

 <b>Linking DNA, Alleles and Chromosomes</b>	<b>Advantages and disadvantages of Sexual reproduction</b>
1. Describe DNA and Base pairing rule.	1. Link advantage of sexual reproduction to variation AND give an example using information provided in the question
2. Link base sequence to different alleles and their traits	2. Link disadvantage of sexual reproduction to extra energy/structures required for attracting a mate and/or mating AND link to example given as the advantage
3. Link the pair of alleles to genotype and then to phenotype	3. The question may also ask about advantages/disadvantages of <b>asexual reproduction</b> so make sure to give a point for each.
4. Link phenotype to dominant and recessive	<b>Pedigree charts and genotypes</b>
<b>Inheritance of alleles</b>	1. State the phenotype of the individual which you are explaining the genotype of.
1. Link variation of offspring to different alleles inherited from both parents	2. Link having a recessive parent to receiving at 1 recessive allele (both not a recessive allele from both otherwise would be recessive itself)
2 Link recessive phenotype to a recessive allele inherited from both parents.	3. Link having a recessive offspring as evidence that the individual <b>MUST</b> have a recessive allele. Recessive phenotypes only occur if both parents pass down a recessive allele
3. Link dominant phenotype to only one dominant allele required either parent.	<b>Test crosses</b>
4. Can also use Punnett squares to explain	1. Explain a pure breeding population needs to be homozygous (only one type of allele present)
<b>Mutation – inherited and non-inherited</b>	2. Link test cross (breed with recessive) outcome to genotype of individual tested
1. Define mutation and link to new allele	3. State requirements for repeating test crosses and removing heterozygous individuals
2. Link where mutation occurs (gametes / body) to whether it is passed on to offspring or not	<b>Punnett square probabilities</b>
3. Indicate <b>most mutations are harmful</b> but a beneficial mutation may increase survival and therefore more offspring	1. Link Punnett square to being a prediction only
<b>Sources of variation</b>	2. Explain fertilisation as random/new event
1. Define meiosis and fertilisation linking to chromosome numbers	3. Give possible phenotypes of offspring
2. State the processes that create variation (the processes may require more explanation)	4. Compare predicted to actual phenotype ratio
3. Link variation to increased chance of survival of a species if there is environmental change	<b>Variation and species survival</b>
<b>Inheritable and non-inheritable variation</b>	1. Define variation and link to sexual reproduction in a species
1. Define inheritable variation and the cause	2. Link survival of some individuals if environment changes
2. Define non-inheritable variation and that it does not affect offspring	3. Link surviving individuals passing on genetic material to next generation and species survival
3. Identify non-inherited variation and link to definition	<div> <b>Key Question types</b>  Genetic Variation AS 90948 </div>
4. Identify inherited variation and link to definition	