

Organic Compounds NOTES

ORGANIC – SCIENTIFIC DEFINITION

- “Of, or relating to, an organism”
- Something that comes from living things

6TH GRADE REVIEW - ELEMENTS AND COMPOUNDS

Element – the basic building blocks of matter; cannot be broken down or changed using chemical means; Each element is made of specific types of atoms

All of the known elements are shown on the Periodic Table of Elements

Compound – a substance made by chemically combining *two or more elements* to form a new and different substance; the bond cannot be broken by physical means

COMPOUNDS OR ELEMENT?

- CO_2 + H_2O → $\text{C}_6\text{H}_{12}\text{O}_6$ + O_2
carbon dioxide + water → glucose + oxygen
- Look at this chemical equation. This represents the chemical reaction involved during photosynthesis.
- Which of these substances is a compound?
- Which of these substances is an element?
- Which of these substances is a molecule?
- Which elements make up the organic compound GLUCOSE?

CHONPS

C – Carbon

N – Nitrogen

H – Hydrogen

P – Phosphorus

O – Oxygen

S – Sulfur

- These elements are the elements that are found in **organic compounds** (compounds that living things are made of)
- Living things are made of many elements, but these are some of the most abundant

CARBON

- Carbon is a very special element, because it can form chemical bonds with up to 4 elements.
- Carbon compounds can have many different arrangements.
- Because it is so versatile, it forms the basis of all life.

ORGANIC COMPOUNDS

- Compounds that contain Carbon and can be involved in living processes.
- Compound Types
 - Carbohydrates
 - Lipids
 - Proteins
 - Nucleic Acids

CARBOHYDRATES

- Organic Compound
- Sugars, starches, fibers
- Foods: fruits, grains, milk products, vegetables
- **CHO** – made of Carbon, Hydrogen, and Oxygen only
- ENERGY! Used by cells for energy!

LIPIDS

- Organic compound
- Fats, waxes, oils
- Foods: oils, animal fats, milk products, nuts, fish
- **CHO** – made of Carbon, Hydrogen, and Oxygen only
- Make up cell parts, energy storage, help with cell-to-cell communication

PROTEINS

- Organic compound
- Foods: meat, fish, beans, peas, eggs, soy, nuts, seeds, milk products
- **CHONS** – made of Carbon, Hydrogen, Oxygen and Nitrogen. Some also made with Sulfur
- SO MANY USES! Your body functions with proteins! Enzymes, antibodies, cell structures, hormones, molecule transport and storage throughout body

NUCLEIC ACIDS

- Organic compound
- DNA, RNA
- Found in all living things; not tracked in foods
- **CHONP** – made of Carbon, Hydrogen, Oxygen, Nitrogen, and Phosphorus
- DNA is the instruction manual for an organism; RNA helps translate the instructions from DNA into Proteins

ORGANIC COMPOUNDS RECAP

- **Carbohydrates** CHO ENERGY!
- **Lipids** CHO stores energy, cell parts
- **Proteins** CHONS structures, enzymes, hormones
- **Nucleic Acids** CHONP genetic material (DNA)