**Pedigrees Warm-up**

Use the animation at: <https://www.dnalc.org/view/15990-Making-a-pedigree.>html to fill out the chart below:

|  |  |
| --- | --- |
|  | Symbol on a Pedigree (draw or describe) |
| Male |  |
| Female |  |
| Mating Pair |  |
| Offspring from Mating pair |  |
| Carrier of a trait |  |
| Individual that has the trait  Individual who has died |  |

**Non-Mendelian Inheritance**

The following videos will be helpful to you as you complete these practice problems:  
Sex-linked traits: <https://www.youtube.com/watch?v=h2xufrHWG3E>  
Multiple Alleles: <https://www.youtube.com/watch?v=9O5JQqlngFY>  
Non-Mendelian Inheritance: <https://www.youtube.com/watch?v=YJHGfbW55l0>

**Show your work and BOX out your answers.**

1. Hemophilia is a disease that is a recessive X-linked disorder. If the father is healthy and the mother is heterozygous for the trait, what is the possibility that the children will be carriers?

Are the carriers male or female? Is this always the case?

1. Color blindness is a recessive X-linked disorder. What would be the phenotypic ratio of the F1 be from the cross of a regular sighted male and a heterozygous female?
2. Predict the blood types of the offspring from a man with type AB blood and a woman with type O.
3. A couple has a child with type AB blood. List ALL the possible genotype combinations of the parents. Use Punnett squares to demonstrate these combinations.

**Genetic Disorders** Fill in the chart below:

|  |  |  |
| --- | --- | --- |
| Disorder | Dominant, Recessive or Sex-Linked? | Effects on the body |
| Cystic Fibrosis |  |  |
| Sickle Cell |  |  |
| Huntington's Disease |  |  |
| Color-Blindness |  |  |
| Hemophilia |  |  |
| PKU |  |  |

**Environment and Phenotypes**

Hydrangeas have genes that control their color. In basic soil they produce blue flowers. In acidic soil they produce pink flowers.   
 a. What does this example tell you about genetic and environment interactions?

b. Using the hydrangea example, explain the environmental/genetic connection for the disorder PKU and skin cancer.

c. Research flamingo phenotypes. Explain how their phenotype is related to their environment/ diet.