Genetics and Probability

Name _____
Period _____
Date _____

Background:

1. What are homologous chromosomes?

2. What determines which of the homologous chromosomes gets put in a sperm or egg?

Procedure:

1. The blue bead represents the dominant gene for purple flower color in Mendel's pea plants. The clear glass represents the recessive gene for white flower color. Each parent is a purple flowered plant but with one dominant purple gene and one recessive white gene for their genotypes.
2. Shake the two beads in your hand and with eyes closed, pick one bean. Your partner will do the same. Record the color of the bead you each chose and then determine the genotype and the phenotype of the plant that would result from this pair of genes. Do this until the chart is filled.

Data: (4 points)

Glass bead color from parent #1	Glass bead color from parent #2	Genotype of the offspring	Phenotype of the offspring

Discussion:

1. How many of each genotype are there from your data? (1/4 point)

2. How many of each phenotype are there from your data? (1/4 point)

3. What are the class totals for the three genotypes? (1/4 point)

4. What are the class totals for the two phenotypes? (1/4 point)

5. What is the ratio of the three genotypes to each other using the class totals? (1/2 point)

6. Convert these ratios to percents of probability. (1/2 point)

7. What is the ratio of the two phenotypes to each other using the class totals? (1/2 point)

8. Convert these ratios to percents of probability. (1/2 point)