PUNNETT SQUARES— CROSSES INVOLVING ONE TRAIT

Name _____

In a certain species of animal, black fur (B) is dominant over brown fur (b). Using the following Punnett square, predict the genotypes and phenotypes of the offspring whose parents are both Bb or have heterozygous black fur.

	B	b
B		
b		

Genotypes: _____% homozygous black fur (BB)
_____% heterozygous black fur (Bb)
_____% homozygous brown fur (bb)

Phenotypes: _____% black fur
_____% brown fur

Now do the same when one parent is homozygous black and the other is homozygous brown.

Genotypes: _____% homozygous black fur (BB)
_____% heterozygous black fur (Bb)
_____% homozygous brown fur (bb)

Phenotypes: _____% black fur
_____% brown fur

Repeat this process again when one parent is heterozygous black and the other is homozygous brown.

Genotypes: _____% homozygous black fur (BB)
_____% heterozygous black fur (Bb)
_____% homozygous brown fur (bb)

Phenotypes: _____% black fur
_____% brown fur

PUNNETT SQUARES—
CROSSES INVOLVING TWO TRAITS

Name _____ 5

In a dihybrid cross, when two traits are considered, the number of possible combinations in the offspring increases. Suppose that black hair (B) is dominant over blonde hair (b) and brown eyes (E) are dominant over blue eyes (e).

What percent of offspring could be expected to have blonde hair and blue eyes if:

1. The father has black hair (heterozygous) and brown eyes (heterozygous) and the mother has blonde hair and blue eyes.

   Genotype of father—BbEe

   Genotype of mother—bbee

   In the Punnett square below, complete the remaining gametes of the father. Then, fill in the boxes below.

	BE	Be		
be				

_____%

2. Both parents have black hair (heterozygous) and brown eyes (heterozygous).

   Genotype of father— _____

   Genotype of Mother—_____

   Complete the Punnett square below.

_____%

In each dihybrid cross, the phenotype ratio of individuals with brown hair and brown ey brown hair and blue eyes, blonde hair and brown eyes and blonde hair and blue eyes is _____ : _____ : _____ : _____.