

# Mendelian Genetics Notes Organizer

1. Who was Gregor Mendel?

- a. Gregor Mendel is considered the “\_\_\_\_\_.”
- b. Define **Genetics**:
- c. Gregor Mendel spent much of his adult life studying the inheritance of which plant?
- d. Why did he choose such a plant?

2. Pea Plants have seven observable \_\_\_\_\_. Each characteristic has \_\_\_\_\_ possible traits.

- a. Give an example of a pea plant characteristics and its possible traits.

<i>Pea Plant Characteristic</i>	
<i>Possible Traits</i>	

3. True Breeding

- a. What is **true breeding**?
- b. When true breeding plants self-fertilize, they always produce offspring with the \_\_\_\_\_ trait.
- c. Give an example of a result of true breeding:

4. Mendel’s work with pea plants

- a. Mendel began by breeding parent pea plants that were \_\_\_\_\_ with opposite traits.
  - i. This is known as the \_\_\_\_\_ **Generation**.

- b. One of Mendel's P Generations consisted of a purebred purple flower plant and a purebred white flower plant, which he allowed to \_\_\_\_\_ - pollinate.
- c. Mendel called the offspring plants the \_\_\_\_\_ **Generation**.
- d. Why are plants in the F1 Generation known as *hybrids*?
- e. Describe the F1 generation offspring of a purebred purple flower plant and a purebred white flower plant:

5. Law of Dominance

- a. Traits can be *dominant* or *recessive*. All flowers in the F1 generation had purple flowers. This is because purple is a \_\_\_\_\_ trait.
- b. What happened when Mendel allowed his F1 Generation purple flower plants to self-pollinate?
- c. How did Mendel end up with both purple and white flower plants in the F2 generation?
- d. Summarize Mendel's work with pea plants by drawing and labeling the P, F1, and F2 generations in the space below.

6. Traits

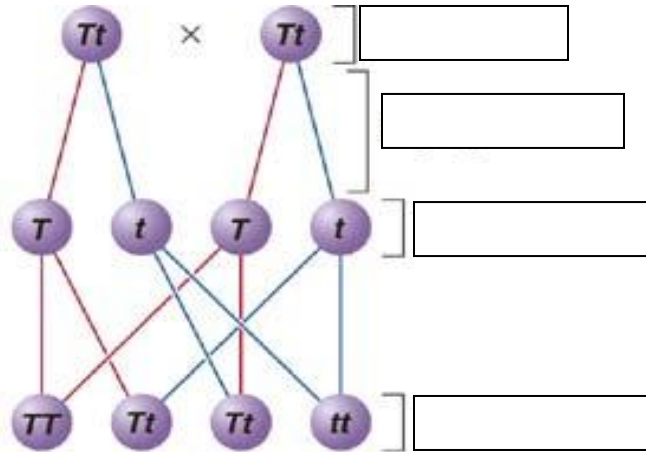
- a. Define **Gene**:
  
- b. So..... Each \_\_\_\_\_ = One \_\_\_\_\_
  
- c. Define **Allele**:
  
- d. Give an example of a **gene** and its **alleles**:
  
- e. Inheritance is determined by factors ( \_\_\_\_\_ ) that are passed from one generation to the next which can come in different forms called \_\_\_\_\_.
  
- f. What is the Law of Dominance?
  
- g. For every gene, how many alleles do you get from each parent? \_\_\_\_\_
  
- h. This is a result of what process?

7. Mendel's Conclusions

- a. Without knowing exact details about DNA/genetic information, Mendel was able to draw the following conclusions:

<i>Law of Segregation</i>	<i>Law of Independent Assortment</i>

b. Label the following picture:



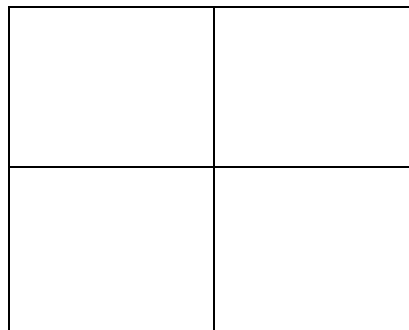
8. Terminology

- Alleles are represented with \_\_\_\_\_.
- Define the following terms.

<b><i>Dominant</i></b>	
<b><i>Recessive</i></b>	
<b><i>Genotype</i></b>	
<b><i>Homozygous Genotype</i></b>	
<b><i>Heterozygous Genotype</i></b>	
<b><i>Phenotype</i></b>	

9. Mendelian Genetics

- Why are **punnett squares** useful in studying genetics?
- Complete a punnett square which illustrates the possible offspring outcomes if two heterozygous tall plants are allowed to cross-pollinate.



**Genotype Probabilities:**

**Phenotype Probabilities:**