Introduction to Genetics Notes

***What is Genetics & Heredity?***

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is the field of biology devoted to understanding the process of heredity.
* **Heredity**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
    
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* **Traits** are characteristics of an organism that can be passed from parent to offspring. Some examples are: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Inherited vs. Acquired Traits***

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** characteristics that are passed on genetically.
  + **Examples-** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-**characteristics that you develop on your own. These traits cannot be passed on genetically.
  + **Examples-** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Who was Gregor Mendel?***

* Gregor Mendel was \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
    
  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Mendel was a gardener who observed that many of the plants looked different even though they were the same species.
* He studied \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and their traits to see how they were passed on. This lead to our basic understanding of genetics.

***Mendel’s Conclusions***

* Each plant must have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for each possible trait,   
    
  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Some forms of each trait can be masked or hidden.
* Mendel’s “factors” are now known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Let’s consider a single gene. . . .***

* Genes- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Allele- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Alleles interact to produce trains.***

PHENOTYPE:

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* This is what can be seen!
* Example: hair color, eye color, skin color

GENOTYPE:

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Not always obvious!
* Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Alleles can be…***  
DOMINANT

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Always represented by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Example: tallness is the dominant trait for pea plant height (T)

RECESSIVE

* Physically expressed \_\_\_\_\_\_\_\_\_\_\_ when paired with another recessive allele
* Always represented by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Example: dwarfism is the recessive trait for pea plant height (t)

***How to describe Alleles…***

HOMOZYGOUS

* Two alleles that are the same for a trait (Pure)
* Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

HETEROZYGOUS

* Two different alleles for a trait (Hybrid)
* Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_