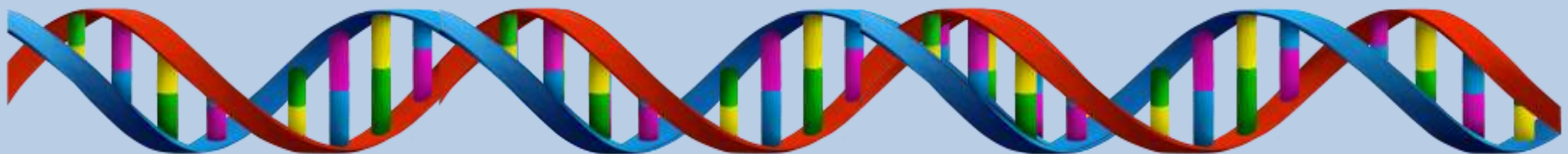


- 1. Draw a molecule of water, label the charges and bonds.**
- 2. Why is water polar?**
- 3. Why is it important that water is polar?**



Logistics

- **Unit 1 Assessment is on Thursday, October 3**
 - **Covers chapters 1-2**

Magic of Water

- You have 10 minutes to do as many lab stations as you can
- You will write your answers on page 11
 - Make sure to label each station
- **CLEAN UP AFTER YO'SELF**

Magic of Water

Caution, you are in the splash zone



Logistics

- **Let's go over the answers to the Magic of Water Lab**
- **PAY ATTENTION, YOU MUST KNOW THIS FOR YOUR TEST**

Build a Macromolecule

- **Class Discussion**
 - **How are all of these molecules similar?**
 - **How are they different?**

