

What are Dominant and Recessive Traits?

Worksheet

A dominant trait is expressed whenever at least one dominant allele is present (e.g., Aa or AA), while a recessive trait only appears when both alleles are recessive (aa).

Questions

1. Which genotype(s) express a dominant trait?
A) Only aa
B) AA and Aa
C) Only Aa
D) Only AA
2. A recessive trait is expressed when the genotype is
A) AA
B) Aa
C) aa
D) Any genotype
3. In pea plants, purple (A) is dominant over white (a). What color is an Aa plant?
A) White
B) Purple
C) Striped
D) Cannot be determined
4. Two heterozygous (Bb) parents have children. What fraction is expected to show the recessive trait?
A) 1/4
B) 1/2
C) 3/4
D) 0
5. A pea plant has the genotype Aa, where A (purple) is dominant over a (white). What color are its flowers?
6. Two brown-eyed parents (Bb Bb) have a child. What is the probability the child has blue eyes (bb)?
7. A rabbit has genotype aa for coat color, where A (black) is dominant over a (white). What is its phenotype?
8. Define: What is a dominant trait?
9. Define: What is a recessive trait?
10. Define: How are dominant alleles written?

Answer Key

1. B) AA and Aa - A dominant trait shows up with either one or two dominant alleles: AA or Aa.
2. C) aa - Recessive traits only appear when both alleles are recessive (aa).
3. B) Purple - One dominant allele (A) is enough to express the dominant trait, purple.
4. A) 1/4 - Bb Bb gives genotype ratio 1:2:1, so 1/4 are bb (recessive).
5. Genotype Aa contains one dominant allele (A). A dominant allele is expressed whenever present. Therefore the flowers are purple.
6. Bb Bb cross genotype ratio 1 BB : 2 Bb : 1 bb. Blue eyes require the recessive genotype bb. Probability of bb = $1/4 = 25\%$.
7. Genotype aa contains no dominant allele. Only recessive alleles are present. The recessive trait is expressed: white coat.
8. A trait expressed whenever at least one dominant allele is present in the genotype.
9. A trait that only appears when both alleles are recessive (homozygous recessive).
10. With an uppercase letter, e.g., A.

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