1. Genetic is the study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Heredity is the study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Describe the difference between a gene, an allele, and a trait.
4. A genotype is the combination of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that a person has inherited.
5. Where do you get your alleles from?
6. What is a phenotype?
7. Define Meiosis
8. Study your Meiosis Drawing Sheet. Know all 10 phases of Meiosis.
9. If your mom and Dad have two alleles for a gene how many of those two alleles can they give you?
10. How many total alleles for a gene should you have?
11. What does it mean to segregate your alleles?

1. What is the law of dominance?
2. What would be the genotype and phenotype of these stars if they displayed dominance?

**AA Aa aa**Genotype: Genotype: Genotype:
Phenotype: Phenotype: Phenotype:

1. What is a Punnett Square and what does it predict?

A parent has a genotype of Aa for a trait. The other parent has the genotype Aa for a trait. Using the principle of segregation, show me how to set up a Punnett square for Complete Dominance.

**Aa x Aa**

1. What is the genotypic ratio for this Punnet square: \_\_\_:\_\_\_:\_\_\_
2. What is the phenotypic ratio for this Punnet square: \_\_\_:\_\_\_

A parent has a homozygous dominant genotype. The other parent has a homozygous recessive genotype. Cross their genotypes together using a Punnet square to find out their offspring’s genotypes for Complete dominance.

1. Write down the cross: \_\_\_\_x\_\_\_\_
2. What is the genotypic ratio for this Punnet square? \_\_\_:\_\_\_:\_\_\_
3. What is the phenotypic ratio for this Punnet square? \_\_\_:\_\_\_
4. What is the law of independent assortment?
5. What is the rule of incomplete dominance?
6. What would be the phenotype of these stars if they displayed incomplete dominance?

Genotype: Genotype: Genotype:
Phenotype:Phenotype: Phenotype:

1. What is the rule of Co-dominance?
2. What would be the phenotype of these stars if they displayed Co-dominance?

Genotype: Genotype: Genotype:
Phenotype: Phenotype: Phenotype:

1. What does it mean to have multiple alleles for a trait?
2. If a trait has multiple alleles can you have all of the alleles?
3. What is the highest amount of alleles that you can carry for a trait and where do you get them from?
4. Human blood type has multiple alleles. What are the alleles?
5. A man with homozygous type A blood and a woman with heterozygous type B blood want to know the probability of having a child with type AB blood.
6. A man really wants to have a baby with type AB blood so he can brag to his friends that his kid is rare. Is it possible for a baby to get type AB blood if the mom has type O blood? Prove your answer by showing all work.
7. A man has type A blood and a woman has type B blood. Their son has type O blood, knowing for sure that they are the parents of this boy. What are the genotypes of the parents?

1. Explain why men are more likely to inherit colorblindness over women.
2. Do men inherit colorblindness from their mother or father?
3. Male Pattern Baldness is a sex linked trait. John is terrified of losing his hair and becoming bald especially since his Dad already has lost all his hair and his sister is beginning to lose hers as well. His mom, however still has all of her hair. Based on this information, what’s the probability of John going bald like his father and sister?

Dad’s Genotype\_\_\_\_\_\_\_\_\_\_\_

Mom’s Genotype\_\_\_\_\_\_\_\_\_\_\_

Sister’s Genotype \_\_\_\_\_\_\_\_\_\_

John’s Genotype\_\_\_\_\_\_\_\_\_\_\_\_

Identify the phases of Meiosis:

***Word Bank: Prophase I, Metaphase I, Anaphase I, Telophase I, Cytokinesis I, Prophase II, Metaphase II, Anaphase II, Telophase II, Cytokinesis II***

