*Incomplete and Codominance Worksheet*

1. Explain the difference between incomplete dominance and codominance:

**Incomplete Dominance**

**2. In snapdragons, flower color is controlled by incomplete dominance. The two alleles are red (R) and white (W). The heterozygous genotype is expressed as pink (RW)**.

a. What is the phenotype of a plant with the genotype RR? \_\_\_\_\_\_\_\_\_\_\_

b. What is the phenotype of a plant with the genotype WW? \_\_\_\_\_\_\_\_\_\_\_

c. What is the phenotype of a plant with the genotype RW? \_\_\_\_\_\_\_\_\_\_\_

**3. Predict the offspring when two pink Four o’clock flowers (RW) are crossed.**

a. What is the predicted genotypic ratio for the offspring?

b. What is the predicted phenotypic ratio for the offspring?

**4. A pink-flowered plant is crossed with a white-flowered plant. What is the probability of producing:**

 a. A pink-flowered plant? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. A red flowered plant? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. A white flowered plant? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d. What cross will produce the most pink-flowered plants? Show a punnett square to support your answer.

5. A homozygous black bird is crossed with a homozygous white bird. The offspring are all bluish-gray. Cross a black bird and a bluish gray bird. What are the genotypic ratios and percent chance of each phenotype?

6. What results if a white individual is crossed with a bluish-gray individual? (SHOW YOUR WORK)

7. If two bluish-gray individuals were crossed, what would be the ratios for both phenotype and genotype of

the offspring?

**Codominance**

**\*\*In shorthorn cattle, when a red bull (RR) is crossed with a white cow (WW), all the offspring are roan (RW).\*\***

8. Cross a roan bull and a roan cow. What phenotypic and genotypic ratios would you get?

10. What phenotypes would you expect from a cross between a red bull and a white cow?

**11. In some chickens, the gene for feather color is controlled by codiminance. The allele for black is B and the allele for white is W. The heterozygous phenotype is known as erminette (BW).**

a. What is the genotype for black chickens? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. What is the genotype for white chickens? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. What is the genotype for erminette chickens? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**12. If two erminette chickens were crossed, what is the probability that:**

a. They would have a black chick? \_\_\_\_\_\_\_\_%

b. They would have a white chick? \_\_\_\_\_\_\_\_%

**13. A black chicken and a white chicken are crossed. What is the probability that they will have:**

1. An erminette chick? \_\_\_\_\_\_\_\_%
2. A black chick? \_\_\_\_\_\_\_\_\_\_\_\_%
3. A white chick? \_\_\_\_\_\_\_\_\_\_\_\_%

**14. In humans, straight hair (SS) and curly hair (CC) are co-dominant traits that result in hybrids that have wavy hair (SC). Cross a curly hair female with a wavy haired male.**

1. What are the chances of having a curly haired child?
2. What are the chances of having a straight hair child?
3. What are the chances of having a wavy hair child?