

Name \_\_\_\_\_  
Biology – Ms. Strang

Date \_\_\_\_\_  
Genetics Test Practice

Period \_\_\_\_\_

**Matching**     *Match the definition on the right with the vocab term on the left.*

- |                       |   |
|-----------------------|---|
| _____ 1. allele       | A. The observable characteristics of an organism.   |
| _____ 2. chromosome   | B. The genetic constitution of an organism.   |
| _____ 3. DNA          | C. One alternative of a pair or group of genes that could occupy a specific position on a chromosome.                             |
| _____ 4. dominant     | D. Having a genotype with two of the same alleles for a trait.  |
| _____ 5. gene         | E. Having a genotype with two different and distinct alleles for the same trait.  |
| _____ 6. genotype     | F. An allele masked by a dominant allele.   |
| _____ 7. heterozygous | G. A unit of genetic information that occupies a specific position on a chromosome and comes in multiple versions called alleles. |
| _____ 8. homozygous   | H. A type of allele that covers up a recessive allele.  |
| _____ 9. phenotype    | I. The molecule in which genetic information is encoded.  |
| _____ 10. recessive   | J. A linear strand of DNA containing many genes.  |

**Label the following as either:**  
*codominance*     *sex-linked*  
*nondisjunction(chrom. disorder)*

*complete dominance*     *incomplete dominance*  
*polygenic inheritance*     *multiple alleles*

11. trisomy-21 \_\_\_\_\_
12. roan cattle born from a red-haired father and white-haired mother \_\_\_\_\_
13. calico (spotted fur) inherited on the X chromosome \_\_\_\_\_
14. male with an extra X chromosome \_\_\_\_\_
15. guinea pig white fur is recessive to white fur \_\_\_\_\_
16. human skin color \_\_\_\_\_
17. red-petaled mother and white-petaled father produce pink-petaled offspring \_\_\_\_\_

### Punnett Practice

18. Cremello horses have cream-colored coats. Chestnut horses have brown coats. When a cremello and a chestnut are crossed, neither color is dominant, so the offspring are light tan and are called palomino horses. Cross two palominos in a Punnett square and provide the genotypes and phenotypes of all possible offspring:


Genotypes:

Phenotypes:

19. In fruit flies, long wings are dominant to short wings. Cross a homozygous dominant male with a short-winged female. Complete a Punnett square and provide the genotypes and phenotypes of all possible offspring:


Genotypes:

Phenotypes:

20. A female who is heterozygous for color vision has a child with her colorblind husband. What percentage of their male children will be color blind and what percentage of their female children will be color blind if this is a sex-linked trait?


Male phenotypes:

Female phenotypes:

21. In humans, attached earlobes are recessive to free earlobes. Cross two hybrid parents with free earlobes in a Punnett square and show all genotypes and phenotypes.



Free



Attached

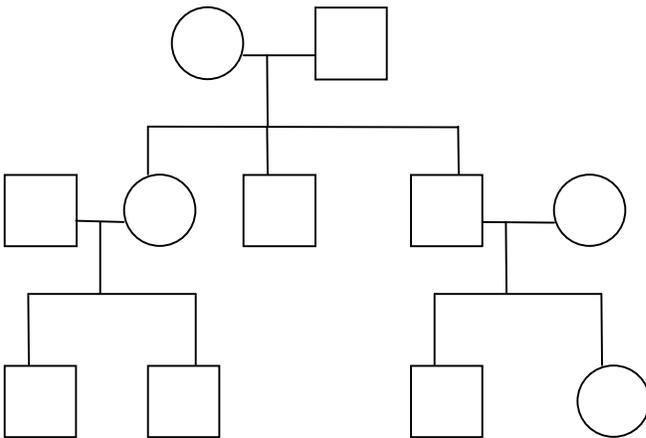

Genotypes:

Phenotypes:

- What two forms of the trait for hair color are possible? \_\_\_\_\_
- What was the phenotype for hair color of both parents? \_\_\_\_\_
- What percentage of the offspring have the same phenotype as the parents? \_\_\_\_\_
- What percentage of the possible offspring have the same genotype as the parents? \_\_\_\_\_
- What is the genotype of the possible offspring that does not share the phenotype of the parents? \_\_\_\_\_

22. What were Mendel's four genetic principles (provide definitions as well):

23. The following pedigree shows the inheritance of colorblindness in a family. The shaded shapes are the affected individuals. Remember that colorblindness is recessive.



- What is the genotype of the original male parent?
- What is the genotype of the original female parent?
- What mothers are carriers of colorblindness?
- Explain why the sons of colorblind father #3 are not colorblind.

