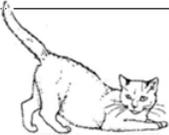


# Dihybrid Cross Worksheet

Due \_\_\_\_\_

SELECTED TRAITS IN CATS		
Trait	Dominant Allele	Recessive Allele
Coat Length	Short hair (H) 	Long hair (h) 
Tabby Stripes	Tabby (T) 	Stripeless (t) 

1. A short-haired (heterozygous) female with purebred tabby stripes mates with a long-haired male with tabby stripes (heterozygous).

a. Fill in the table below.

Parent Genotypes	
Mother	Father

b. Fill in the Punnett square below.


c. What is the probability that one of their kittens will have short hair and tabby stripes? \_\_\_\_\_

2. Yellow fruit and dwarf vines are recessive traits in tomatoes. Red fruit and tall vines are dominant. A completely dominant red and tall plant crossed with a heterozygous red and dwarf plant. (You chose the letters you want to use)

a. Fill in the table below.

Parent Genotypes	
Plant 1	Plant 2

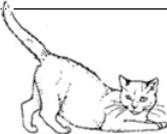
b. Fill in the Punnett square below.

	_____	_____	_____	_____
_____				
_____				
_____				
_____				

c. What percent of the offspring will be totally heterozygous? \_\_\_\_\_

d. What is the phenotype ratio? \_\_\_\_\_

e. What percent of the offspring will have yellow fruit and dwarf vines? \_\_\_\_\_

SELECTED TRAITS IN CATS		
Trait	Dominant Allele	Recessive Allele
Coat Length	Short hair (H) 	Long hair (h) 
Tabby Stripes	Tabby (T) 	Stripeless (t) 

3. A male cat who is heterozygous for both traits mates with a female cat who is also a hybrid of both traits.

a. Fill in the table below.

Parent Genotypes	
Mother	Father

b. Fill in the Punnett square below.

	_____	_____	_____	_____
_____				
_____				
_____				
_____				

c. What is the probability that one of their kittens will have short hair and no stripes? \_\_\_\_\_

d. Is it possible for a kitten from this cross to be homozygous recessive for both traits? \_\_\_\_\_

e. State the overall genotypic ratio. \_\_\_\_\_

4. \_\_\_\_\_ Which of the following genotypes would you NOT expect to find among the offspring of a SsYy x ssyy cross?  
A. ssyy    B. SsYy    C. Ssyy    D. ssYy    E. SsYY
5. \_\_\_\_\_ A phenotype ratio of 9:3:3:1 in the offspring is expected when:  
A. the parents' gametes did not undergo meiosis.  
B. the parents are both homozygous dominant for two observed traits.  
C. the parents are both heterozygous for two observed traits.  
D. the parents are both homozygous recessive for two observed traits.  
E. none of the above
6. \_\_\_\_\_ Which of the following genetic crosses would be predicted to give a phenotypic ratio of 9:3:3:1?  
A. SSYY x ssyy    B. SsYY x SSYy    C. SsYy x SsYy    D. SSyy x ssYY    E. ssYY x ssyy
7. \_\_\_\_\_ In a dihybrid cross, AaBb x AaBb, what fraction of the offspring will be homozygous for both recessive traits?  
A. 1/16    B. 1/8    C. 3/16    D. 1/4    E. 3/4
8. \_\_\_\_\_ Following a SsYy x SsYy cross, what fraction of the offspring are predicted to have a genotype that is heterozygous for both characteristics?  
A. 1/16    B. 2/16    C. 3/16    D. 4/16    E. 9/16
9. \_\_\_\_\_ In a dihybrid cross, SsYy x SsYy, what fraction of the offspring will be homozygous for both traits?  
A. 1/16    B. 1/8    C. 3/16    D. 1/4    E. 3/4
10. \_\_\_\_\_ The gametes of a plant of genotype SsYy should have the genotypes:  
A. Ss and Yy    B. SY and sy    C. SY, Sy, sY, and sy    D. Ss, Yy, SY and sy    E. SS, ss, YY, and yy
11. \_\_\_\_\_ A pea plant is heterozygous for both seed shape and seed color. S is the allele for the dominant, spherical shape characteristic; s is the allele for the recessive, dented shape characteristic. Y is the allele for the dominant, yellow color characteristic; y is the allele for the recessive, green color characteristic. What will be the distribution of these two alleles in this plant's gametes?  
A. 50% of gametes are Sy; 50% of gametes are sY  
B. 25% of gametes are SY; 25% of gametes are Sy; 25% of gametes are sY; 25% of gametes are sy.  
C. 50% of gametes are sy; 50% of gametes are SY  
D. 100% of the gametes are SsYy  
E. 50% of gametes are SsYy; 50% of gametes are SSYY.