Student Sheet   Name_____

Title: Recreating Mendel

Purpose: To model the pea plant crosses first studied by Gregor Mendel.

Materials: 2 coins or game pieces, cup

Procedure:
1. In pea plants, yellow seeds (A) are dominant over green seeds (a). Using a Punnett square, determine the probable color of the seeds produced by pea plants whose parents are heterozygous for the seed-color trait. Record the expected genotypic and phenotypic ratios:

Expected Genotypes:

Expected Phenotypes:

2. Each labeled marker represents the alleles in the heterozygous plant. Tossing the labeled markers together represents the crossing of heterozygous plants.

3. Toss the two markers 10 times. Record the results of each of the 10 tosses by making a tally mark in your data table.

4. Toss the two markers 90 more times.

5. One student in each group needs to record the data for 100 tosses on the class total sheet, blackboard or overhead. Record the class totals.

6. Using the data, calculate the genotypic and phenotypic ratios for each series of tosses. (Divide each genotype by the total shakes, write as a ratio a:b:c)

Data:

	First 10 shakes	Total after 10	Next 90 shakes	Total after 100	Total after 1000
AA					
Aa					

Aa					

Questions

1. Which genotype was obtained most often?

2. What were your expected genotypic and phenotypic ratios?

3. What were your genotypic and phenotypic ratios for a series of 10 tosses?
100 tosses?   1000 tosses?

4. How do the experimental ratios compare with the expected ratios?

5. Which series of tosses produced the experimental ratios that were closest to the expected ratios? Explain your results.

6. How does probability apply to the results of your experiment? How does probability apply to the study of genetics?

Conclusion: