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Unit VII  
Biology – Heredity  
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# VII

## Sex-Linked Inheritance & Incomplete Dominance

Color blindness is an example of a condition that is sex-linked. The gene for normal vision ( $X^C$ ). Since a male has only one X chromosome, whichever gene he has will be expressed. But for a woman, if she is homozygous ( $X^C X^C$ ) or heterozygous ( $X^C X^c$ ), she will have normal vision. If she is homozygous recessive ( $X^c X^c$ ) she will be colorblind.

1. Two normal visioned people marry. Together, they have a colorblind son. What are the possible genotypes and phenotypes of the children that they could produce?
  - a. What is the father's genotype? \_\_\_\_\_
  - b. What is the mother's genotype? \_\_\_\_\_
  - c. What are the possible gametes the father can produce? \_\_\_\_\_ or \_\_\_\_\_
  - d. What are the possible gametes the mother can produce? \_\_\_\_\_ or \_\_\_\_\_
  - e. What are the genotypes and phenotypes for the offspring?


_____	_____
_____	_____
_____	_____
_____	_____

- f. What is the probability that the next child will be a color-blind male?

2. The man from the previous problem dies and the woman remarries a color-blind man. Use the Punnett square to show the types of children that could be expected from this marriage. What percentage of each possible offspring could be expected?
  - a. What is the genotype of the new husband? \_\_\_\_\_
  - b. What are the possible gametes he can produce? \_\_\_\_\_ or \_\_\_\_\_


_____
_____
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_____

The flower color in snapdragons plants show incomplete dominance. Red flower color is incompletely dominant over white flower color. Pink flower color is the phenotype shown when the two alleles are present.

3. A red-flowered plant is crossed with a white-flowered plant.


- a. What are the genotypes and phenotypes for the offspring?

\_\_\_\_\_

4. What kinds of offspring can be produced if a red-flowered plant is crossed with a pink-flowered plant? Give the phenotypic and genotypic ratios.


Genotypic: \_\_\_\_\_

Phenotypic: \_\_\_\_\_

5. What kinds of offspring can be produced if a pink-flowered plant is crossed with a white-flowered plant? Give the phenotypic and genotypic ratios.


Genotypic: \_\_\_\_\_

Phenotypic: \_\_\_\_\_