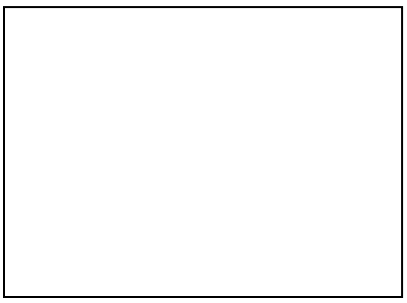
Chapter 2.3-2.5 Notes
Macromolecules and Enzymes

Carbon-Based Molecules: 2.3

- Why is carbon called the building block of life?
  - Carbon atoms are the basis of most _____ found in living things
  - Carbon's unique _____ properties allow it to form _____ bonds with at least 4 other atoms
  - There are 3 fundamental Structures: _____, _____, _____
  - Monomers are small _____that make up larger molecules called_____ .
  - Monomers are individual _____
    - Example:
  - Polymers (_____) are made of many _____
    - Example:



FOUR MAIN TYPES OF MACROMOLECULES

1. Carbohydrates

- Building Blocks
  - Made of _____, _____, and _____
- Includes: _____, _____ & _____
- _____ are simple _____ Example:
- _____ are _____ of monosaccharides
  - Examples:
- Used as a source of _____ for _____ Ex: _____
- Provide _____ for _____ Ex; _____
- Foods containing carbohydrates:

2. Lipids

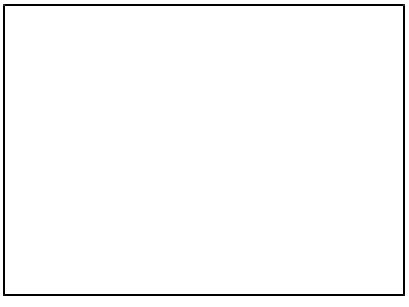
- Building Blocks
  - Made up of _____, _____, and _____
- Includes: _____, _____, _____
- Consist of _____ _____ chains bonded to _____ called _____
- Uses of lipids by organism:
  - Used as a source of _____
    - _____ fats: animal stored chemical energy in fats
    - _____fats: Plants store chemical energy in oils
  - Make up cell _____ (phospholipids)
    - Polar phosphate "_____"
    - Nonpolar fatty acid "_____"
  - Used to make _____
    - Cholesterol- also part of the _____

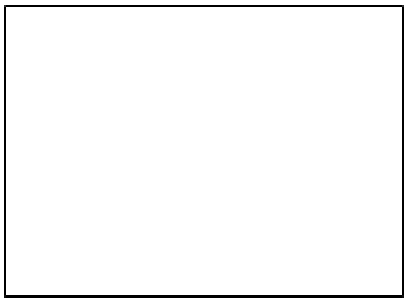
3. Proteins

- Building Blocks
  - Made of _____ & sometimes __
- Includes:
  - _____, _____, _____ & _____
- Made of monomers called _____
- There are _____ different amino acids
  - Your body can make _____ of these
  - ___ come from _____, beans, & _____
- All Amino acids have: a _____, amino group (_____), and a _____ (COOH).
- Amino acids differ in _____ groups (_____)
- Amino acids are linked together by _____ bonds called _____
- Amino acids are linked into _____ called _____.
- Functions of Proteins:
  - Control rates of _____
  - Regulate _____ processes
  - Used to form _____ & _____
  - Transport substances _____of cells
  - Fight _____
- Amino acids interact to give a protein its _____
- Incorrect amino acids change a _____ and _____

4. Nucleic Acids

- Building Blocks:
  - Made of _____, _____, _____, _____, _____
- Made from monomers called _____
- Nucleotides are composed of a _____, a _____ group, and nitrogenous _____
- Functions of Nucleic Acids:
  - Instructions for making proteins
  - Contain genetic information passed on to offspring
- _____ are formed from nucleotides.





Chemical Reactions: 2.4

- _____: process that _____ one set of chemicals into _____ of chemicals by _____ chemical bonds
- _____: chemicals that start a reaction
- _____: chemicals that are made in a reaction
- Example: Photosynthesis
  _____ + _____ + _____ → _____ + _____

- In order for a chemical reaction to take place, a certain _____ is needed to _____
- _____: amount of energy needed to start a reaction

Enzymes

- _____: any substance that _____ a chemical reaction
- Catalysts speed up reactions by _____ of activation energy needed to _____
- _____: biological catalysts that speed up reactions in living things
  - _____
    _____
  - _____
- Most enzymes are _____
  - Ex:
- An enzyme's_____ is dependent upon its _____
- An _____ allows only certain reactants to_____ with it
- _____: reactant that binds with an enzyme
- An enzyme & a _____fit together like a _____
- _____: specific place where substrate and enzyme bind

- Enzymes will keep making _____ until something _____
- Causes for Enzymes to stop functioning:
  - Disruptions in _____
  - Very high or very low _____
  - Wrong _____
  - No more _____
- Changes in these conditions may affect the _____, or activity of an _____
  - Ex. When people run a temperature above normal, the hydrogen bonds in enzymes may be broken and it may lose its ability to function

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Fill in the graphic organizer for Macromolecues