Name:_____ Date:_____

Punnett Square Practice Worksheet

1) For each of the genotypes (AA, Aa or aa) below determine what the phenotype would be.

Purple flowers are dominant to white flowers.

PP_____ Pp_____ pp_____

Hairy knuckles are dominant to non-hairy knuckles in humans.

HH_____ Hh _____ hh _____

Bobtails in cats are recessive. Normal tails are dominant.

TT _____ Tt _____ tt _____

2) For each of the following write whether it is homozygous dominant, heterozygous or homozygous recessive.

AA _____ gg _____

Pp _____ Ii _____

tt_____ TT _____

*Use the following information for **questions 3-5**:*

In dogs, the gene for fur color has two alleles. The dominant allele (F) codes for grey fur and the recessive allele (f) codes for black fur.

3) The female dog is heterozygous. The male dog is homozygous recessive. Figure out the percentage or ratio of possible phenotypes and genotypes of their puppies by using a Punnett Square.

Place the alleles for the male parent below. One allele on each line:

<u>% of possible Genotypes</u>:

FF: _____

Ff: _____

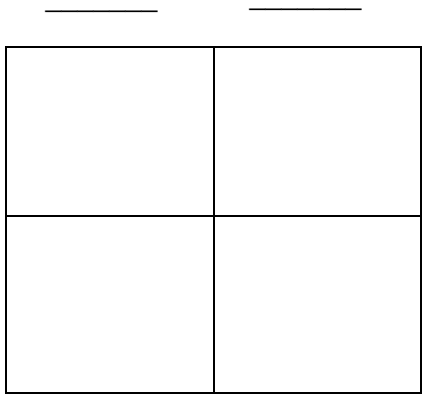
ff: _____

Place the alleles for the female parent on the side. One allele on each line: →

<u>% of possible Phenotypes:</u>

Black fur: _____

Grey fur: _____



Name:_____ Date:_____

4) The female dog has black fur. The male dog has black fur. Figure out the phenotypes and genotypes of their possible puppies by using a Punnett Square.

<u>% of possible Genotypes</u>:

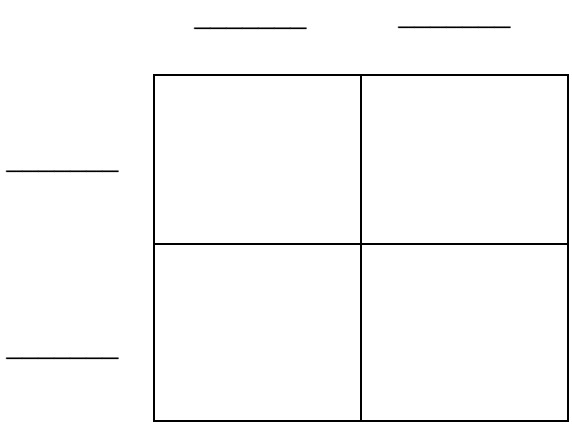
FF: _____

Ff: _____

ff: _____

<u>% of possible Phenotypes:</u>
Black fur: _____

Grey fur: _____



5) The female dog is heterozygous. The male dog is heterozygous. Figure out the phenotypes and genotypes of their possible puppies by using a Punnett Square.

<u>% of possible Genotypes</u>:

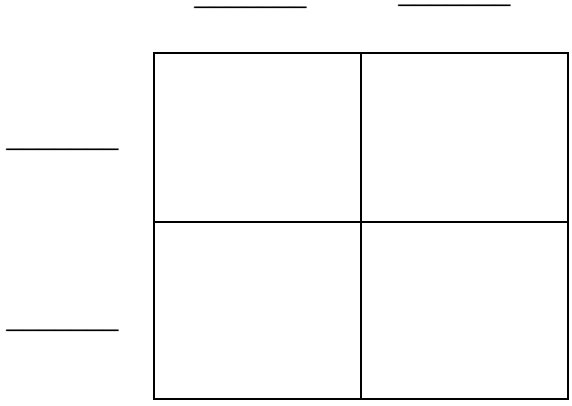
FF: _____

Ff: _____

ff: _____

<u>% of possible Phenotypes:</u>
Black fur: _____

Grey fur: _____



6) In fruit flies, red eyes are dominant (E). White eyes are recessive (e). If the female fly has white eyes and the male fly has homozygous dominant red eyes, what are the possible phenotypes and genotypes of their offspring?

<u>Genotypes:</u>
EE:
Ee:
ee:

<u>Phenotypes:</u>
Red Eyes:

White Eyes:

Name:_____ Date:_____

A Little added challenge

Use the following for questions 7-9:

In dogs, there is a hereditary deafness caused by a recessive gene, "d." A kennel owner has a male dog (Gilbert) that she wants to use for breeding purposes if possible. The dog can hear.

7) What are the two possible genotypes of Gilbert?

8) If the dog's genotype is Dd, the owner does not wish to use him for breeding so that the deafness gene will not be passed on. This can be tested by breeding the dog to a deaf female (dd). Fill in these two Punnett squares to illustrate the crosses for your possible male genotypes (*from question 9*) with the deaf female dog.

Possible Cross 1

% of possible Genotypes:

DD: _____

Dd: _____

dd: _____

% of possible Phenotypes:

Deaf pups: _____

Hearing pups: _____

_____	_____
_____	
_____	

Possible Cross 2

% of possible Genotypes:

FF: _____

Ff: _____

ff: _____

% of possible Phenotypes:

Deaf pups: _____

Hearing pups: _____

_____	_____
_____	
_____	

9) Explain how could you tell the genotype of Gilbert's male dog?

Name:_____ Date:_____

Use the following for questions 10-11:

Having a widow's peak like Wentworth Miller is dominant.

Not having a widow's peak, like Rihanna, is recessive.

10) If Wentworth Miller is Aa, and he and Rihanna had children, what are the possible phenotypes and genotypes of their children?

11) Look at the phenotypes of Beyonce and Jay Z. If these two had children, could they have children with a widow's peak? Why or why not? Use a Punnett Square to explain your answer.