B3.3 Genetics **ANSWERS**

Worksheet Two **Molecular Genetics 1**

1. Nucleotide drawn and labelled showing deoxyribose sugar, nitrogenous base and phosphate group.

   A section of DNA drawn showing the nucleotides running anti-parallel.

2. Nucleotides are asymmetrical. This is based on the numbering of the carbon atoms. The 5'carbon joins to the phosphate group while the 3' carbon joins to the next nucleotide. When they are joined together to form DNA, the DNA has a direction. For base pairing to occur on the opposite side of the DNA, the direction runs in the opposite direction giving an antiparallel structure, i.e.

   3' → 5'
   5' ← 3'

3. Enzymes e.g. helicase etc
   Structural e.g. hair
   Hormones e.g. insulin
   Immune system e.g. antibodies

4. This refers to the flow of information from DNA to mRNA to protein.