Genetics Study Guide

1. Who is considered to be the “Father of Genetics?” \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Explain what Mendel was trying to determine with his pea experiment?

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Where are alleles located? And how are they represented in Punnett squares?

**Define the following terms:**

Alleles:

Dominant traits:

Recessive traits:

Homozygous:

Heterozygous:

Genotypes:

Phenotypes:

**Determine if the genotypes are homozygous or heterozygous, and whether if they are expressing dominant or recessive trait.**

1. AA\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Bb \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gg \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. QQ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Tt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Determine the genotypes and phenotypes of the individuals below.**

1. Trait: eye color, A= green a= hazel. Parent 1: homozygous dominant, Parent 2: Heterozygous.
2. Trait: hair line, E= straight e= widows peak. Parent 1: Homozygous dominant, Parent 2: Homozygous recessive.
3. Trait: height, F= Tall f= short. Parent 1: Heterozygous, Parent 2: Heterozygous.



Use the below pedigree chart to answer the following questions about type of chin. The cleft chin gene controls whether a person has a cleft chin (e) or does not have a cleft chin. In this pedigree not having a cleft chin is dominant to having a cleft chin.



1. What does the squares represent? What does the circles represent? What does the shaded in shapes represent?
2. Label each genotype for each individual in the pedigree above their represented shape (1-14).
3. Write down the pairs of numbers that represent a married couple and their generation.

(Ex: 15—16, II)

1. Write the group of numbers that represent siblings.
2. Write down the numbers that represent parents.
3. What does the roman numerals represent?
4. What is the relationship between 12, 13, and 14 with 2?
5. What is the relationship between 12, 13, and 14 with 4?
6. Is it possible for 8 and 9 to be homozygous? Explain your reasoning?
7. How many individuals have a cleft chin? How many girls have a cleft chin? How many boys have a cleft chin?