

Building Punnett Squares

Name: _____ Date: _____

LEARNING OBJECTIVE

Student will be able to construct a Punnett square for a monohybrid cross and calculate the probability of offspring genotypes and phenotypes.

MATERIALS NEEDED

- Paper
- ruler
- pencil
- colored pencils (2 colors)

HANDS-ON ACTIVITY

1. Using your ruler, draw a 2x2 Punnett square grid (a large square divided into 4 boxes) on your paper.
2. Choose a trait (e.g., pea plant height: T = tall/dominant, t = short/recessive) and label one parent's alleles (Tt) across the top and the other parent's alleles (Tt) down the side.
3. Fill in all 4 boxes by combining the row and column letters, using one color for dominant letters and another for recessive.
4. Count the genotype ratio (TT : Tt : tt) and phenotype ratio (tall : short) from your completed square.
5. Repeat the process with a new Punnett square for a cross between Tt and tt, and compare the ratios to your first square.

QUESTIONS

1. For your Tt x Tt cross, what was the genotype ratio and phenotype ratio?

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2. For your Tt x tt cross, what was the genotype ratio and phenotype ratio?

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3. Why did the two crosses produce different ratios even though both involved a 'Tt' parent?
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4. If a $Tt \times Tt$ cross produces 100 real offspring, about how many would you predict to be short (tt)?
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