



Name: _____

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Student worksheet

1.9 Inheritance of traits can be shown on pedigrees

Pages 22–25

Pedigrees

1 What does a pedigree show?

2 Match the following pedigree symbols with the correct meaning.

Pedigree symbol

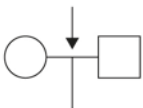
Meaning



non-identical twins



affected male



married



decent line



unaffected female

3 What is the symbol in a pedigree for an affected female?

4 What are used to represent different generations in a pedigree?

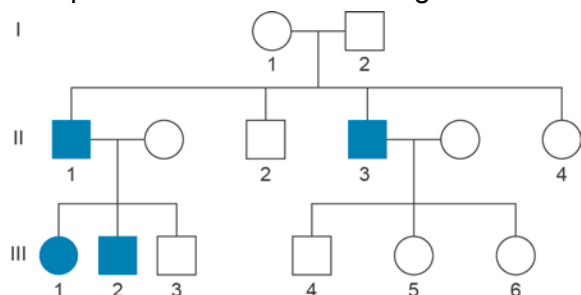
5 If affected children always have affected parents, what is the pattern of inheritance of the characteristic?



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- 6 The pedigree below shows the inheritance of haemophilia, a sex-linked recessive disease that prevents blood from clotting.



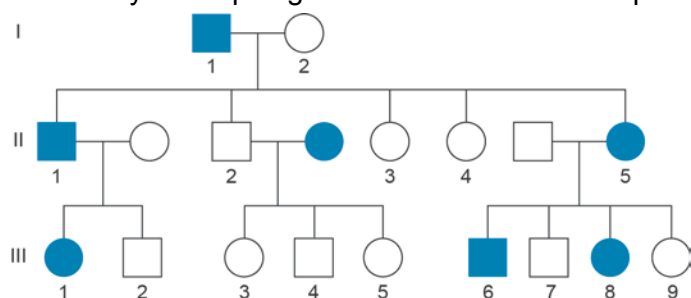
- a Use appropriate symbols to write the genotype of individuals I1 and I2 from the pedigree.

Individual I1: _____

Individual I2: _____

- b Explain how you determined their genotypes.

- 7 Analyse the pedigree below to answer the questions that follow.



- a List the numbers of all the affected males.

b How many children were born in the second generation?



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- c Determine the pattern of inheritance by analysing the pedigree. Justify your choice.

Extend your understanding

Cystic fibrosis is an inherited disease of the secretory glands, primarily affecting the lungs. It is an autosomal, recessive disease. A couple, both unaffected by cystic fibrosis have three children. The third child has cystic fibrosis.

- 8 Using appropriate symbols, complete a Punnett square and basic pedigree in the space below to show how two unaffected parents could have one of their three children with cystic fibrosis. Add as much detail as possible to your pedigree.

- 9 What is the chance of the two unaffected children being carriers?

- 10 The couple would like to have another child. What are the chances this child will also have cystic fibrosis?



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- 11 The couple would probably benefit from genetic counselling before making the decision to have another child. Using the internet, find out what genetic counselling provides to families with inherited disorders.
