

Genes

4. Inheritance

CONCEPT 2

TEST YOURSELF

MODELLING INHERITANCE

KNOW

Q1 Copy and complete the sentences below:

Different forms of the same gene are known as _____. _____ alleles will always be expressed if they are present. _____ alleles will only be expressed if two copies are present. A _____ square can be used to predict the outcomes of a genetic cross.

Q2 If human body cells contain 46 chromosomes, how many chromosomes does a human gamete (sex cell) contain?

APPLY

Q3 In mice, black fur is dominant and white fur is recessive. State the fur colour a mouse would have with the following allele combinations

(a) BB

(b) bb

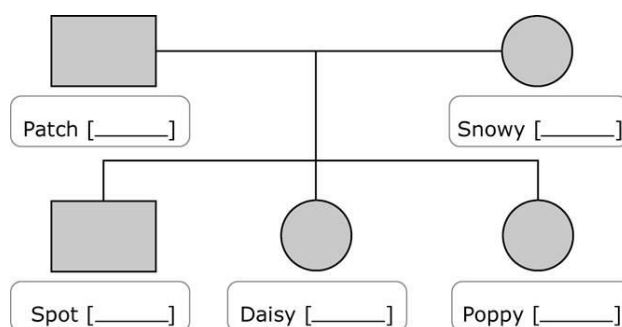
(c) Bb

Q4 In mice, black fur is dominant and white fur is recessive. A female mouse carries alleles Bb and a male mouse carries alleles Bb. Use a punnet square to show the likelihood of a baby mouse from these parents having black fur.

EXTEND

Q5 A family had a male dog called Patch. He had an eye patch and inherited the dominant allele for an eye patch from each of his parents. Patch was crossed with a female called Snowy, who did not have an eye patch.

Here is a family tree for the cross of Patch and Snowy. Male dogs are shown with a square, and female dogs are shown with a circle.



Copy and complete the diagram and write each dog's genotype and phenotype.

Q6 Explain why offspring from the same parents look similar but are not usually identical.