

Name: _____

Date: _____

Coat Color Genetics Quiz

Please answer the following questions on Paint Horse Coat Color Genetics (Part 1).

1. What are the three main Paint Horse coat patterns?
 - A. Albino, Scattered and Tobero
 - B. Tobiano, Painted and Tatoed
 - C. Tovero, Total and Tobiano
 - D. Overo, Tobiano and Tovero

2. What is genetic inheritance?
 - A. The genes parents pass on to their offspring.
 - B. Genes that determine an individual's make-up.
 - C. Both A and B.
 - D. None of the above.

3. If Paint Horse breeders understand genetic inheritance what does that enable them to do?
 - A. Keep breeding by trial and error.
 - B. Wonder why they keep getting certain colors.
 - C. Breed for specific colors and coat patterns.
 - D. Change the genetic make-up of foals once they are born.

4. Where does an individual get its genes?
 - A. From the grocery store.
 - B. From the ozone.
 - C. $\frac{1}{4}$ from its sister, $\frac{3}{4}$ from its brother.
 - D. $\frac{1}{2}$ from its mother, $\frac{1}{2}$ from its father.

5. How many chromosomes does a Paint Horse have?
 - A. 64
 - B. 30
 - C. 72
 - D. 23

6. What unites the chromosomes from the dam (mother) with the chromosomes from the sire (father)?
 - A. Osmosis
 - B. Respiration
 - C. Photosynthesis
 - D. Fertilization

7. At one locus, how many alleles are possible?
 - A. 1
 - B. 2
 - C. 3
 - D. 4

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8. What is the difference between genotype and phenotype?
 - A. Genotype is the entire genetic make-up of an individual including recessive alleles, while phenotype is the genetic make-up that is actually expressed in the individual.
 - B. Genotype is the genes and phenotype is the chromosomes.
 - C. Genotype is what we can see and phenotype is what we can't see.
 - D. Genotype is complicated but phenotype is simple and includes only recessive alleles.

9. If a gene is represented by a capital letter how will scientists classify that gene?
 - A. Recessive
 - B. Co-Dominant
 - C. Mutated
 - D. Dominant

10. In simple dominance, which gene is expressed in the individual?
 - A. Both genes
 - B. The dominant gene
 - C. The recessive gene
 - D. None of the genes

11. What is the difference between homozygous and heterozygous pairing?
 - A. Homozygous pairing and heterozygous pairing are the same thing.
 - B. Homozygous pairing is two "same" alleles paired together, while heterozygous pairing is two "different" alleles paired together.
 - C. Homozygous pairing is one capital letter allele and one lower-case letter allele, while heterozygous pairing is two lower-case letter or two capital letter alleles.
 - D. Homozygous pairing is the pairing of the parents' genes, and heterozygous pairing is the pairing of the offspring's genes.

12. If *To* is dominant (through simple dominance) for the Tobiano coat pattern, and a homozygous Tobiano stallion is bred to a solid mare, what coat pattern will the foal exhibit? How do you know this? Please explain your answer below.