Genetics Name:

Punnett Square Percentages Period:

You can use a **Punnett square** to predict how many offspring of an organism will carry or show particular traits. As you should remember, the traits are determined by the pairs of alleles that each parent passes to the offspring. The **genotype** would be the letter codes, representing the alleles. The **phenotype** would be what the actual offspring looks like, as determined by the alleles.

Imagine that for a certain kind of bear, the allele for black fur (B) is dominant over brown fur (b). Write the alleles from each parent on the outside of the Punnett squares, and then fill in the squares themselves with the appropriate combinations of alleles that are possible. Then calculate the percentages possible for each genotype and phenotype.

Cross #1—Both parents pass on Bb alleles.

	B	b
B		
b		

genotypes: _____ % carry alleles for black fur (BB)

_____ % carry alleles for black fur (Bb or bB)

_____ % carry alleles for brown fur (bb)

phenotypes: _____ % could have black fur

_____ % could have brown fur

Cross #2—One parent passes on BB alleles, while the other passes on bb alleles.

genotypes: _____ % carry alleles for black fur (BB)

_____ % carry alleles for black fur (Bb or bB)

_____ % carry alleles for brown fur (bb)

phenotypes: _____ % could have black fur

_____ % could have brown fur

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Genetics Name:

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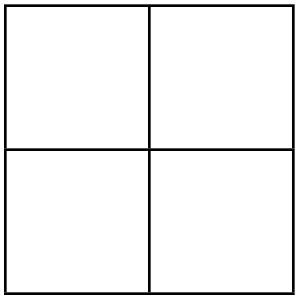
Cross #3—One parent passes on Bb alleles, while the other passes on bb alleles.



genotypes: _____ % carry alleles for black fur (BB)

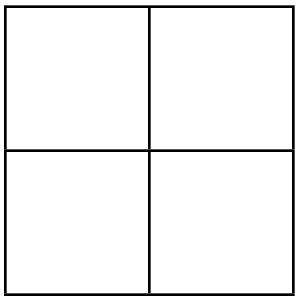
_____ % carry alleles for black fur (Bb or bB)

_____ % carry alleles for brown fur (bb)

phenotypes: _____ % could have black fur

_____ % could have brown fur

Cross #4— Both parents pass on bb alleles.



genotypes: _____ % carry alleles for black fur (BB)

_____ % carry alleles for black fur (Bb or bB)

_____ % carry alleles for brown fur (bb)

phenotypes: _____ % could have black fur

_____ % could have brown fur