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Student worksheet

1.8 Alleles on the sex chromosomes produce sex-linked traits

Pages 18–21

Sex-linked traits

1 What are autosomes?

2 What are sex chromosomes?

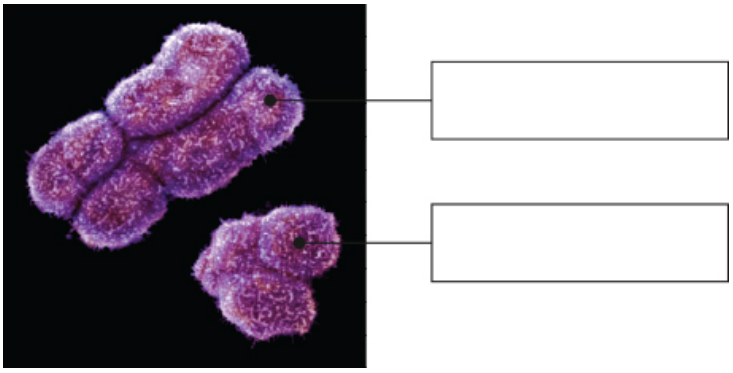
3 What sex chromosomes does a human male have?

4 Does a human male's Y chromosomes come from his mother or his father? Why?

5 Fill in the blanks.

In humans, the genotype of a female is _____ and the genotype of a male is _____.

6 Identify which is the X chromosome and which is the Y chromosome in the image below:



7 Name the term used to describe traits and genes that are carried on the sex chromosomes.

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8 Give ONE example of a non-sexual trait that is carried on the human X chromosome.

9 Explain why there is a greater percentage of males than females that have red–green colour blindness.

10 Match the patterns of inheritance with the correct example.

Pattern of inheritance	Example
Autosomal recessive	Daughters are always carriers if their father has red–green colour blindness.
Autosomal dominant	A father who has a rare genetic form of rickets will pass on the condition to all his daughters but none of his sons.
Sex-linked recessive	All children with achondroplasia (a common form of dwarfism) have at least one parent that also has achondroplasia, regardless of their gender.
Sex-linked dominant	Albinism is caused by a lack of pigment in the skin, hair and eyes. A mother and father who don't have albinism have four children. One son and one daughter have albinism while the other son and daughter are unaffected.

11 Suggest how a man and woman, both with normal sight, could have children that have red–green colour blindness. Include a Punnett square in your answer.

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Extend your understanding

12 Suggest why sex-linked traits are more frequently found on the X chromosome than on the Y chromosome, and explain how this affects the inheritance of these traits differently in males and females.

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