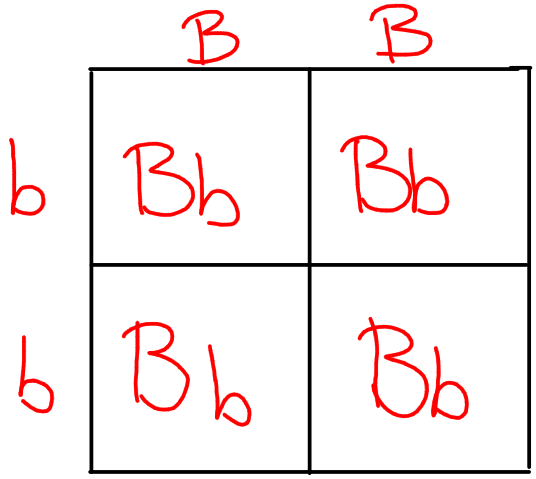
Standard: Students will analyze how biological traits are passed on to successive generations.

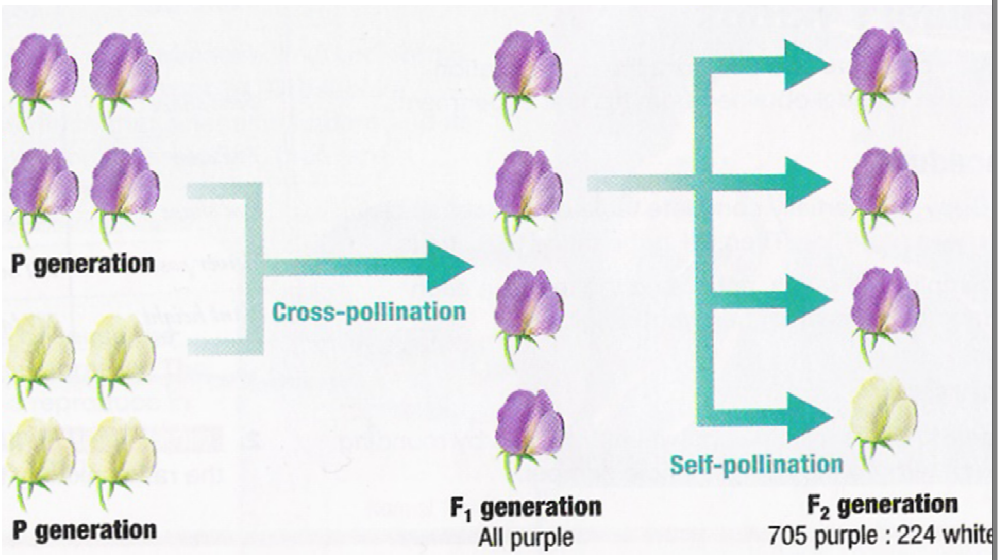
Element: Using Mendel's laws, explain the role of meiosis in reproductive variability.

EQ: How can we use Punnett squares to predict genotypes and phenotypes of offspring?

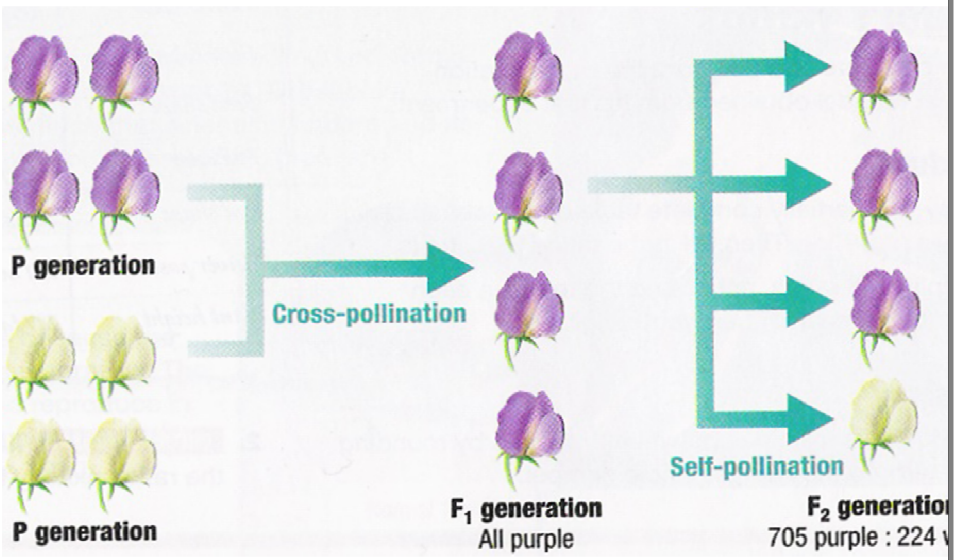
A **Punnett square** is a model that predicts the likely outcomes of a genetic cross.



