**Genetics Part II**

Up until now… we have studied Gregor Mendel’s Laws of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

This is when there are only \_\_\_\_\_\_\_\_\_\_\_ phenoytpes. An organism either has the \_\_\_\_\_\_\_\_\_\_\_ or doesn’t.

Today… we will examine when those \_\_\_\_\_\_\_\_\_\_ don’t \_\_\_\_\_\_\_\_\_ in the Punnett Squares.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: when the heterozygous genotype is a blend of both of the homozygous dominant and homozygous recessive alleles. Think \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ phase☺

EXAMPLE: Snapdragon flower color follows the **incomplete dominance** inheritance pattern. R is the allele for red flower color and R’ is the allele for white flower color. What happens when you cross two pink flowers?

Genotypic ratio:

Phenotypic ratio:

EXAMPLE: Coat color in cows follows the **incomplete dominance** inheritance pattern. R is the allele for black color and R’ is the allele for white color. What happens when you cross two roan (brownish) cows? (hint: roan is black and white mixed)

Genotypic ratio:

Phenotypic ratio:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: when both alleles are equally expressed…. Think \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on a team…. You see them both out there on the field.

EXAMPLE: Chicken feather color follows the **codominance** inheritance pattern. B is the allele for black feather color and W is the allele for white feather color. What happens when you cross two black and white chickens?

Genotypic ratio:

Phenotypic ratio:

**Polygenic Traits**: when multiple \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Ex. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, height, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: when more than 2 alleles for the same trait.

* In 1900, Karl Landsteiner discovered that there are \_\_\_\_ blood groups.
* Two antigens (foreign particles), \_\_\_ and \_\_\_, molecules were recognized by the immune system.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: substances that cause an immune response (body “sees” antigens as harmful or foreign)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: A specific protein substance produced by the body’s immune (defense) system in response to antigen

|  |  |  |  |
| --- | --- | --- | --- |
| ABO Blood Type | Can DONATE red cells to | Can RECEIVE red cells from | Possible Genotypes |
| O |   |  |  |
| A |  |  |  |
| B |  |  |  |
| AB |  |  |  |

Blood Typing: A and B alleles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; I/i alleles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (type O)

EXAMPLE: Cross one man that has heterozygous B type blood and one woman that has heterozygous A type blood

Man’s genotype: Woman’s genotype:

Genotypic ratio:

Phenotypic ratio:

EXAMPLE: Cross one man that has AB type blood and one woman that has O type blood

Man’s genotype: Woman’s genotype:

Genotypic ratio:

Phenotypic ratio: