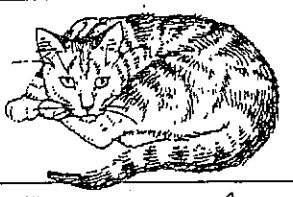
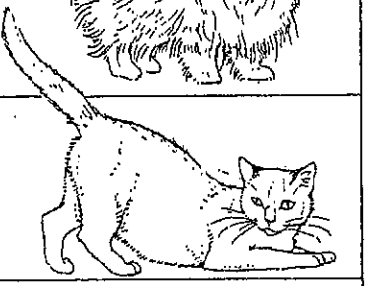
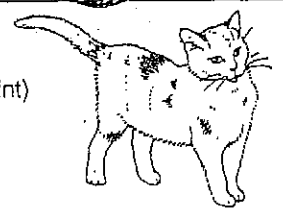
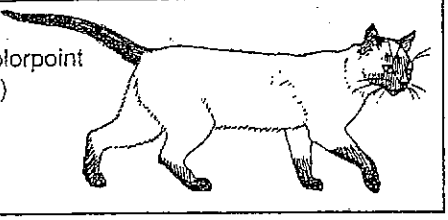
Name _____ Class _____ Date _____

Using Punnett Squares: Practicing Skills

SELECTED TRAITS IN CATS		
Trait	**Dominant Allele**	**Recessive Allele**
Coat length	Short hair (*H*) 	Long hair (*h*) 
Tabby stripes	Tabby (*T*) 	Stripeless (*t*) 
Colorpoint (markings on nose, ears, paws, and tail)	Normal (no colorpoint) (*N*) 	Colorpoint (*n*) 

Show the results of the following crosses using Punnett squares and the information in the accompanying figure.

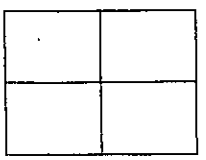
1. Heterozygous short-hair X heterozygous short-hair

   a. parents' genotypes = _____ X _____
   b. Punnett Square:

   c. What is the percent chance that these two cats will have a kitten with long hair? _____
   d. What is the percent chance that these two cats will have a kitten with short hair? _____

2. Heterozygous tabby X stripeless

   a. parents' genotypes = _____ X _____
   b. Punnett Square:

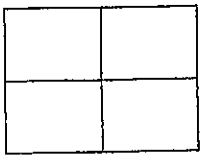


   c. What is the percent chance that these two cats will have a tabby kitten? _____
   d. What is the percent chance that these two cats will have a stripeless kitten? _____

3. Colorpoint X homozygous normal

a. parents' genotypes = _____ X _____

b. Punnett Square:



c. What is the percent chance that these two cats will have a normal kitten? _____

d. What is the percent chance that these two cats will have a colorpoint kitten? _____

Huntington's disease causes progressive nervous system degeneration. A dominant gene causes it while the lack of the disease (normal nervous system) is due to the recessive gene.

4. Cross a person who is heterozygous for Huntington's disease with a person who does not have the disease.

    a. What are the genotypes of the two people? _____ X _____
    b. Show the Punnett square for the cross.
    c. Show the probability of all genotypes and phenotypes.
    d. What is the chance these to people will produce a child with Huntington's disease? _____

5. Cross two individuals who are each heterozygous with Huntington's disease.

    a. What are the genotypes of the two people? _____ X _____
    b. Show the Punnett square for the cross.
    c. Show the probability of all genotypes and phenotypes.
    d. What is the chance these to people will produce a child that will not have Huntington's disease? _____
    e. What is the chance these to people will produce a child with Huntington's disease? _____

Cystic fibrosis is a disease that causes excessive glandular secretions that lead to tissue and organ damage. A recessive gene causes cystic fibrosis while normal glandular function is due to a dominant gene.

6. Cross two individuals who are each heterozygous for the trait (neither has CF).
    a. What are the genotypes of the two people? _____ X _____
    b. Show the Punnett square for the cross.
    c. Show the probability of all genotypes and phenotypes.
    d. What is the chance these to people will produce a child that will not have CF? _____
    e. What is the chance these to people will produce a child with CF? _____

7. Cross a person who is heterozygous with a person who has CF.

   a. What are the genotypes of the two people? _____ X _____
   b. Show the Punnett square for the cross.
   c. Show the probability of all genotypes and phenotypes.
   d. What is the chance these to people will produce a child that will not have CF? _____
   e. What is the chance these to people will produce a child with CF? _____

8. Cross a person who is homozygous and does not have CF with a person who has CF.

   a. What are the genotypes of the two people? _____ X _____
   b. Show the Punnett square for the cross.
   c. Show the probability of all genotypes and phenotypes.
   d. What is the chance these to people will produce a child that will not have CF? _____
   e. What is the chance these to people will produce a child with CF? _____