

CHAPTER 2 REVIEW

- ❖ Element- pure substance that cannot be broken down into anything simpler
- ❖ Atom- simplest particle of an element
- ❖ Molecule- made of 2 or more atoms (may be the same element or different)

- ❖ **Compound- 2 or more different elements chemically bonded in definite proportion**
 - ❖ Example: glucose $C_6H_{12}O_6$



- ❖ Covalent compound- atoms share electrons; creates a very stable compound
 - ❖ Example: carbon

- ❖ Chemical reactions- atoms' bonds broken, rearranged & formed into something different
 - ❖ Reactants- what goes INTO reaction
 - ❖ Products- what comes OUT OF reaction

 - ❖ Reactants → Products

 - ❖ Example: $\text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{H}_2\text{CO}_3$

3-2 TYPES OF COMPOUNDS

Inorganic

Does NOT contain
carbon (C)

Examples

NaCl, H₂O, FeSO₄

Organic

Contains carbon (C)
**present in all living
things*

4 types (macromolecules)

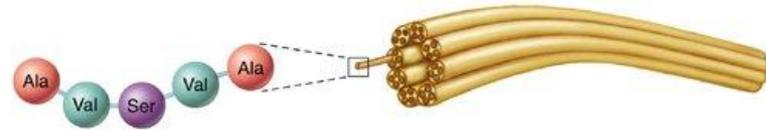
1. Carbohydrates
2. Proteins
3. Lipids
4. Nucleic acids

MONOMER → POLYMER → MACROMOLECULE

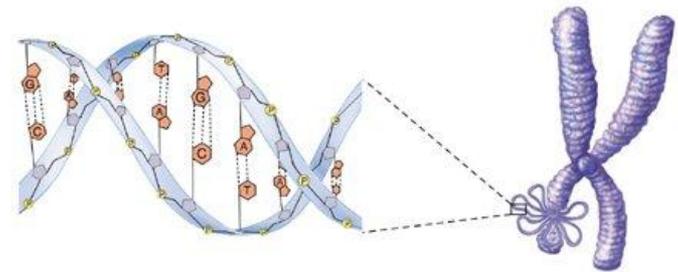
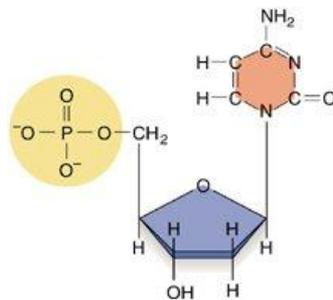
Basic unit that repeats → "many monomers" → large polymer inside cell

TABLE 4.1 MACROMOLECULES

Monomer	Polymer	Cellular structure
Amino Acid	Polypeptide	Intermediate filament



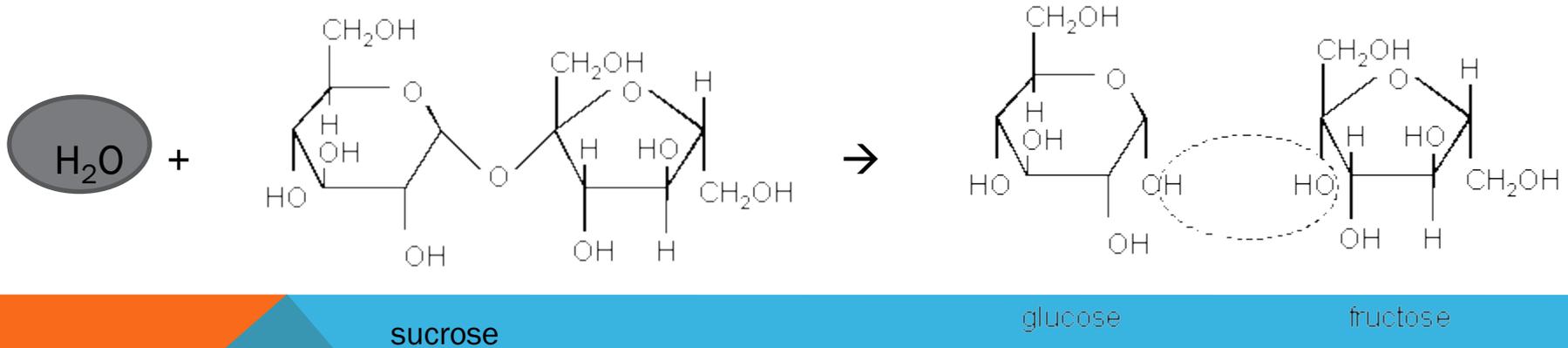
Nucleotide	DNA strand	Chromosome
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HYDROLYSIS REACTION

- ❖ Breaks down a polymer
- ❖ Water reacts with large molecule, breaking it down into smaller subunits
- ❖ Opposite of condensation reaction

- ❖ Example: sucrose + water → glucose + fructose



4 TYPES OF MACROMOLECULES

4 types (organic compounds)

1. Carbohydrates*
2. Proteins*
3. Lipids*
4. Nucleic acids

*These are examples of nutrients found in foods

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ENERGY CURRENCY

Organic compounds are made up of elements joined by energy-containing bonds

Cells get the energy from the “high energy” bonds in ATP

- ❖ ATP contains “high energy” bonds
- ❖ $ATP \rightarrow ADP + P$ (energy is released)
- ❖ Adenosine triphosphate \rightarrow Adenosine diphosphate + phosphate

- ❖ The breaking of the bonds releases usable energy for cells so that they can make polymers (like carbohydrates, proteins, lipids & nucleic acids)