**Study Guide**

**Unit 5**

Name:

Date:

Period;

**Define**

* Allele
* Heterozygous
* Homozygous
* Trait
* Phenotype
* Genotype
* Dominant gene
* Recessive gene

**1. Who was Gregor Mendel? What is he the father of? What organisms did he do experiments on?**

**2. Define P generation, F1 generation, and F2 generation. What seed shapes did each generation have?**

**3. How many sets of alleles does each parent give their offspring?**

**4. Give an example of heterozygous and homozygous allele genotypes based on**

 **Tall= T Short = s**

**Heterozygous:**

**Homozygous:**

**5. Define:**

 **a) Law of segregation:**

 **b) Law of independent assortment:**

**6. For the trait of hair color:**

**D= dark hair d = blonde hair**

**a) Which gene is dominant?**

**b) Which gene is recessive?**

**c) What would be the heterozygous genotype?**

**d) What would be the homozygous dominant genotype?**

**e) What would be the homozygous recessive genotype?**

**7.**

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**Brown eyes is a dominant trait (B) and blue eyes is a recessive trait (r).**

**Parent 1= Bb**

**Parent 2 = Bb**

1. **Create a Punnett square based on the offspring’s probable genotypic outcomes.**

1. **What percentage of these offspring are heterozygous dominant for brown eyes?**
2. **What percentage of these offspring are homozygous dominant for brown eyes?**
3. **What percentage of offspring are homozygous recessive for blue eyes?**
4. **Which three genotypes will have brown eyes?**
5. **Which one genotype will not have brown eyes?**

**8.**

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**Solid dog coats are dominant (S) and spotted coats are recessive (s).**

**Dog 1: Ss**

**Dog 2: ss**

1. **Create a Punnett square based on the offspring’s probable genotypic outcomes.**

1. **What percentage of these offspring are heterozygous dominant for a solid coat?**
2. **What percentage of these offspring are homozygous dominant for a solid coat?**
3. **What percentage of offspring are homozygous recessive for a spotted coat?**
4. **Which two genotypes will have solid coats?**
5. **Which two genotypes will have spotted coats ?**



