

A1.2 - Nucleic Acids

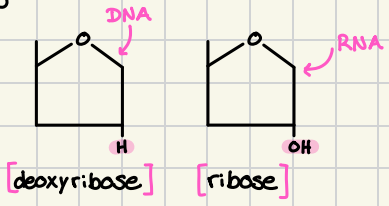
- ↳ Polymer => nucleic acid
- ↳ Monomer => nucleotide
- ↳ Elements => CHONP
- ↳ Bond => phospho diester

Nucleotide

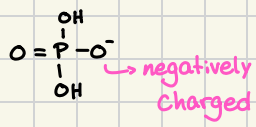
- 1. Sugar
 - i) deoxyribose
 - ii) ribose
- 2. Phosphate
- 3. Base
 - i) adenine
 - ii) guanine
 - iii) cytosine
 - iv) thymine

combined through
condensation
reactions

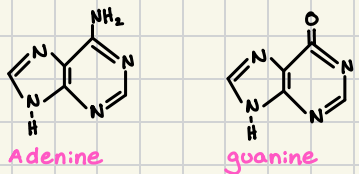
Sugars:



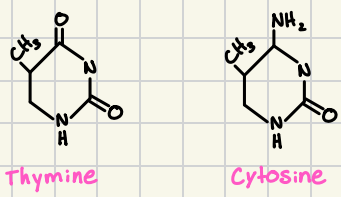
Phosphate group:



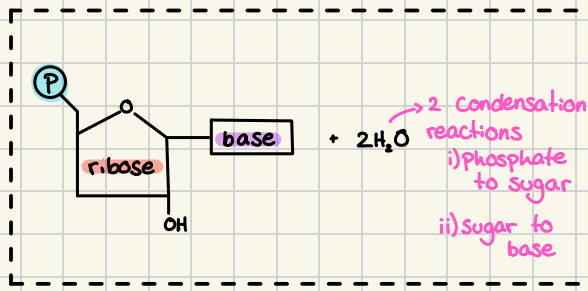
Bases: - DNA, RNA has uracil instead of adenine



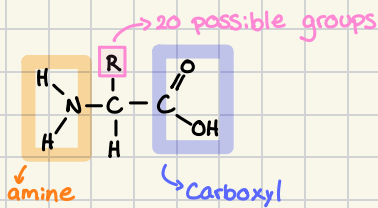
purines
↳ shorter word
= 2 rings



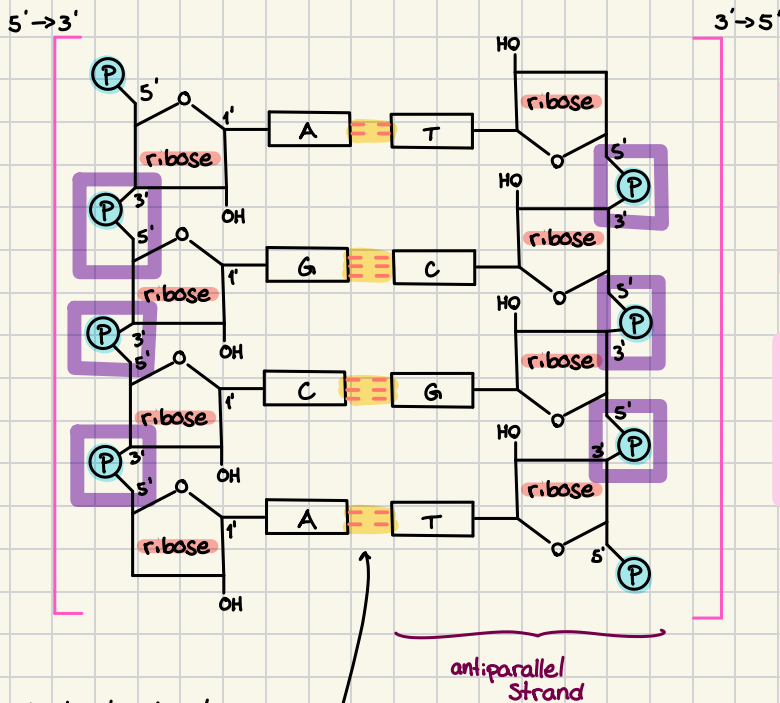
pyrimidines
↳ longer word
= 1 ring



Amino acids — proteins



- DNA codes for proteins
- 3 DNA nucleotides (called a codon) code for 1 of 20 possible amino acids
- proteins = multiple amino acids bonded together through peptide bonds



- DNA is always read in the same direction (3' → 5')
- It is built in the (5' → 3'), therefore

- "backbone" ⇒ deoxyribose + phosphate
- bases are joined to Carbon 1

- Phosphodiester bond
- Hydrogen bond

Notice: adenine bonds with thymine with 2 hydrogen bonds
guanine bonds with cytosine with 3 hydrogen bonds

vocab:

- Nucleosomes => Long strands of DNA wrapped around 8 Histone proteins
- Allele => The alternate form of a gene
- Genome => whole genetic information of an organism
- Gene => specific portion of DNA that codes for a protein
- "coding sequence" => areas in DNA that code for proteins
- "non-coding sequence" => areas in DNA that don't code for proteins