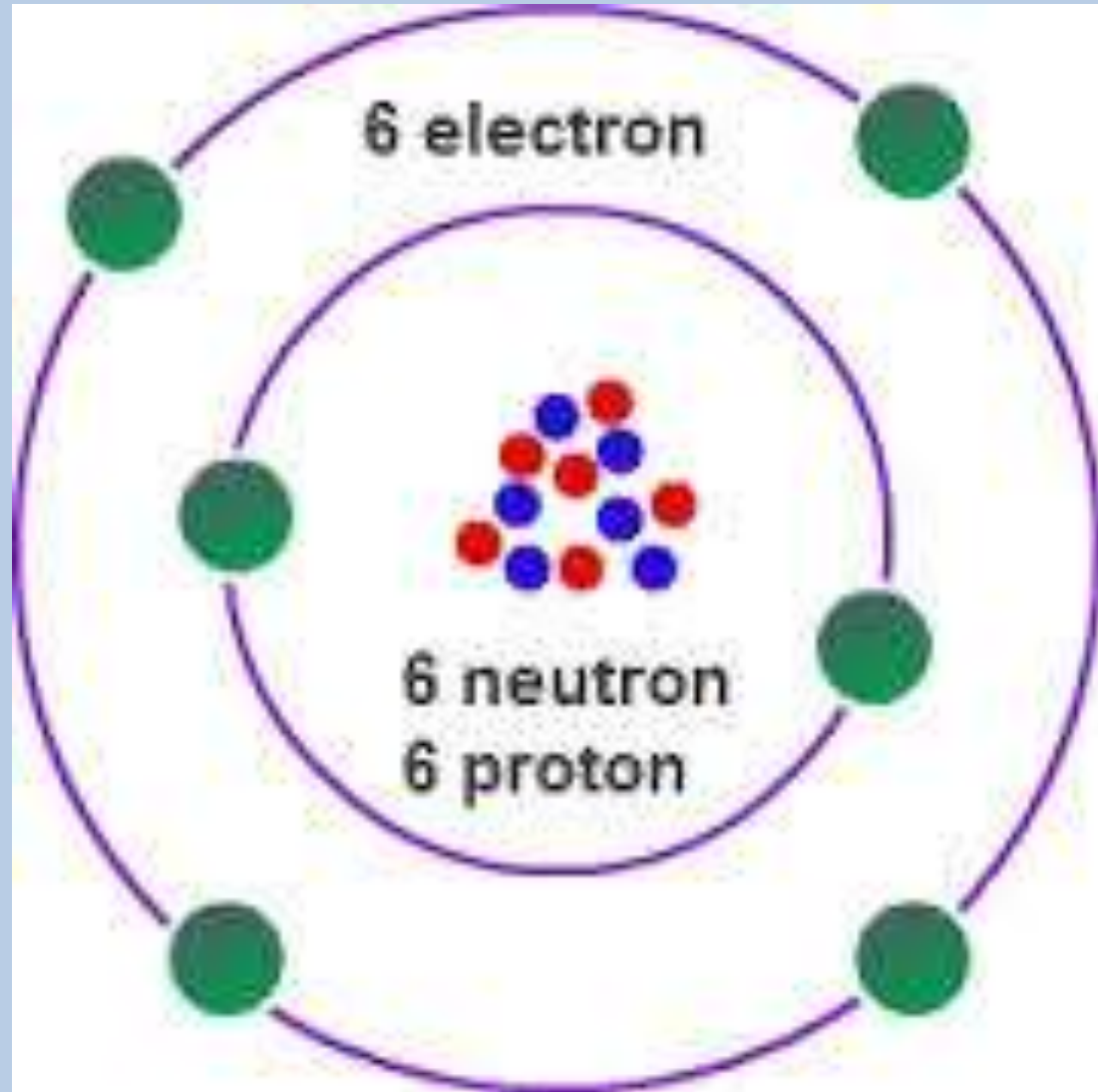
Build a Macromolecule

CASE STUDY

Element	Percentage of Body Weight	Uses
Phosphorus	1.0	Formation of bones and teeth
Potassium	0.25	Regulation of nerve function
Sulfur	0.25	Present in two amino acids
Sodium	0.15	Regulation of nerve function, blood levels
Chlorine	0.15	Fluid balance
Magnesium	0.05	Bone and muscle function
Iron	0.006	Carrying oxygen in the blood

