**BrainPop and Study Island Review—Genes and Heredity**

1. All organisms need instructions to specify their traits. The instructions, or code, that is responsible for all the inherited traits of an organism
   1. Is held in genetic material called DNA
   2. Is passed from the offspring to the parent.
   3. Is formed after an organism is fully-grown
   4. Is store within the mitochondria of cells
2. Circle the work in bold that best completes the sentence.

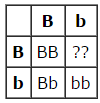
A **phenotype/gene/genotype/trait** is a section of chromosome that codes for a trait. The specific combination of alleles an organism has is called its **phenotype/genotype/genes/traits** which affect(s) the organism’s **phenotype/genotype.**

1. \_\_\_\_\_\_\_\_\_\_\_\_ can be described as alternate forms of a particular gene.
   1. DNA molecules
   2. Chromosomes
   3. Chromatids
   4. Alleles
2. Which choice below best shows various types of genetic material in order from simplest to most complex?
   1. Chromosome, gene, genome
   2. Chromosome, genome, gene
   3. Gene, genome, chromosome
   4. Gene, chromosome, genome
3. Chromosomes are strands of tightly woven DNA. Genes can be found in the chromosomes of cells. What are genes?
   1. Adenines bonded with thymines
   2. Short chains of amino acids
   3. Codes for a particular trait
   4. Nucleotides composed of a sugar, a phosphate and a base
4. What gets passed from one cell to another in sexual reproduction?
   1. Individual bases of DNA
   2. Individual genes
   3. Pairs of DNA bases
   4. Chromosomes
5. Which of the following statements is true?
   1. Chromosomes make up genes
   2. Chromosomes make up proteins
   3. Genes make up cells
   4. Genes make up chromosomes
6. Traits are determined by genes. Genes are located on molecules of deoxyribonucleic acid (DNA). What is the shape of a DNA molecule?
   1. A double-helix
   2. A C-shaped chain
   3. A sphere
   4. A cube
7. Sickle-cell anemia is a genetic disorder of the blood in which the shape of red blood cells is distorted, resulting in a variety of health problems. The allele for a normal blood cell production (H) is dominant to the allele for sickle cell production (h).

If one parent has sickle-cell anemia and the other parent is a carrier, what is the probability that their child will have sickle-cell anemia?



* 1. 75%
  2. 25%
  3. 100%
  4. 50%

1. In some animals, brown eyes (B) are dominant over blue eyes (b). Which of these genotypes will complete the Punnett Square?
   1. B
   2. Bb
   3. bb
   4. BB
2. Females have which set of sex chromosome?
   1. XY
   2. YY
   3. FF
   4. XX
3. A recessive gene located on the X chromosome is the cause of color blindness in affected individuals. Males are more likely to be colorblind than females because
   1. Males have only one copy of the X chromosome
   2. Males have two copies of the X chromosome
   3. Females have no copies of the X chromosome
   4. Color blindness is associated with high testosterone
4. In a particular type of cat, coat of color follow the dominant/recessive pattern of inheritance. The allele for a brown coat (B) is dominant to the allele for a white coat (b).

A cross between two white-coated cats would result in

* 1. White-coated kittens only
  2. White-coated kittens with brown spots
  3. White-coated kittens or brown-coated kittens
  4. Brown-coated kittens only

1. In a particular type of cat, coat color follows the dominant/recessive pattern of inheritance. The allele for brown coat (B) is dominant to the allele for a white coat (b).

One of Mariam’s cats is homozygous dominant (BB) and the other cat is heterozygous (Bb). Which of the follow is true about Mariam’s cats?

* 1. They have the same genotype but different phenotypes
  2. They have different genpotypes but the same phenotypes
  3. They have the same genotypes and the same phenotype
  4. They have different genotypes and different phenotypes

1. A widow’s peak is a V-shaped area of the hairline in the center of the forehead. The allele for having a widow’s peak is dominant to the allele for not having a widow’s peak.

If two parents do not have widow’s peaks, what is the probability that their child will have a widow’s peak?

* 1. 75%
  2. 50%
  3. 25%
  4. 0%

1. Which of the following is an example of incomplete dominance?
   1. A cross between a black mouse and a white mouse produces a gray mouse
   2. In a cross between tall plants and short plants, half of the offspring are tall and half of the offspring are short
   3. A blue-eyed child has one blue-eyed parent and one brown-eyed parent
   4. A cross between a white cow and a red bull produces a calf with white hairs and red hairs
2. In carnations, the allele for red pigmentation (R) is dominant to the allele for no pigmentation (r). Carnations with no pigmentation appear white in color.

A cross between a red carnation and a white carnation produces pink carnations. Which of the following is true?

* 1. This is an example of simple dominance.
  2. This is an example of incomplete dominance
  3. The parent carnations are both homozygous dominant
  4. The parent carnations are both homozygous recessive

1. In people, brown hair (B) is dominant over red hair (b). If a husband is heterozygous and his wife is recessive, what is the probability that their first baby will have red hair?
   1. 75%
   2. 50%
   3. 25%
   4. 100%
2. A horse has a coat color that appears to be a mix between its mother’s coat color and its father’s coat color. The horse is most likely
   1. Homozygous recessive for coat color
   2. The result of a coat color mutation
   3. Heterozygous for coat color
   4. Homozygous dominant for coat color
3. A gene or trait that appears or expresses itself over a recessive trait is called a/an
   1. Influential gene
   2. Chromosome
   3. Mutation
   4. Dominant gene