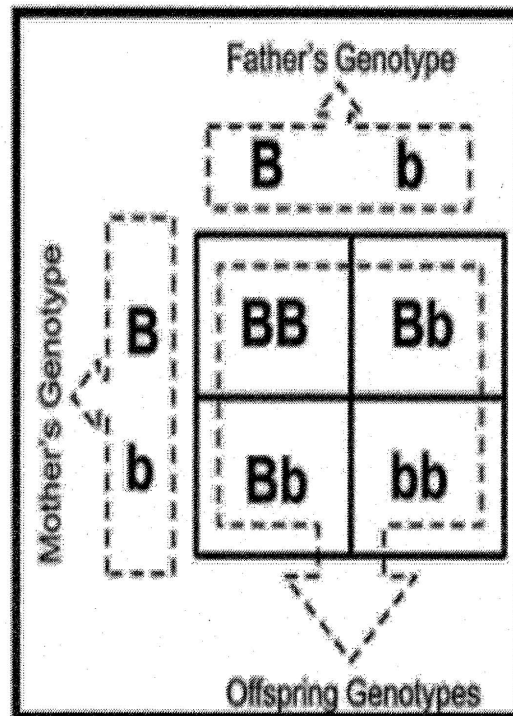


## PUNNETT SQUARE

A PUNNETT SQUARE is a tool we use to predict the GENOTYPE and PHENOTYPE of offspring. On the outside, we write the parents' genotypes and on the inside we write the possible genotypes of the children. Once we know which genotypes are possible, we can figure out the probability of each one happening when we perform a cross. CROSS is a word we use to describe how two GENOTYPES are combined in reproduction.



## PROBABILITIES PRACTICE

In the PUNNETT SQUARE to the right, there are four boxes of offspring genotypes. We should count how many of each genotype there are.

There is ONE HOMOZYGOUS DOMINANT genotype, BB  
 ONE HOMOZYGOUS RECESSIVE genotype, bb  
 And TWO HETEROZYGOUS genotypes, Bb.  
 There are FOUR total boxes.

What is the probability that the offspring of two heterozygous parents, Bb x Bb, will have a child whose GENOTYPE is BB, Bb, or bb? See the table to the right to calculate the probabilities.

Bb	=	$\frac{2}{4}$	=	50%
BB	=	$\frac{1}{4}$	=	25%
bb	=	$\frac{1}{4}$	=	25%

Bb	=	BROWN	=	50%
BB	=	EYES	=	25%
<b>+</b> <b>=</b> <b>75%</b>				
bb	=	BLUE	=	25%
		EYES		

What is the probability that the offspring of two heterozygous parents, Bb x Bb, will have a child whose PHENOTYPE is brown or blue eyes? Remember that brown eyes are dominant (B) and will cover up blue eyes (b). See the table to the left to calculate the probabilities.