Name:_____

Punnett Square Activity

Purpose: to practice using Punnett squares to predict probability of certain genotypes in the offspring of known parents.

Procedure: Answer the following questions. Make sure to also show the Punnett square for each question.

1. A male with black hair, homozygous dominant, has offspring with a blonde woman. What are the ratios of genotypes found in the offspring?

2. A tall pea plant, heterozygous, is crossed with a short pea plant, short being the recessive trait. What are the phenotype ratios of the offspring?

3. Two black heterozygous guinea pigs are crossed. What are the genotype ratios of the offspring?

4. In dogs, deafness is a recessive trait. What are the genotype and phenotype ratios of a deaf female dog and a male dog that can hear whose mom was deaf?

5. A woman with dimples, a dominant human trait, is crossed with a male with no dimples. What more information do you need in order to figure out the answer to this question? Do both scenarios and give the genotype ratios for both.

6. In humans, brown eye color is dominant and all others are recessive, and non-red hair is dominant while red hair is recessive. What are the phenotype ratios of a cross between a man with brown eyes, heterozygous, and non-red hair homozygous dominant, and a woman with blue eyes and red hair?

7. In pea plants, purple flowers are dominant and white flowers are recessive, and yellow seeds are dominant over green. What are the phenotype ratios of a pea plant with purple flowers, homozygous, and yellow seeds, heterozygous, with a pea plant with white flowers and yellow seeds, heterozygous?

8. In humans, extra fingers and toes is a dominant trait over having 5 per appendage, and normal skin pigmentation is dominant over albinism, no pigment in your skin. What are the genotype and phenotype ratios of a man with six fingers, heterozygous, and normal skin pigment with an albino woman who has five fingers per hand?

Now, go to this web page and work through all of the problems found on this page: http://biology.clc.uc.edu/courses/bio105/geneprob.htm. When you get to the trihybrid cross, try to figure it out. When you have completed it, let the teacher see it and then go on. Stop when you get to the section labeled Epistatis.