

## **Topic: Mendel & the Punnett Square**

**Learning Objective/Outcome: Understand the influence of Mendel's studies on modern heredity & how to use a Punnett Square to predict offspring genotypes**

**Keywords/Questions**

**Notes**

What were some traits Mendel noticed differed in his pea plants? How many did he study?

How did Mendel cross his plants in the first versus second generation?

How did the phenotype differ between the first and second generation?

What does the 3:1 ratio of the second generation mean?

Explain the genotypes of the second generation offspring of Mendel's peas

How did Mendel's conclusions connect to the modern interpretation of heredity?

What are Punnett Squares? What do they predict?

Why must we be concerned with probability when evaluating a Punnett Square?

Draw a Punnett Square for a monohybrid cross with a homozygous dominant and homozygous recessive genotype pair. Find the possible genotypes of this cross.

Does it matter which parent is on top versus the side?

Find the possible genotypes and phenotypes for a  $Ww \times Ww$  heterozygous sheep cross using a Punnett Square.  $W$  is a dominant white color,  $w$  is a recessive black.

You cross two heterozygous sheep and the offspring of the first litter are two black and the next is two white. Is this possible?

Summary