Name _____ pd_____

A. HH
B. Having one dominant and one recessive allele
C. The possible pair of alleles/letters the offspring may inherit
D. using a lower case letter
E. hh
F. Having two alleles that are exactly the same, either hh or HH
G. Hh
H. The possible physical appearance of the offspring
I. using a capitol letter

_____ 1. What does homozygous mean?

_____ 2. What does heterozygous mean?

_____ 3. How do you show a trait is DOMINANT?

_____ 4. How do you show a trait is recessive?

_____ 5. What does phenotype mean?

_____ 6. What does genotype mean?

_____ 7. Which of the following is Homozygous recessive?

_____ 8. Which of the following in Heterozyous?

_____ 9. Which of the following is Homozygous dominant?

10. If red is dominant to white, what letters will you use to represent the 2 genes?
RED ___ WHITE ___

11. Cross a heterozygous red plant with a white plant.
Heterozygous red plant = _____ white plant = _____

so _____ X_____

12. In question 11, what is the genotypic ratio? _____
HINT: the letters you make in the punnett square?

In question 11, what is the phenotypic ratio? _____
HINT: what will the offspring possibly look like?

13. What is the genotypic and phenotypic ratio when crossing
Rr X Rr?

Genotype: _____

Phenotype: _____

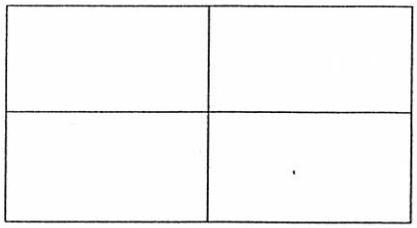
For questions 1-2, use the alleles:

T = tall

T = short

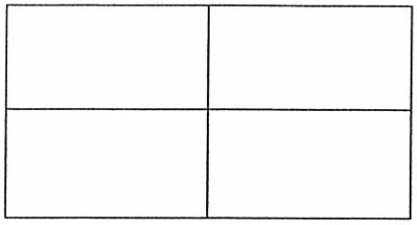
1. Cross a homozygous recessive plant with a heterozygous plant.

_____ X _____



2. Cross a heterozygous plant with a homozygous dominant plant.

_____ X _____



For question 3, T=Tall, t = short, A = blonde hair, a = black hair

Cross TtAa with TTAa (these are the parents genotypes)

First find the gametes (sperm or egg) the parents can possibly make.

TtAa = _____ _____ _____ _____ TTAa = _____ _____ _____ _____

Now cross them

Possible gametes Go on top and below				

Punnett Square Worksheet-Human Traits

Directions: Complete the following Punnett Squares. Be sure that you include the **probabilities** of the genotypes and phenotypes of the characteristics.

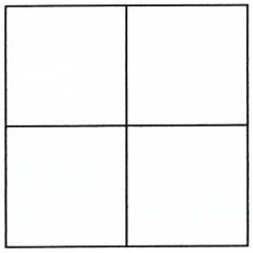
1. B= Brown eyes b= blue eyes Mom= Bb Dad= BB
What are the eye color possibilities of their children?

Genotypes

___ % BB

___ % Bb

___ % bb



Phenotypes

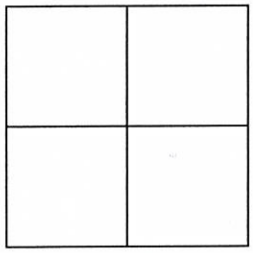
___ % Brown eyes

___ % blue eyes

Ratio_____ Ratio_____

2. Free hanging earlobes are dominant. Attached earlobes are recessive. Complete the Punnett Square for the following individuals: Mom=Ee and Dad=Ee

Genotypes

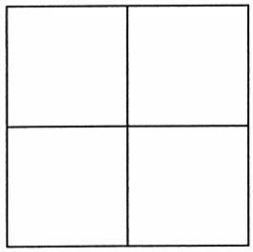


Phenotypes

Ratio_____ Ratio_____

3. Freckles are dominant. No freckles are recessive.
Mom= heterozygous Dad=homozygous recessive Find the possible outcomes for kids?

