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 Date: _____

Unit VII
 Biology – Heredity
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VII

Independent Practice of Punnett Squares

CROSSES INVOLVING ONE TRAIT

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

CROSSES INVOLVING TWO TRAITS

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 percentage 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.

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

Genotype of father – **BbEe**

Genotype of mother – **bbee**

	BE	Be		
be				

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

Complete the Punnett square below.

Genotype of father – _____

Genotype of mother – _____

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

1. _____ : _____ : _____ : _____

2. _____ : _____ : _____ : _____