

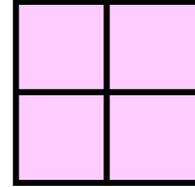
**Non-Mendelian Genetics Practice
(Incomplete/Codominance, Blood Types, Sex-Linked Traits)**

1. In Smileys, eye shape can be starred (EE), circular (ee), or a circle with a star (Ee). Write the genotypes for the pictured phenotypes

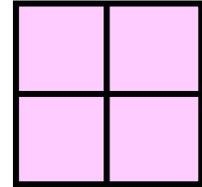


This is an example of _____

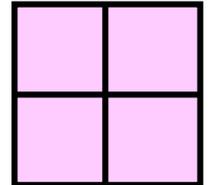
2. Show the cross between a star-eyed and a circle eyed smiley.
What are the phenotypes of the offspring? _____
What are the genotypes? _____



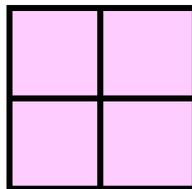
3. Show the cross between two circle-star eyed smileys.
How many of the offspring are circle-eyed? _____
How many of the offspring are circle-star eyed? _____
How many are star eyed? _____



4. Complete the punnett square showing all the possible blood types for the offspring produced by a type "O" mother and an a Type "AB" father. **What are percentages of each offspring?**

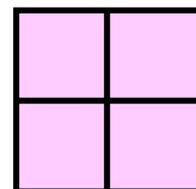


5. Father is type A, heterozygous; Mother is type B, heterozygous. So the possibilities for their offspring.



_____ % O
 _____ % A
 _____ % B
 _____ % AB

6. In northeast Kansas there is a creature known as a wildcat. It comes in three colors: blue, red, and purple. A homozygous dominant individual is blue, a homozygous recessive individual is red, and a heterozygous individual is purple. What would be the genotypes and phenotypes of the offspring if a blue wildcat were crossed with a red one?



7. SpongeBob loves growing flowers for his pal Sandy! Her favorite flowers, Poofkins, are found in yellow, blue, and green. Use the information provided and your knowledge of incomplete dominance to complete each section below.
- a. Write the correct genotype for each color if **R** represents a yellow allele and **r** represents a blue allele.

Yellow - _____ Blue - _____ Green - _____

- b. What would happen if SpongeBob crossed a Poofkin with yellow flowers with a Poofkin with green flowers? Complete the Punnett square to determine the chances of each flower color.

- i. Give the genotypes and phenotypes for the offspring.

- ii. How many of the plants would have green flowers? _____%

- iii. How many of the plants would have blue flowers? _____%

- iv. How many of the plants would have yellow flowers? _____%

8. Hemophilia is a recessive sex-linked disease carried on the X chromosome in humans.
- a. Write the genotype of a woman who does not have hemophilia. _____
- b. Write the genotype of a woman with hemophilia. _____
- c. Write the genotype of a woman who is a carrier (heterozygous) for hemophilia. _____
- d. Write the genotype of a man who has hemophilia. _____
- e. Write the genotype of a man who does not have hemophilia. _____

9. A woman who is heterozygous for hemophilia marries a normal male. What are the possible phenotypes of their children?

10. A woman who is a carrier for hemophilia marries a man with hemophilia. Could any of their children have hemophilia? If so, would the child be male or female?
