

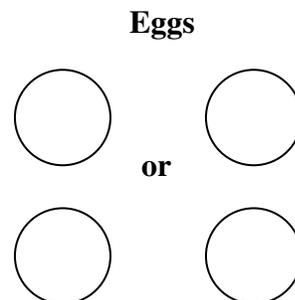
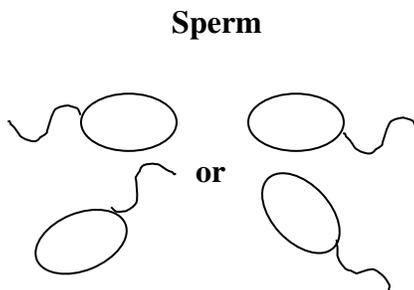
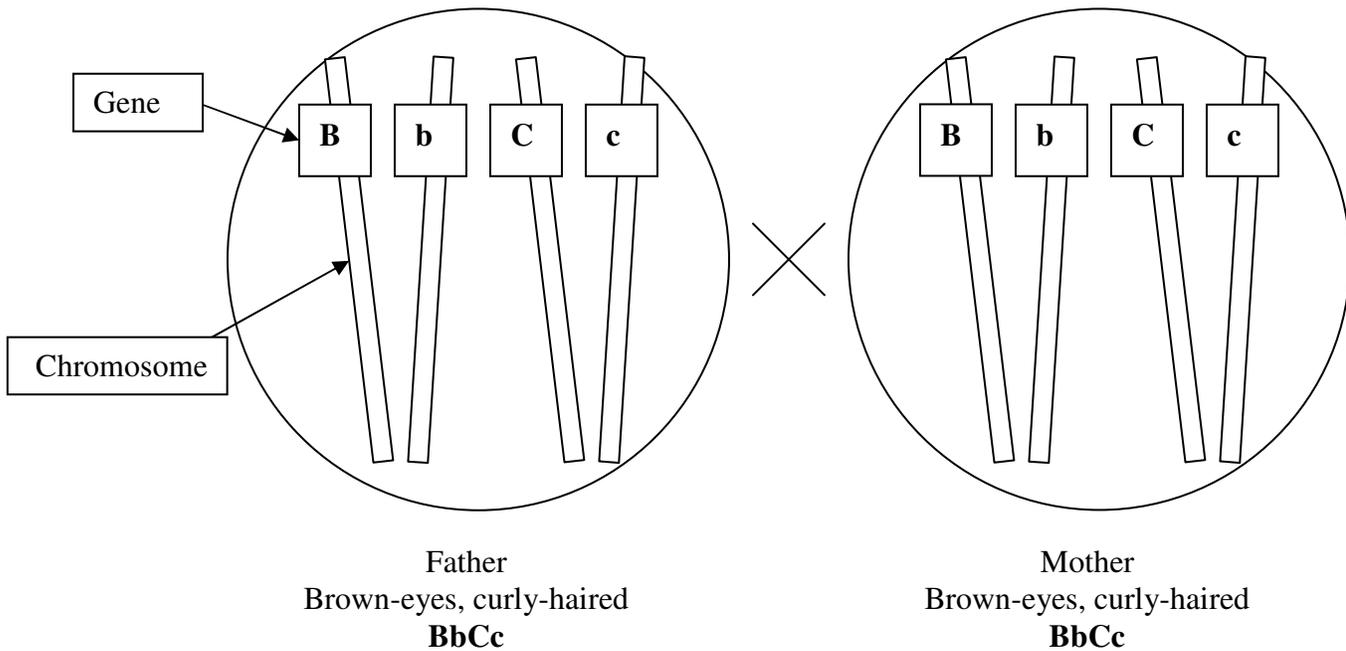
# Dihybrid Crosses—Tracking two traits at once

Name _____
Date _____ Period ____

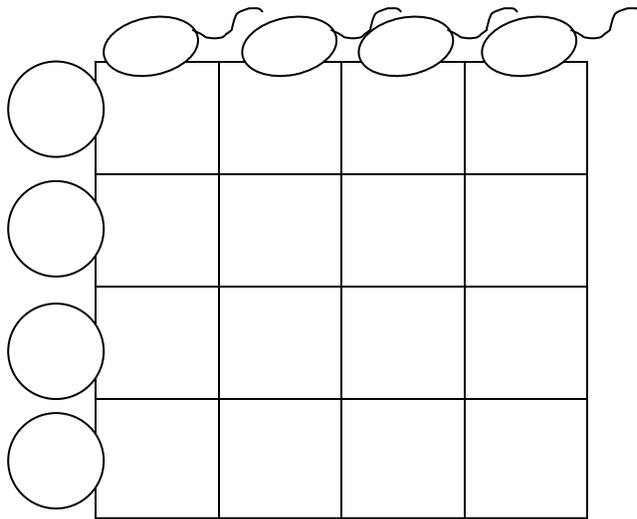
**Purpose:** You will learn to solve genetics problems using two traits (dihybrid crosses)

**Directions:** Follow the steps using the following information. Brown eyes are dominant to blue eye color. Curly hair is dominant to straight hair.

1. How would you symbolize a person who had brown eyes and curly hair and was heterozygous for both traits? \_\_\_\_\_
2. How would you write the genotype for a person with blue eyes and straight hair? \_\_\_\_\_
3. Let's assume that a brown eyed, curly haired father and his wife (also brown eyed curly haired) plan to have kids. (Note: they are both heterozygous for each trait.)



4. The next step is to arrange the 4 sex cells for male and female in a Punnett square.



Genotype	Phenotype

5. Now, fill in the squares with the genotype for each offspring.

6. How many possible offspring (genotypes) are possible? \_\_\_\_\_

7. Examine your Punnett square and summarize how many each of the following phenotypes are present in the offspring.

a) **Brown eyed & curly haired?** \_\_\_\_\_

b) **Brown eyed & straight haired?** \_\_\_\_\_

c) **Blue eyes & curly haired?** \_\_\_\_\_

d) **Blue eyes & straight haired?** \_\_\_\_\_

e) **What ratio do you get?** \_\_\_\_\_

## **2 Trait Cross Practice Problems**

**-Answer these questions in your notebook, show your work & include a Punnett square.**

1) There are purple and green trolls. Some have long noses while others have short noses. Purple is dominant over green and long is dominant over short. What are the possible offspring of a heterozygous purple, heterozygous long nosed troll (**PpNn**) when mated with green, short nosed troll be (**ppnn**). List the fraction of possible genotypes and phenotypes of offspring.

**P = purple      p = green                  N = long nose      n = short nose**

2) List the fraction of possible genotypes and phenotypes of offspring from the mating of a heterozygous purple, long nosed troll (**PpNn**) with a heterozygous purple, homozygous long nosed troll (**PpNN**)

3) In tomatoes, purple stem (**P**) is dominant to green stem (**p**) and the gene for red fruit (**R**) is dominant to yellow fruit (**r**). Show the cross of a heterozygous purple stem plant that has yellow fruit with a green stem plant that is heterozygous for red fruit. What fraction of the F1 (offspring) would you expect to have purple stems and red fruit?

4) List the fraction of genotypes and phenotypes of offspring for a mating between two heterozygous 12-tentacle, heterozygous red octupi.      **T = 12 tentacles      t = 10 tentacles                  R = red                  r = blue**