

DNA: THE HEREDITARY MATERIAL AND DNA STRUCTURE

- genetics and biotechnology is the largest area of research around the world

The Discovery of DNA

- in 1869 Friedrich Miescher investigated pus cells and noted that the nuclei contained substances that were not like protein.
- he called it **nuclein**
- **DNA**(Deoxyribonucleic Acid) functions as the molecule of heredity

The Chemical Composition of DNA

- DNA is composed of a 5-C sugar (deoxyribose), a phosphate group (negatively charged) and a nitrogenous base
- DNA's variation exist in the bases: adenine (A), guanine (G), thymine(T) and cytosine(C)
- T and C are pyrimidines (single carbon ring structure) and A and G are purines (double carbon ring structure)
- see Fig. 2 on pg. 210
- DNA is a polymer since the nucleotides are held together by **phosphodiester bonds**
- bases are attached to carbon #1 on the sugar molecule by a **glycosyl bond** and the phosphate is attached to carbon #5 by an ester bond
- see Fig. 9 on pg. 214
- $\#A = \#T$ and $\#G = \#C$

Seatwork

Pg. 209 # 1 - 4

Pg. 216 # 1 - 7, 9, 10