Macromolecules and DNA/RNA

- Components that make up molecules of life: Macromolecules
- Polymers: created by repeating subunits of monomers
 - ex. Carbohydrates, nucleic acids, proteins are all polymers
 - fats and lipids are different
 - o polymers are synthesized and broken down for use in cells

SYNTHESIS AND BREAKDOWN OF MACROMOLECULES

- water plays a big role \rightarrow involvement in chemical reactions important for cellular metabolism
- <u>Dehydration</u> reactions: polymer synthesis reaction where water is a product formed
- Hydrolysis reactions: water is used as a reactant
 - Enzymes help them carry out reactions
- Enzymes speed up chemical reactions but are not consumed/destroyed in the reaction
- Almost always proteins in cells and have their own specific function for reactions DNA (deoxyribonucleic acid), RNA (ribonucleic S a C O UK
 DNA structure reported by Watson and the o Right handed double net)
 Nucleatide in the cell

NUCLEIC ACIDS: DNA AND RNA

- 1 of 2 Nucleotides: month ers of DNA/RI



- sugar (5 carbon sugar)
- phosphate group (negatively charged, one phosphorus atom bonded to four oxygen atoms)
- o connections made between two nucleotides are phosphodiester bonds

Nitrogen Bases

- pyrimidines
 - o cytosine (C)
 - \circ thymine (DNA) (T)
 - \circ uracil (RNA) (U)
- purines
 - \circ adenine (A)
 - o guanine (G)

Chargaff's Rule: Edwin Chargaff discovered that the amount of each base in DNA is not equal

- %A=%T
- %C=%G