phenotypic ratio**. This is the common outcome from such crosses.