**Classic Genetics a.k.a. Mendelian Genetics - Page 1**

**Vocabulary**

* **Genetics**:
* **Allele**:
* **Genotype**:
* **Phenotype**:
* **Dominant**:
* **Recessive**:
* **Homozygous**:
* **Heterozygous**:
* **Mendel and His Peas**
* Principles of genetics were developed in the mid \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** an Austrian Monk
* Experimented with \_\_\_\_\_\_\_\_\_\_\_ plants, by crossing various \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the characteristics of their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Generations - Page 2**

* P – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Generation
* F1 – 1st \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Generation
* F2 – 2nd \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Generation
* Filial = \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Law of Segregation**

* When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sperm & egg) are formed each gamete will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ one allele or the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

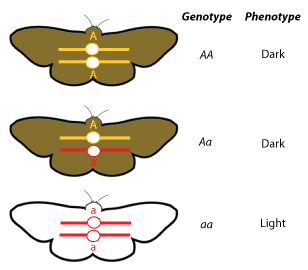
**Law of Independent Assortment**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or more alleles will separate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each other when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are formed (not all people with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eyes also have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hair)

**Molecular Genetics**

* Study of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and function of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and genes.

**Genotype vs. Phenotype**

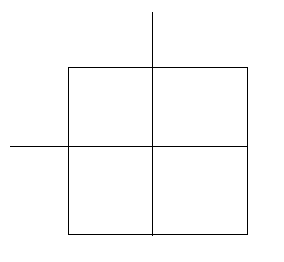


**Homozygous vs. Heterozygous - Page 3**

* HOMOzygous Dominant= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* HOMOzygous Recessive = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* HETEROzygous = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Predicting Results of Breeding**

* Genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be easily solved using a tool called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ square.
  + Tool for calculating genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



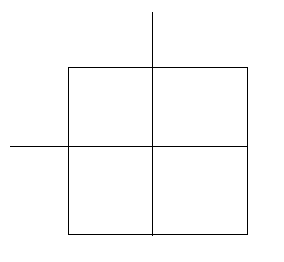
* **Monohybrid Cross (cross with only 1 trait)**

Problem:

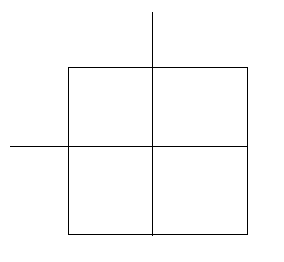
* Using this is a several step process, look at the following example
  + Tallness (T) is dominant over shortness (t) in pea plants. A Homozygous tall plant (TT) is crossed with a short plant (tt). What is the genotypic makeup of the offspring? The phenotypic makeup ?

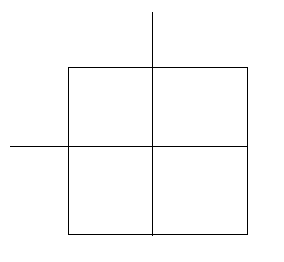
**Punnett Process - Page 4**

1. Determine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each parent, these are given as TT, and tt.
2. Take each possible allele of each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ them, and place each allele either along the \_\_\_\_\_\_\_\_\_\_\_\_\_\_, or along the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ square.

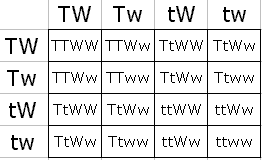


* Lastly, write the letter for each allele across each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or down each \_\_\_\_\_\_\_\_\_\_\_\_. The resultant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the offspring.



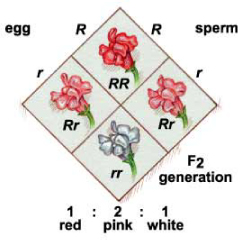
* Lets take this a step further and cross these F1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Tt) to see what \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and phenotypes we get.
* Since each parent can contribute a T and a t to the offspring, the punnett square should look like this…

**Dihybrid Cross (Cross with 2 traits) - Page 5**



* **Geno**typic Ratio -
* **Pheno**typic Ratio -

**Incomplete Dominance**



**Codominance**

* Neither \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is dominant or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