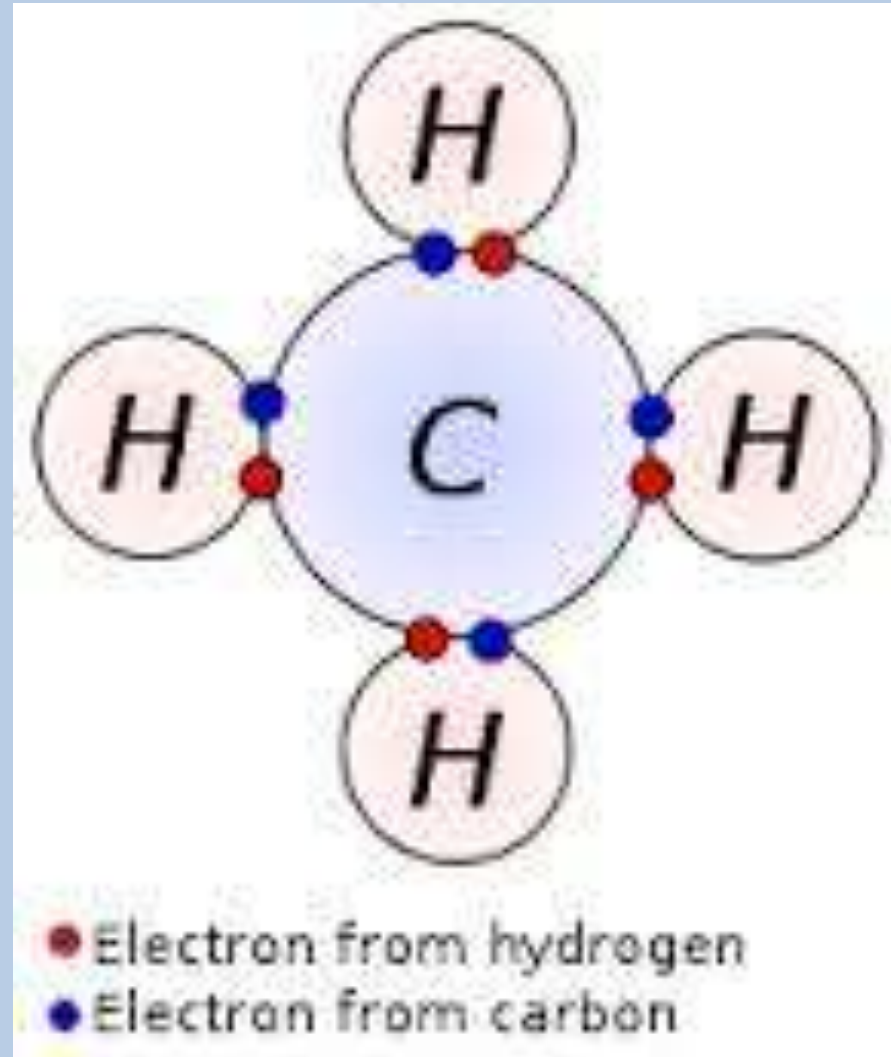
Carbon

- How many valence electrons does carbon have?
- How many bonds can it make?



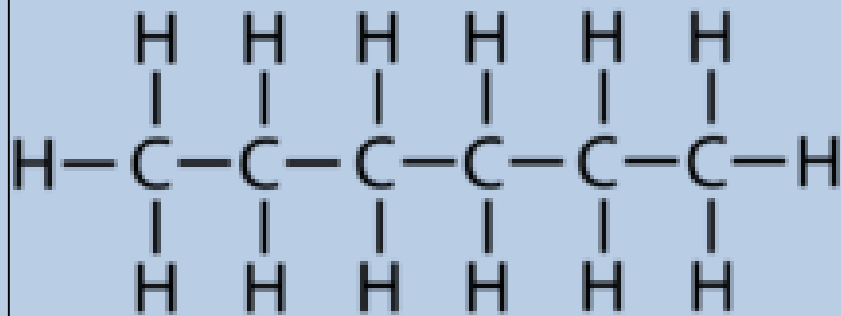
Carbon

- Carbon can make 4 covalent bonds, which allows it to make relatively stable molecules

