1. Where are genes located? **on chromosomes**
2. What is gene linkage? Genes on the same chromosome, inherited together
3. What is incomplete dominance? Give an example. one allele not completely dominant. Ex = snapdragons
5. What is a polygenic trait? Trait controlled by more than 2 genes.
6. Will a male express a sex-linked gene if it is on the X chromosome? Why or why not? No, another X from female.
7. What is crossing over? What does it produce? What is its benefit? Alleles switched, genetic diversity.
8. If genes are close together on the chromosome, will they be inherited together or separately? Together.
9. Give an example of incomplete dominance. snapdragons
10. Give an example of codominance. Pink/white flower
11. True/False. Skin color is a polygenic trait. **T**
13. A female with a genotype of X^B^X^b^, would be called what? **heterozygous**
14. Among a species of butterflies, the color blue (B) is a dominant trait. Yellow color (b) is a recessive trait. If a pure blue butterfly (BB) mates with a pure yellow (bb), what will the offspring look like?
   a. They will all be blue 100%
   b. They will all be yellow 0%
   c. Half will be blue and half with be yellow
   d. About 75% will be blue and 25% will be yellow

   ![Genetic Chart]

15. **Male**
   
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   **Female**

   T = dominant  
   t = recessive

   The gene for large teeth (T) in piranha.

   a. Based on the Law of Dominance, we would expect **75%** percent of the offspring from this cross to have large teeth.

   b. A(n) **allele** is one of two or more alternate forms of a gene.

16. Snapdragons, a flowering plant popular with gardeners, can have red, white, and pink colored petals. When snapdragons with red petals (RR) are crossed with snapdragons having white (rr) petals, the offspring have pink petals. The pink coloration (Rt) is a phenotype in between the red and white parental phenotypes. What is this kind of inheritance pattern called? **Incomplete dominance**

17. The production of pink flowered plants from a cross between a red flowered plant and a white flowered plant is an example of **I.D.**.
Additional Mendelian Genetics Practice

1. What are the potential offspring for two parents that are both heterozygous for being tall (T)?
   \[
   TT - 25\% \quad Tt - 50\% \quad tt - 25\%
   \]
2. What does the law of dominance mean?
   \[\text{one allele expressed over the other}\]
3. What does law of segregation mean?
   \[\text{alleles will separate}\]
4. What does law of independent assortment mean?
   \[\text{alleles will separate independently of each other}\]
5. If black (B) is dominant to white (b), what color will a chicken be with a genotype of Bb? Black
6. If black (B) is dominant to white (b), what color will a chicken be with a genotype of bb? White
7. What is the relationship between phenotype and genotype?
   \[\text{Genotype} \quad \text{Genotype} \quad \text{Phenotype} \quad \text{Phenotype}\]
   \[\text{Alleles} \quad \text{Alleles} \quad \text{Appearance} \quad \text{Appearance}\]
8. What is the ratio for a cross between Bb and Bb? (Put the ratio in order of homozygous dominant: heterozygous: homozygous recessive.) 1:2:1
9. If you create a dihybrid cross between two parents of rryy and RRYY, what are the potential outcomes for their offspring? *Skip*

Additional Theory of Inheritance Practice

1. What is gene linkage? What rule is it an exception to from Gregor Mendel?
   \[\text{Genes on same chromosome inherited together. Independent assortment}\]
2. Why is crossing over important?
   \[\text{Create genetic diversity}\]
3. What is the difference between incomplete dominance and codominance?
   \[\text{both expressed} \quad \text{one not completely dominant}\]
4. What is an example of a trait controlled by multiple alleles?
   \[\text{blood type}\]
5. What is an example of a trait that is polygenic?
   \[\text{skin color}\]
6. What does polygenic mean?
   \[\text{2 or more alleles}\]
7. What does it mean if a trait is sex-linked?
   \[\text{trait on X or Y chromosome}\]
8. What is the chance of a couple having a boy?
   \[50\%\]