

## 7L.2.1 Test Study Guide

**Standard 7L.2.2** Infer patterns of heredity using information from Punnett squares and pedigree analysis.

### **Possible questions that could be on the test...**

- ✍ What is the shape of a DNA molecule called? Why is the shape important?
- ✍ What is heredity and who first proposed it?
- ✍ How do organisms inherit traits from their parents?
- ✍ Why are some physical traits more common than others? **Give an example.**
- ✍ How do humans select for certain traits in some organisms? **Give an example.**
- ✍ A scientist noticed that all of the offspring of the yeast fungus are identical to the parent. However, the offspring of a cat all look different. What most likely caused this to occur?
- ✍ In rabbits, black fur (B) is dominant to brown fur (b).
  - Give the genotype of a heterozygous black rabbit.
  - If a heterozygous black rabbit and a brown rabbit were crossed, what is the probability that their offspring will be brown? Show your work.
- ✍ In his experiments on pea plants Gregor Mendel crossed peas with red flowers with peas with white flowers. He discovered that the allele for red flowers is dominant over the allele for white flowers.
  - Draw a Punnett square showing a cross between a red heterozygous flower and a white flower.
  - Identify the phenotype(s) of the offspring of this cross.
- ✍ In dragons, the allele for fire breathing is dominant. Dragons can be fire breathers, or non fire breathers.
  - Show the genotypes and phenotypes of all possible dragons.
- ✍ In dragons, the allele for fire breathing is dominant. If two heterozygous dragons are crossed, how many offspring would you expect to NOT be fire-breathers? **Use a Punnett square to support your answer.**
- ✍ Also in dragons, wings are a dominant trait. If you crossed two wingless dragons, how many of their offspring would you expect to have wings? **Use a Punnett square to support your answer.**
- ✍ Let's say that in seals, the gene for the length of the whiskers has two alleles. The dominant allele (W) codes long whiskers & the recessive allele (w) codes for short whiskers.
  - If one parent seal is pure long-whiskered and the other is pure short-whiskered, what percent of offspring would have short whiskers? **Use a Punnett square to support your answer.**