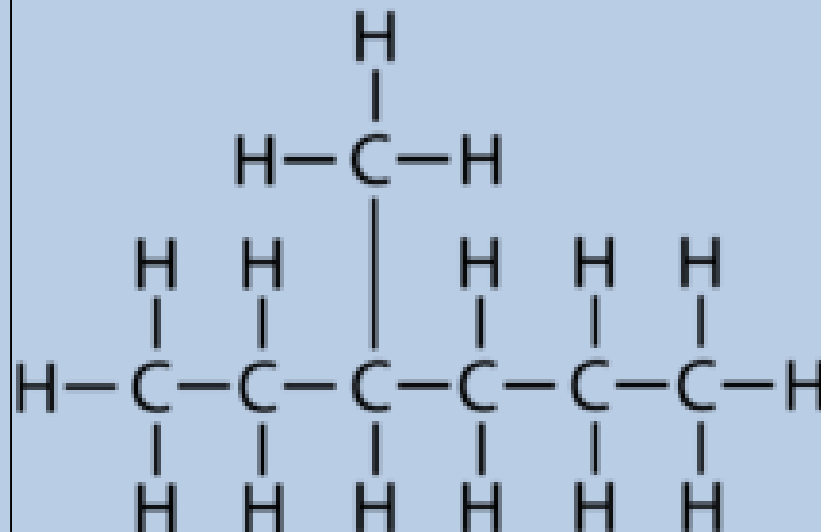


Carbon

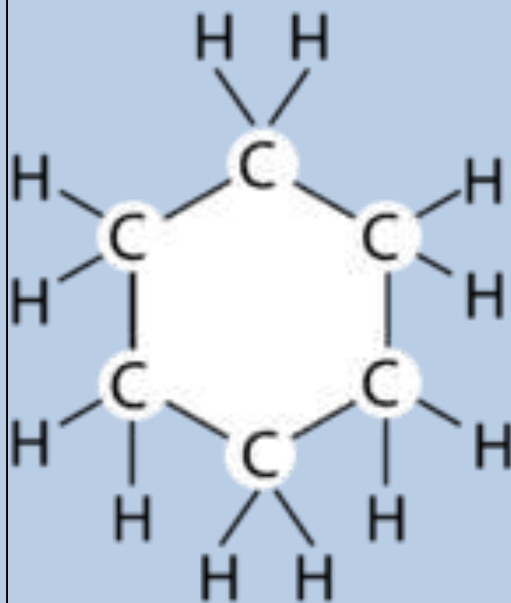
Straight-chain alkane



Branched-chain alkane

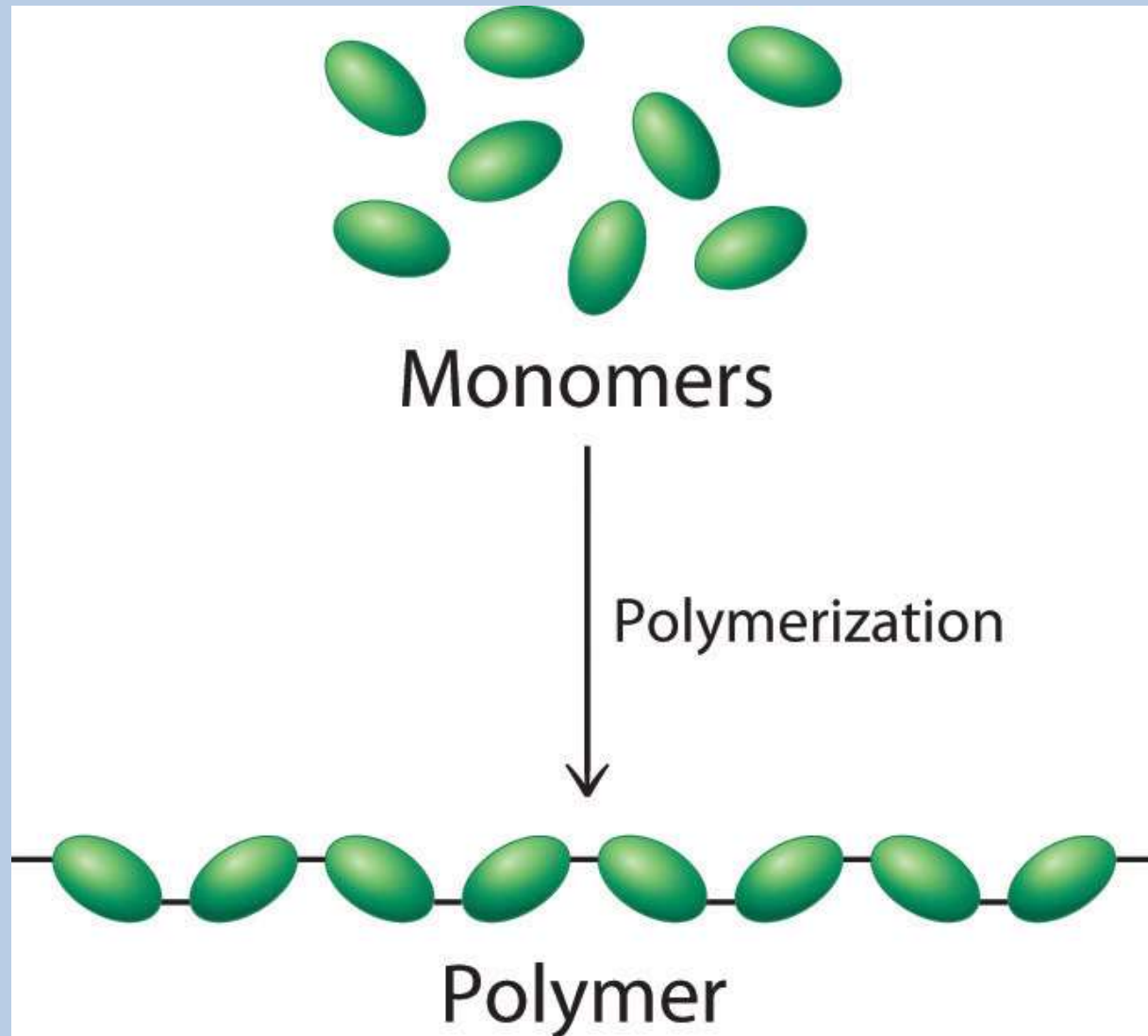


Cyclic alkane

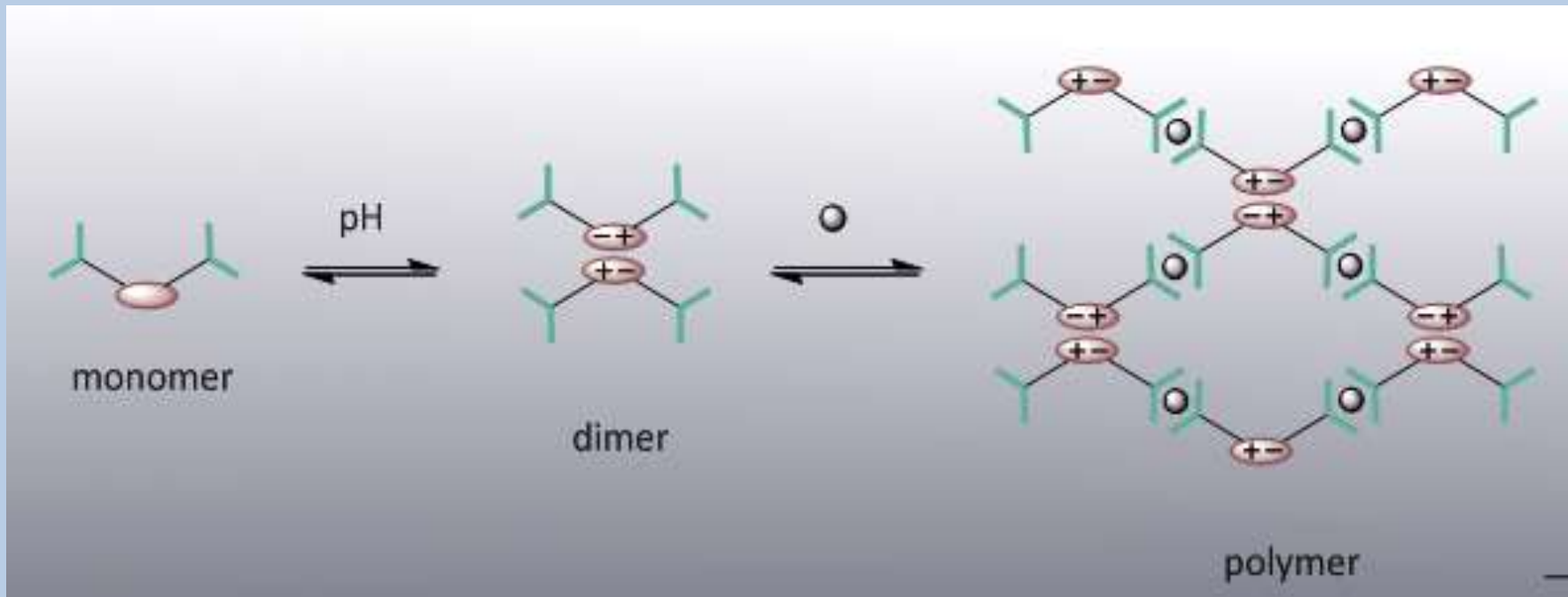


