

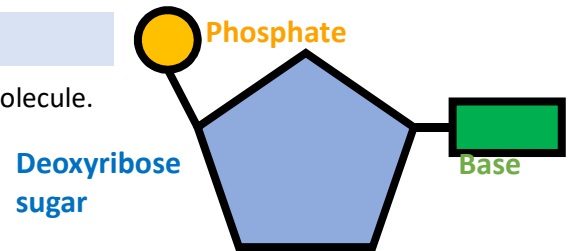
TA8 – DNA Summary Sheet

NUCLEOTIDES

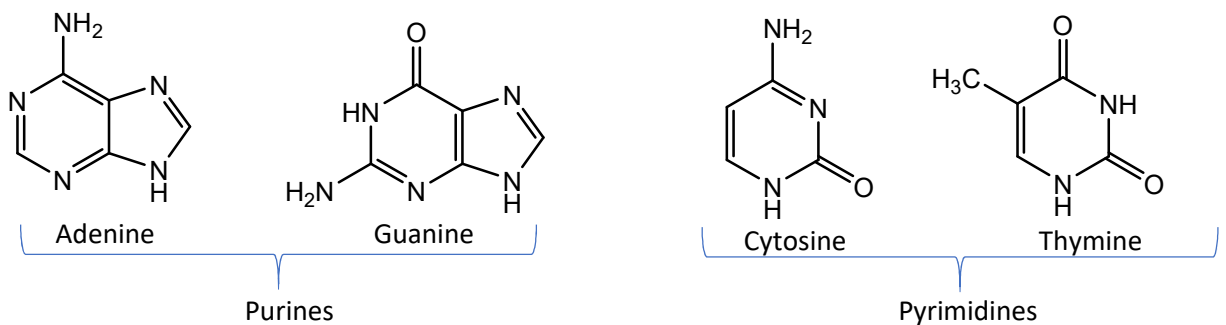
Nucleotides are the monomers which combine to form a DNA molecule.

They are made from three components:

- Phosphate group
- Deoxyribose sugar
- Nitrogenous base



There are four different nucleotides, determined by the nature of the organic base. The four different bases are:

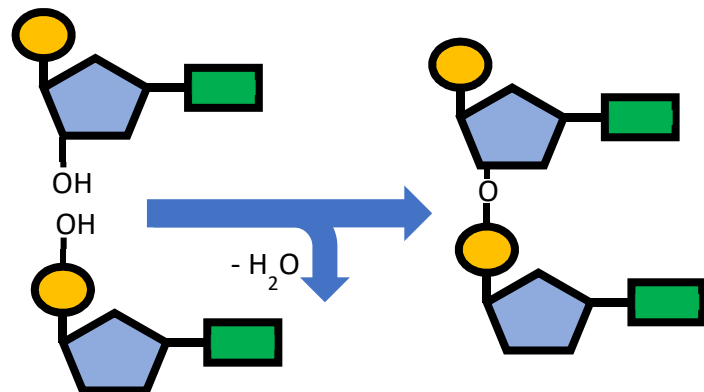


These four bases are often shortened to their initials: A, G, C, and T.

POLYNUCLEOTIDES

DNA molecules are polymers, made from nucleotide monomers. These are known as polynucleotides. When the nucleotides combine, they form a phosphodiester bond. This bond forms when the -OH groups on one phosphate reacts with the -OH of another sugar group.

This is a condensation reaction, which eliminates a molecule of water. This reaction is repeated many times, forming a polynucleotide which has a sugar-phosphate backbone. The sugar-phosphate backbone is consistent throughout DNA, but it is the DNA bases which vary, and determine your genetic nature.



DOUBLE HELIX

DNA is well-known for having a double-helix structure, formed from two DNA polynucleotides strands. The two strands are held together by hydrogen bonds which form between the bases on each DNA strand. Each base can only bond to another specific base, in a process of complementary base pairing.

Adenine and Thymine – 2 hydrogen bonds

Cytosine with Guanine – 3 hydrogen bonds

As the bases pair up, the DNA strands wind around each other, forming a double helix.

