



Predicting through Punnett Squares

Do you ever wonder why some daisies are pink while others are white? If you cross a white and pink daisy, what will the outcome be? Genotypes are the genetic characteristics of a plant, while phenotypes refer to a plant's physical characteristics (such as having a white or pink flower or other observable traits). Punnett squares are a tool that can predict possible the genotypes and phenotypes of plants and other organisms' offspring. Using Punnett squares, you will calculate the genotype and phenotype probability of the Bluebonnet offspring.

Example:

A Texas Bluebonnet (BB) is being crossed with a Texas Bluebonnet (Bb) that has pink as the recessive color. In this case, blue (B) is the dominant trait and pink (b) is the recessive trait.

| | | |
|-----------|----------|----------|
| | B | B |
| BB | BB | BB |
| Bb | Bb | Bb |

Genotype: 2/4 BB, 2/4 Bb, 0/4 bb

Phenotype: 4/4 Texas Bluebonnets, 0/4 Pink Texas Bluebonnets



1. A Texas Bluebonnet (BB) is being crossed with a Texas Bluebonnet (Bb) that has red as the recessive trait. Identify the genotypes and phenotypes using a Punnett square.



2. A tall plant (TT) is crossed with a short plant (tt). Identify the genotypes and phenotypes using a Punnett square.

3. Texas thistles with green leaves (Gg) are crossed with Texas thistles with recessive dark green leaves (gg). Identify the genotype and phenotype probability using a Punnett square.

4. For each genotype (AA, Aa, or aa) determine the phenotype:

- White flowers are dominant to purple flowers.

WW _____ Ww _____ ww _____ Purple _____

- Smooth leaves are dominant to wrinkled leaves.

SS _____ Ss _____ ss _____

- Short roots are recessive. Long roots are dominant.

RR _____ Rr _____ rr _____