**Directions:** Complete the Punnett square for each problem and then answer the questions.

1. Colorblindness is a sexed linked trait. Colorblindness is recessive to normal color vision. A female carrier for colorblindness (XCXc) marries a male who is normal (XCY). What is the percentage chance a male child will be color blind? What is the chance a female child being color blind?
   1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. What is the percentage chance a male child will be color blind?
  3. What is the chance a female child being color blind?

1. A male with colorblindness (XcY) marries a colorblind woman (XcXc). If they have a baby, is there any chance their child will not be color blind? Why or why not?
   1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. Is there any chance their child will not be color blind? Why or why not?

1. A normal male marries a colorblind woman and they decide to have a baby. Is there any chance their child will not be color blind? Why or why not?
   1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. Is there any chance their child will not be color blind? Why or why not?

1. Hemophilia is a disease that causes blood not to clot. People can bleed to death from even a minor cut. Hemophilia is a sex linked recessive trait. A female carrier (XHXh) marries a normal male (XHY). What are the chances their child will have hemophilia?
   1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. Is there any chance their child will have hemophilia? Why or why not?

1. If a male has hemophilia (XhY) and marries a homozygous dominant, normal female (XHXH) what percentage of the total offspring will have hemophilia?
   1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. What percentage of the total offspring will have hemophilia?

1. A normal male decides to have a baby with a carrier female. What percentage of their male offspring will have hemophilia?
   1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. What percentage of their male offspring will have hemophilia

1. Calico cats are a type of cat with yellow, white and black spotted fur. **The trait is both co-dominant and sex linked.**

Cats with XYXY are yellow, Cats with XBXB, cats that are XBXY are calico.

Because cats need both the yellow and black allele to be calico, *only female cats can be calico*, since only they get two X chromosomes. Male cats can only be black or yellow, since they only inherit one X chromosome.

A calico cat (XBXY) has kittens with a back male (XBY). What percentage of their offspring will be calico?

* 1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. *Answer the questions:*

What percentage of their offspring will be calico?

1. A female cat is black and has babies with a a yellow male cat. What percentage of their babies will be calico?
   1. *Write the genotypes for the parents:*

Female:

Male:

* 1. *Draw a Punnett square*
  2. *Answer the questions:*

What percentage of their offspring will be calico?

1. If a person has a male cat with yellow fur, and wants to breed calico cats, what should the genotype of the female cat be? Use a punnett square to support your answer.