Chapter 14

1. List three examples of sex-linked traits found in humans.

2. List one example of a sex influenced trait in humans.

3. Is color blindness related to the X or Y chromosome?

4. Explain why color blindness is more common in males than in females?

5. Can a man be a carrier of the color blind trait? Explain why or why not.

6. What would you predict about the genotype of the mother of a color blind boy?

7. Write the genotypes for the following phenotypes of red-green color blindness.
   a. Normal vision male
   b. Normal vision female carrying no color blind allele
   c. Color blind male
   d. Normal vision female carrying the color blind allele
   e. Color blind female

8. A woman who is homozygous for normal color vision and a colorblind man have children. Draw a Punnett square to show the genotypes, phenotypes and gender of their children.
   a. How many male children are color blind?
   b. How many female children are color blind?
   c. How many female children are carriers for color blindness?
   d. How many male children have normal vision?

9. In this case, the female carries the allele for color blindness and the man is color blind. Draw a Punnett square to show the genotypes, phenotypes and gender of their children.
   a. How many male children are color blind?
   b. How many female children are color blind?
   c. How many female children are carriers for color blindness?
   d. How many male children have normal vision?

10. If a couple consisted of two people with normal vision, use a Punnett’s square to predict the genotypes, phenotypes and gender of the children if the woman carries the gene for color blindness.
11. If a father and a son are both color blind and the mother is normal, is it likely that the son inherited color blindness from his father? Why or why not?

12. In humans, an X-linked disorder called coloboma iridis (a fissure in the iris) is a recessive trait. A normal couple has an afflicted daughter. The husband sues the wife for divorce on the grounds of infidelity. Would you find in his favor? Why?

13. Hemophilia, a rare inherited disorder that causes affected people to have trouble forming blood clots, is an X-linked recessive gene. A normal woman whose father had hemophilia marries a normal man. What are the chances of hemophilia in their children?

14. Color blindness is an X-linked recessive gene. Two normal-visioned parents produce a color-blind child.
   a. Is this child male or female?
   b. What are the genotypes of the parents?
   c. What are the chances that their next child will be a color-blind daughter?