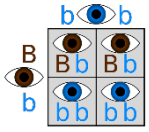


Punnett Squares

Vocabulary

P Generation -
the parent generation

F_1 Generation -
the first generation of offspring

F_2 Generation -
the second generation of offspring

Genotypes	Phenotypes
AA	Yellow
Aa	Yellow
aa	Green

Cross -
the genetic recombination of known parents to determine genetic results of the offspring; Example: Aa x Aa

	A	a
A	AA	Aa
a	Aa	aa

Punnett Squares -
a diagram/table that is used to predict an outcome of a particular cross or breeding experiment for specific genotypes

When completing a Punnett Square:

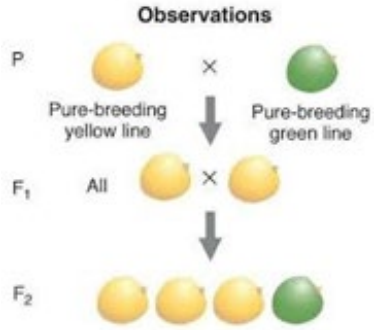
- Parent Genotypes go outside
- Offspring Genotypes will be inside

Identifying Generations

What are the **phenotypes** of the P Generation?

What are the **genotypes** of the F_1 Generation?

What are the **genotypes** of the F_2 Generation?

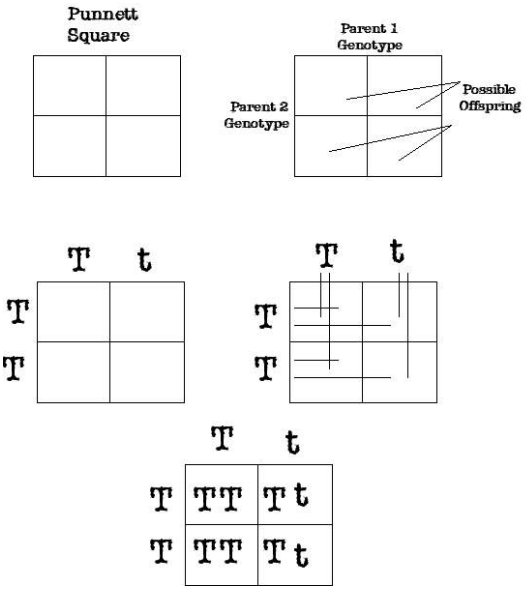


To Complete a Punnett Square

1. Place the genotype of Parent 1 at the top.
2. Place the genotype of Parent 2 on the left side.
3. Parent 1: Like a multiplication table, bring each letter into the **two** boxes **below** it. Capital letters go first.
4. Parent 2: Like a multiplication table, bring each letter into the **two** boxes **beside** it. Capital letters go first.
5. ALL four boxes should have TWO letters.
6. **Determine the prediction for the cross** by counting the offspring that are *homozygous dominant, heterozygous dominant, and homozygous recessive.*

In this cross:

1. What is the **genotype** of Homozygous Dominant?
2. **How many** offspring are Homozygous Dominant?
3. What is the **genotype** of *Heterozygous Dominant*?
4. **How many** offspring are *Heterozygous Dominant*?
5. What is the **genotype** of *Homozygous Recessive*?
6. **How many** offspring are *Homozygous Recessive*?



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Vocabulary

Incomplete Dominance – one allele for a specific trait is not completely expressed or dominant over its paired allele; the result is a third phenotype which is a combination of the two alleles; Example: In snapdragon flowers: red, pink, and white (C^RC^R, C^RC^W, and C^WC^W)

You Do One!

Allele = phenotype: F = freckles, f = no freckles

Work it on paper – this is a picture!

In this cross:

1. What is the **genotype** of Homozygous Dominant?
2. **How many** offspring are Homozygous Dominant?
3. What is the **genotype** of *Heterozygous Dominant*?
4. **How many** offspring are *Heterozygous Dominant*?
5. What is the **genotype** of *Homozygous Recessive*?
6. **How many** offspring are *Homozygous Recessive*?

Try it again!

Use Y instead of A.

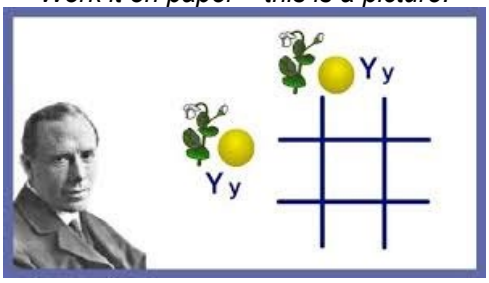
Genotypes	Phenotypes
AA	Yellow
Aa	Yellow
aa	Green

FIRST, identify the Trait and Alleles

1. Dominant Trait
   a. Color =
   b. Allele Combinations =
2. Recessive Trait
   a. Color =
   b. Allele Combinations =

NOW do the Cross:

Work it on paper – this is a picture!



RESULTS of the Cross

3. YY =
4. Yy =
5. yy =
6. Homozygous = __ of 4
7. Heterozygous = __ of 4
8. % Yellow =
9. % green =