

**Topic:** Pea Plant Punnett Square Worksheet

**Summary:** Students will learn about the genotypes, phenotypes, and ratios by completing Punnett squares for different characteristics of pea plants.

**Goals & Objectives:** Students will be able to determine the probability of different crosses. Students will be able to recognize the differences between inheritance patterns.

**Standards:** CA Biology 2g. *Students know* how to predict the possible combinations of alleles in a zygote from the genetic makeup of the parents.

**Time Length:** 20 minutes

**Prerequisite Knowledge:** Students know how to complete a punnett square for dominant and recessive traits. Students know vocabulary words like homozygous, heterozygous, dominant, recessive, genotype and phenotype. Students know how to calculate ratios.

**Materials:**

- Textbook for reference
- Handouts and pencils

**Procedures:**

1. Students work on the handout by themselves.

**Accommodations:** Students with an IEP can take the handout home if they need extra time, and/or do the even numbered questions.

**Evaluation:**

Each punnett square is worth ½ poin, for a total of 4 points. Each genotype and phenotype is worth ½ point, for a total of 4 points. Each genotypic and phenotypic ratio is worth ½ point, for a total of 4 points. This assignment is worth a total of 12 points.

## Pea Plant Punnett Square Worksheet

1) Yellow seeds are dominant over green seeds in pea plants. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing homozygous recessive and homozygous dominant parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_

2) Green pod color is dominant over yellow pod color in pea plants. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing homozygous dominant and heterozygous parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_

3) Round seeds are dominant over wrinkled seeds in pea plants. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing homozygous recessive and heterozygous parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_

4) Smooth pod shape is dominant over constricted pod shape in pea plants. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing homozygous recessive and homozygous dominant parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_

5) Tall pea plants are dominant over short pea plants. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing heterozygous and heterozygous dominant parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_

6) The axial flower position is dominant over the terminal flower position. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing heterozygous and homozygous dominant parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_

7) Gray seed coat color is dominant over white seed coat color. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing homozygous dominant and homozygous dominant parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_

8) Tall pea plants are dominant over short pea plants. Fill in the Punnett square and determine the expected genotypic and phenotypic ratios from crossing homozygous recessive and homozygous recessive parents.


Genotypes: \_\_\_\_\_ Genotypic Ratio: \_\_\_\_\_

Phenotypes: \_\_\_\_\_ Phenotypic Ratio: \_\_\_\_\_