

Rules of probability:

To determine the chance of a particular random outcome, multiply the chance of each individual random occurrence.

ex: What is the chance of giving birth to a boy? 1/2

What is the chance of giving birth to a boy twice in a row?

$$1/2 \times 1/2 = 1/4$$

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Punnett Squares

Punnett squares are visual representation that help geneticists see the possible outcomes and predict future outcomes.

Try a Punnett square using Mendel's experiment with true-breeding tall and short plant:

	Tall Plant (TT)		
	T	T	
Short Plant (tt)	t	Tt	Tt
	t	Tt	Tt

Result:
100% tall

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What about the F₂ generation?

F₁ Hybrid (Tt)

	T	t
T	TT	Tt
t	Tt	tt

F₁ hybrid (Tt)

1 - TT (tall pure)

2 - Tt (tall hybrid)

1 - tt (short pure)

Result: 75% tall
25% short

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An organism's genetic makeup is called a genotype. The physical characteristics that are seen are it's phenotype.

Two organisms can have the same phenotype, but have different genotypes.

ex: pea plant	Genotype	Phenotype
	TT	Tall
	Tt	Tall
	tt	Short

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A pure offspring (two same alleles) is called

homozygous

A hybrid offspring (two different alleles) is called

heterozygous, and only expresses one allele - the dominant one.

Quick lab!

On page 268, do the quick lab (using your own phone number) and answer question 2.

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Punnett squares are used to make predictions only. Anything that relies on random chance cannot be predicted with absolute certainty.

Review:

Punnett square worksheets (in file)

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