**1.3 Common Substances Essential to Living Things**

**p.196-203**

25 essential compounds needed in human body.

Sugar, starch, fat, oil, wax, and proteins (C, H, O)

**Organic Compounds**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: hydrocarbons.

**Inorganic compounds**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: baking soda

**Nutrients**

Nutrients: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Two types of nutrients:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- organisms need in large amounts.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- organisms need in small or trace amounts

**Six Common Macronutrients**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Plants: leaf/stem growth, chlorophyll and protein composition

Animals: protein and nucleic acid composition, growth and repair of tissues

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Plants: root/flower growth, cellular respiration and photosynthesis

Animals: bone, teeth, and DNA composition

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Plants:* early growth, starch/protein production, sugar movement

*Animals:* muscle contraction and nerve impulses

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Plants:* chlorophyll structure and photosynthesis

*Animals:* bones, teeth composition; absorption of calcium and potassium

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Plants*: cell wall structure and cell division

*Animals*: composition of teeth, bones; helps blood clotting; muscle and nerve function.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Plants*: production of fruits and grains

*Animals*: protein synthesis, enzyme activation, and detoxification.

**Levels of nutrients- has to be right on**

**Optimum amounts**- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Organic Molecules:**

1. Carbohydrates- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Lipids- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. A) Proteins- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

B) Amino Acids- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. Nucleic Acids- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; DNA and RNA (phosphates, ribose, nitrogen-containing bases); contribute to heredity and cell’s activities

1. **Carbohydrates**

Found in: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: glucose (made by plants during photosynthesis); starch, cellulose, glycogen (made by the combination of glucose molecules)

1. **Lipids**

Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Plants produce large amounts of oils🡪 canola seeds, corn, peanuts, soybeans, walnuts, etc

Animals produce oils on skin.

1. **Proteins and Amino Acids**

Found in: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: growth, repair, and energy

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- made of proteins, catalysts

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- basic amino acids join together to form proteins.

Each protein has between 40-500 amino acids

1. **Nucleic Acids**

What were the nitrogen bases that we learned in the first unit?