

# MOST\*

## ***Pardon the Punnett***

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**Students will be able to understand genotype and phenotype, and how to use a Punnett Square to figure out an offspring's genotype and phenotype**

### ***The Science Behind It***

You get your genes, or inherited information for a specific trait, from your parents. You get one allele from your mother and one from your father so that you have two alleles which make up your genotype. A genotype is the combination of two alleles located on the same chromosome that determines the expression of the trait. It is represented by two letters which are upper and lower case to represent a dominant or recessive trait respectively. Phenotype is how the gene is physically expressed. Dominant genes are expressed even if there is only one allele. Recessive traits have to have both alleles to be expressed. If an organism is heterozygous that means the alleles are different and homozygous means they are the same.

Now that we know the basics, let's do a Punnett Square together.

We are going to do a Punnett Square for a flower that is homozygous blue and white flower. White is the recessive allele. So that means the first's genotype is BB and the second's is bb. Now let's make a 2 -by - 2 square.

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## *Pardon the Punnett*

	B	B
b		
b		
	B	B
b	B	B
b	B	B
	B	B
b	B b	B b
b	B b	B b

Above the top two squares, write a capital "B". On the left side, write a lower case "b" next to both squares. The top represents the genotype of homozygous for blue, and the side represents the genotype of homozygous for white.

Next, we are going to put a capital "B" in the boxes below the first two capital "B's" , so your square should like the one here. After that, we are going to put lower case "b's" in the boxes in the rows with our two lower case "b's".

The four squares now have all the possible genotypes for the offspring of the two flowers. All of the offspring would have the "Bb" genotype. This means their phenotype is blue since blue is the dominant gene. Now try to do a Punnett Square for both parents being heterozygous for blue.

**MOST** \*

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Punnett***

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B b

B b

B b

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B b

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