Genotypes



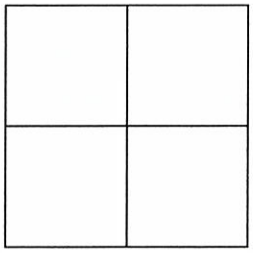
Phenotypes

Ratio_____ Ratio_____

4. Curly hair is dominant, and straight hair is recessive. A woman who is homozygous dominant for curly hair marries a man with straight hair. Predict the possibilites for their children.

Genotypes

Phenotypes



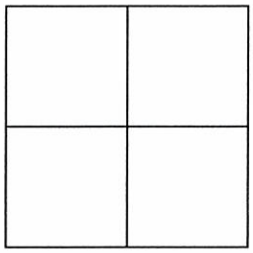
Ratio_____

Ratio_____

5. Careful, incomplete dominance problem: **Black hair** is homozygous dominant. **Brown hair** is heterozygous. **Blonde hair** is homozygous recessive. A woman with brown hair marries a man with brown hair. What are the possible outcomes for their kids?

Genotypes

Phenotypes



Ratio_____

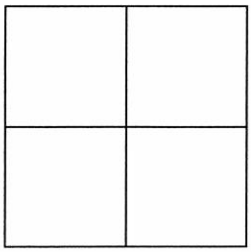
Ratio_____

6. Incomplete dominance problem: TT=**tall** (5'11"-6'2"); Tt=**medium** height (5'4"-5'10")
tt=**short** (5'3" or smaller)

Mom= 5'5"
Dad= 6'0"
What are the possible height outcomes of their children?

Genotypes

Phenotypes



Ratio_____

Ratio_____

Punnett Square Worksheet

Black is the dominant fur color for rabbits and white is the recessive. B stands for the black allele and b represents the white allele. A white rabbit would have a genotype of bb and a black rabbit could have a genotype of BB or Bb.

1. Fill in the missing information for each Punnette square below:

Cross 1

	B	B
B		
B		

Cross 2

	b	b
b		
b		

Cross 3

	B	b
B		
b		

Cross 4

	B	B
B		
b		

Cross 5

	b	b
B		
b		

Cross 6

	B	b
B		
B		

Cross 7

	B	b
b		
b		

Cross 8

	Bb	Bb
	Bb	Bb

Cross 9

	BB	Bb
	BB	Bb

2. List the probability of the offspring having black fur for each cross

Cross 1:
Cross 2:
Cross 3:
Cross 4:
Cross 5:
Cross 6:
Cross 7:
Cross 8:
Cross 9:

3. List the probability of the offspring having white fur for each cross

Cross 1:
Cross 2:
Cross 3:
Cross 4:
Cross 5:
Cross 6:
Cross 7:
Cross 8:
Cross 9:

4. List the probability of the offspring being **homozygous dominant**:
Cross 1:
Cross 2:
Cross 3:
Cross 4:
Cross 5:
Cross 6:
Cross 7:
Cross 8:
Cross 9:

5. List the probability of the offspring being **heterozygous**:
Cross 1:
Cross 2:
Cross 3:
Cross 4:
Cross 5:
Cross 6:
Cross 7:
Cross 8:
Cross 9:

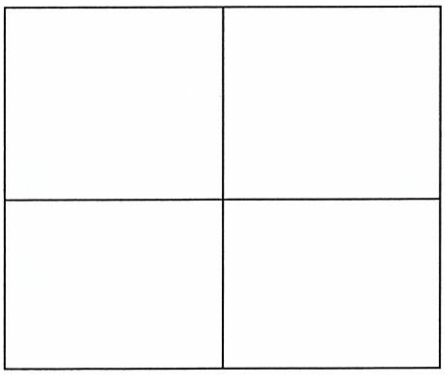
6. List the probability of the offspring being **homozygous recessive**:
Cross 1:
Cross 2:
Cross 3:
Cross 4:
Cross 5:
Cross 6:
Cross 7:
Cross 8:
Cross 9:

4. What are the **phenotypes** of the parents for crosses 8 & 9 (what do the mom and dad look like)

Cross 8:

Cross 9:

5. Assume tall (T) is dominant for pea plants and short (t) is recessive. Fill in the Punnett square that would result when a plant that is heterozygous is crossed with another plant that is homozygous recessive.



6. From the cross above what is the probability of having a short pea plant?