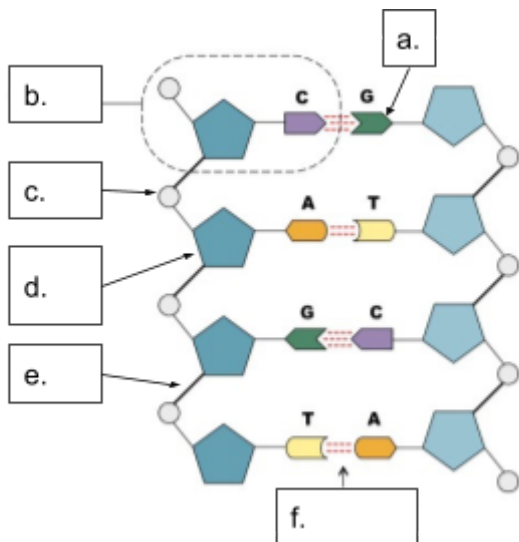


1. DNA Structure & Discovery



- a. nitrogenous base
- b. nucleotide
- c. phosphorous
- d. sugar
- e. covalent bond (phosphodiester)
- f. hydrogenous (double & triple)

→ → → **DNA** → **DeoxyriboNucleic Acid** [nucleic acid polymer] → the “Blueprint of Life”

→ contains cell’s genetic material (instructions for cell functions & making of proteins)

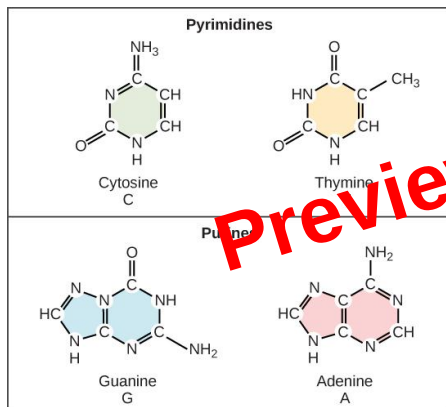
→ DNA → composed of 2 nucleotide chains

→ → → **nucleotides** → single subunits of DNA

→ composed of deoxyribose sugar; phosphate; nitrogenous base

→ nitrogenous base → A[Adenine]; T[Thymine]; C[Cytosine]; G[Guanine]

→ → → **complementary base pairs**



→ **Purines** → double ring structures → Adenine & Guanine [A & G]

→ **Pyrimidines** → single ring structures → Cytosine & Thymine [C & T]

→ **double hydrogenous bonds** → Adenine & Thymine [A & T]

→ **triple hydrogenous bonds** → Cytosine & Guanine [C & G]

→ **phosphodiester bonds** (covalent bond) → b/n the deoxyribose sugar of one nucleotide & the phosphate molecule of the next nucleotide

→ **hydrogenous bonds** → b/w the nitrogenous bases of 2 opposite nucleotides

→ 2 strands of DNA → *antiparallel* → *double helix structure* “twisted ladder”

→ 5’ end has the phosphate (5’*phosphate*), the 3’ end has a hydroxyl group OH (3’*hydrohyl*)

→ **chromosome** (in the nucleotide; keeps DNA compact & organised) → thread-like structure made up of tightly coiled DNA & proteins

→ → → **Griffith’s experiment** (mouse) → 1) DNA can withstand heat; 2) DNA lives on for a while after the living cells are dead; 3) bacteria can transfer DNA; 4) DNA carries the instructions for cell-making

→ → → **Chargaff’s experiment** (complementary base pairs) → amount of A[Adenine] = amount of T[Thymine] & amount of C[Cytosine] = amount of G[Guanine] → nitrogenous bases form complementary pairs → A & T; C & G

→ → → **Rosalind Franklin’s experiment** (Photo 51) → discovered the shape of DNA → double helix

2. DNA Replication

→ → → **DNA replication** → the process of copying a DNA molecule in order to produce 2 identical DNA molecules

→ the DNA is replicated before the cell divides, so both daughter cells would have a copy of the DNA