YEAR 10 SCIENCE

Genetics & Inheritance

Use DNA, alleles and Punnett squares to predict inheritance

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Name: _____ **Date:** _____ **Score:** _____ / 15

Match each term to its meaning.

1.	Gene	a)	two different alleles (e.g. Bb)
2.	Allele	b)	the observable trait
3.	Genotype	c)	a section of DNA coding for a protein
4.	Phenotype	d)	two identical alleles (e.g. BB)
5.	Homozygous	e)	a different version of a gene
6.	Heterozygous	f)	the alleles an organism has

Brown eyes (B) are dominant to blue (b). Use Punnett squares.

7. Bb × Bb: list the offspring genotypes and their ratio.

8. Bb × Bb: what percentage will have blue eyes?

9. Bb × bb: what percentage will have blue eyes?

10. BB × bb: what percentage will have brown eyes?

Choose the best answer.

11. DNA bases pair as...
    ⓐ A–C and T–G ⓑ A–G and C–T ⓒ A–T and C–G

12. Humans have how many chromosomes in each body cell?
    ⓐ 46 ⓑ 23 ⓒ 92

13. Gametes (sex cells) are made by...
    ⓐ osmosis ⓑ meiosis ⓒ mitosis

14. A mutation is...
    ⓐ a dominant allele ⓑ a change in the DNA sequence ⓒ a type of cell

Write your answer.

15. Write the complementary DNA strand for: A T G C C A

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Match each term to its meaning.

1. c) a section of DNA coding for a protein
2. e) a different version of a gene
3. f) the alleles an organism has
4. b) the observable trait
5. d) two identical alleles (e.g. BB)
6. a) two different alleles (e.g. Bb)

Brown eyes (B) are dominant to blue (b). Use Punnett squares.

7. BB : Bb : bb = 1 : 2 : 1
8. 25%
9. 50%
10. 100%

Choose the best answer.

11. c) A–T and C–G
12. a) 46
13. b) meiosis
14. b) a change in the DNA sequence

Write your answer.

15. T A C G G T

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