**Genetics Problems**

**INCOMPLETE DOMINANCE**

In incomplete dominance, one allele is not completely dominant over the other. The heterozygous phenotype is a **blending** of the two homozygous phenotypes.

Four o’clocks are a type of flower that exhibit three colors: red, pink, and white. Use the letter R for red and W for white. Pink will be a combination of the two letters.

1. Cross a red flower with a white flower. 2. What percentage of flowers will be red? Pink? White?

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1. Cross two pink flowers. 4. What percentage of flowers will be red? Pink? White?

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1. Cross a red flower with a pink flower. 6. What percentage of flowers will be red? Pink? White?

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When brown guinea pigs are crossed with white guinea pigs, cream-colored offspring are produced. Use the letter B for brown and W for white. Cream-colored will be a combination of the two letters.

1. Cross a cream-colored with a white guinea pig. 8. 9What percentage will be brown? Cream? White?

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1. Cross a brown with a cream-colored guinea pig. 10. What are the percentages of each color?

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**CODOMINANCE**

In codominance, both alleles contribute to the phenotype. Blending DOES NOT occur, but **both traits are expressed separately**.

A good example of animals that express codominant features are chicken. They exhibit three colors: black, solid white, or black + white (erminette). Use B for black, W for white, and both letters for black + white (erminette).

1. Cross a black with a white chicken. 12. What color will all exhibit?

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1. Cross two erminette chickens. 14. What percent will be black? White? Erminette?

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15. Cross an erminette with a black. 16. What percent will be black? White? Erminette?

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Roan shorthorn cattle exhibit three colors: solid red, solid white, or red + white. Use R for red, W for white, and both letters for red+white.

1. Cross a red cattle with a white cattle. 18. What color will 100% of the offspring exhibit?

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19. Cross a red and white with a red and white. 20. What percent will be red? White? Red and white?

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