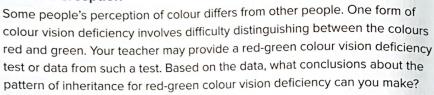
CONCEPT 5

Some inherited traits are due to alleles on the sex chromosomes.

Activity

Colour Perception



sex-linked trait a trait controlled by genes on sex chromosomes

Figure 1.20 As an X-linked trait, colour vision deficiency occurs more often in males than in females. A person who is not colour vision deficient can see all colours. People with red-green colour vision deficiency view red and green as shades of grey. The Punnett square shows how the sex-linked trait is inherited.

raits controlled by genes located on the sex chromosomes are called sex-linked traits. Traits controlled by genes on the X chromosome are called X-linked traits. Because genetic males have only one X chromosome, they are affected by recessive X-linked traits more often than are genetic females. Females are less likely to express a recessive X-linked trait, because the other X chromosome may mask the effect of the trait.

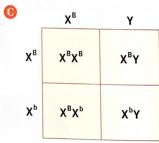
Red-Green Colour Vision Deficiency

The trait for red-green colour vision deficiency is a recessive X-linked trait. Figures 1.20A and 1.20B show how a person with red-green colour vision deficiency might view colours compared to a person who does not.

Use the Punnett square in **Figure 1.20C** to study colour vision deficiency further. The mother is a *carrier* for the trait, because she has the recessive allele on one of her X chromosomes. The father is not colour vision deficient, because he does not have the recessive allele. Notice that the only offspring that can have red-green colour vision deficiency is a male child. As a result of it being an X-linked trait, red-green colour vision deficiency is very rare in females.







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	X^B	=	Normal
	$\mathbf{X}^{\mathbf{b}}$	=	Red-green colour
			vision deficiency
	Υ	=	Y chromosome

Before you leave this page . . .

1. What are sex-linked traits?

 Use vocabulary terms to describe the genotype of a male who is red-green colour vision deficient.