Let's use a Punnett square to model Mendel's first cross:



PP X pp



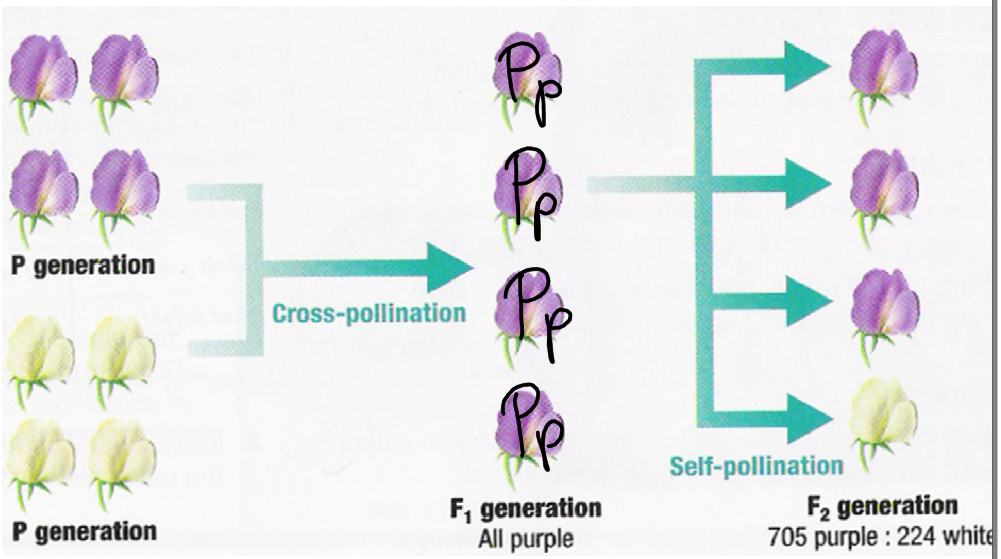
PP X pp

	P	P
p	Pp	Pp
p	Pp	Pp

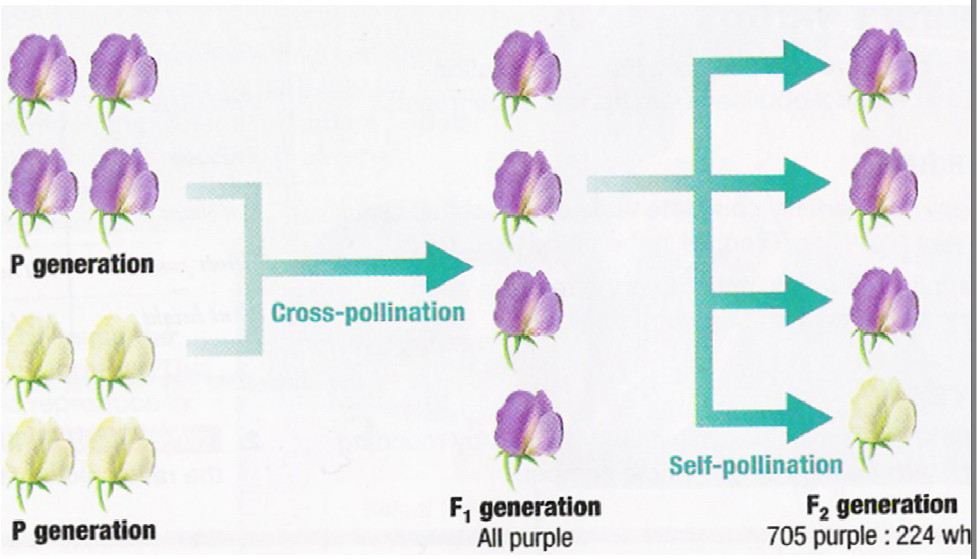
Possible offspring:

100% purple

Let's use a Punnett square to model Mendel's second cross:



Pp X Pp



Pp X Pp

	P	p
P	PP purple	Pp purple
p	Pp purple	pp white

Possible offspring: 75% purple
25% white

In humans, Huntington's Disease is caused by a dominant allele. If a man who is heterozygous marries a woman who is homozygous recessive, what is the possibility of their children having the disease?

Dominant Trait: Huntington's D. Recessive Trait: normal

	Genotype		Phenotype	
Father	Hh		has disease	
Mother	hh		normal	
Children	Hh	50 %	disease	50 %
	hh	50 %	normal	50 %
		%		%
		%		%

	H	h
h	Hh	hh
h	Hh	hh