Biology **Extra Credit**

Dihybrid Cross Worksheet Name_____Due Date_____

Information regarding dihybrid crosses (practice and instructions) can be found linked to the following URL: http://local.brookings.k12.sd.us/biology/WORKSHEETS/ch%2011%20genetics/f11%20dihybridcrossinfo%20extracredit.pdf

Refer to the following information for problems 1-5. Use the assigned letters as recorded in the chart below.

In pea plants…

Tall is dominant over short.	**T= tall**	**t = short**
Yellow is dominant over green peas	**G = yellow**	**g = green**
Purple is dominant over white flowers	**F = purple**	**f = white**
Round is dominant over wrinkled peas	**R = round**	**r = wrinkled**

1. **homozygous tall round X homozygous short wrinkled**

What is the genotype for a parent pea plant that is homozygous tall and round? _____

What are the possible gamete combinations?

_____ _____ _____ _____

What is the genotype for a parent pea plant that is homozygous short and wrinkled? _____

What are the possible gamete combinations?

_____ _____ _____ _____

Complete the cross. Use different colors to circle the offspring with the same genotype.

What is the probability that the offspring with be tall and round? _____

What is the probability that the offspring with be tall and wrinkled? _____

What is the probability that the offspring with be short and round? _____

What is the probability that the offspring with be short and wrinkled? _____

2. **homozygous tall, heterozygous purple X homozygous short, heterozygous purple**

What is the genotype for a parent pea plant that is homozygous tall and heterozygous purple? _____

What are the possible gamete combinations?

_____ _____ _____ _____

What is the genotype for a parent pea plant that is short and heterozygous purple? _____

What are the possible gamete combinations?

_____ _____ _____ _____

Complete the cross. Use different colors to circle the offspring with the same genotype.

What is the probability that the offspring with be tall and purple? _____

What is the probability that the offspring with be tall and white? _____

What is the probability that the offspring with be short and purple? _____

What is the probability that the offspring with be short and white? _____

3. **homozygous tall, heterozygous yellow X heterozygous tall, heterozygous yellow**

What is the genotype for a parent pea plant that is homozygous tall and heterozygous yellow? _____

What are the possible gamete combinations?

_____ _____ _____ _____

What is the genotype for a parent pea plant that is heterozygous tall and heterozygous yellow? _____

What are the possible gamete combinations?

_____ _____ _____ _____

Complete the cross. Use different colors to circle the offspring with the same genotype.

What is the probability that the offspring with be tall and yellow? _____

What is the probability that the offspring with be tall and green? _____

What is the probability that the offspring with be short and yellow? _____

What is the probability that the offspring with be short and green? _____

4. **heterozygous tall, heterozygous yellow X heterozygous tall, heterozygous yellow**

What is the genotype for a parent pea plant that is heterozygous tall and heterozygous yellow? _____

What are the possible gamete combinations?

_____ _____ _____ _____

What is the genotype for a parent pea plant that is heterozygous tall and heterozygous yellow? _____

What are the possible gamete combinations?

_____ _____ _____ _____

Complete the cross. Use different colors to circle the offspring with the same genotype.

What is the probability that the offspring with be tall and yellow? _____

What is the probability that the offspring with be tall and green? _____

What is the probability that the offspring with be short and yellow? _____

What is the probability that the offspring with be short and green? _____

5. **heterozygous round and white ✗ wrinkled and white**

What is the genotype for a parent pea plant that is heterozygous round and white? _____

What are the possible gamete combinations?

_____ _____ _____ _____

What is the genotype for a parent pea plant that is wrinkled and white? _____

What are the possible gamete combinations?

_____ _____ _____ _____

Complete the cross. Use different colors to circle the offspring with the same genotype.

What is the probability that the offspring with be round and white? _____

What is the probability that the offspring with be round and purple? _____

What is the probability that the offspring with be wrinkled and white? _____

What is the probability that the offspring with be wrinkled and purple? _____

6. **Brad and Angelina are expecting a baby.**
Brad's rich uncle promised Brad and Angelina 1 million dollars if the baby born is a boy with blue eyes to carry on the family name (and genes…rich uncle has blue eyes). Brown eyes are dominant over blue eyes. Brad unfortunately has brown eyes, but is heterozygous for the trait. Angelina has blue eyes.

According to the information

Brad's genotype is **BbXy**

Angelina's genotype is **bbXX**

What are the possible gamete combinations for Brad?

_____ _____ _____ _____

What are the possible gamete combinations for Angelina?

_____ _____ _____ _____

What genotype must the baby have to be a blue eyed boy? _____

Complete the Punnett Square to show the possible genotypes for the baby.

What is the probability that Brad and Angelina's baby
will be a boy with blue eyes and they will get the $1 million? _____