Writing Excellence answers to **Genotype and Phenotype** questions

DNA and Genes QUESTION
Question: In rock pocket mice, dark fur colour (D) is dominant to light fur colour (d). Each mouse has two alleles for fur colour. Explain how they inherit these two alleles, and explain how the two alleles interact to produce different phenotypes. In your answer you should: •define phenotype and genotype •explain how the alleles are inherited from the parents •state the three possible fur colour genotypes for rock pocket mice.

ANSWER	
1. define **genotype**	Genotype is the code for the alleles present for the gene.
2. define **phenotype**	Phenotype is the appearance of a trait, e.g. dark or light fur.
3. Explain where an individual gets a copy of each **gene**	Each mouse receives one copy of each gene from each of its parents during fertilisation
4. link **fertilisation** to the **gametes** involved and parents.	one gene comes from the father in the sperm and one gene comes from the mother from the egg, and so each offspring has two copies of each.
5. give the definition of **dominant** alleles	If either of these are the dominant allele the mouse will be dark, as the dark allele is dominant (and so masks the light allele).
6. give the definition of **recessive** alleles	If both of these are the recessive allele the mouse will be light
7. define **homozygous dominant genotype** (use example above)	A dark mouse can have the homozygous dominant genotype (DD)
8. define **heterozygous genotype** (use example above)	A dark mouse can also have the heterozygous genotype (Dd)
9. define **homozygous recessive genotype** (use example above)	the homozygous recessive genotype is (dd)
10. link homozygous recessive **genotype to phenotype**	A light mouse can only have the homozygous recessive genotype
11. draw a **Punnett square** showing how 2 dark coloured mice could produce both light(dd) and dark mice(DD or Dd)	

NOTE: The white column is how your answer would appear on your test paper so make sure you **write out complete sentences**. The grey area is just to help you structure your answer and would not appear in the question.