Monomers and Polymers

- **Monomers are the building blocks that make up polymers**



Monomers and Polymers

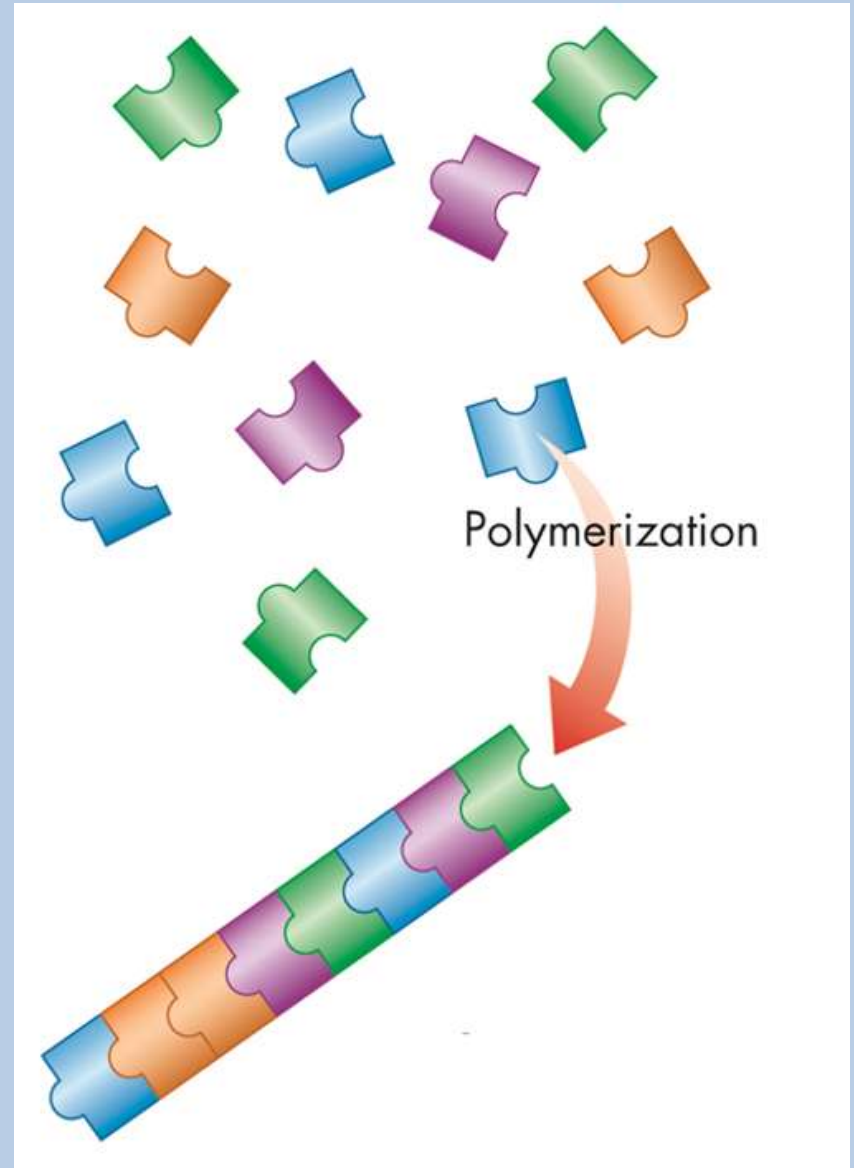


Monomers and Polymers

- **Polymerization handshake!**

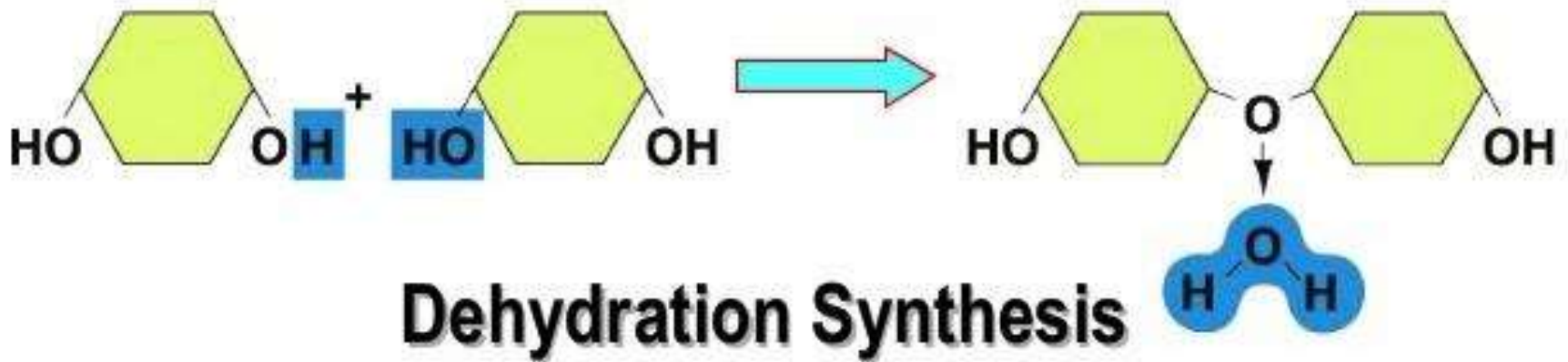
Monomers and Polymers

- **Polymerization is the process of putting monomers together to make polymers**



Monomers and Polymers

- When the molecules of life polymerize, sometime water is lost during dehydration synthesis



Macromolecules

- **There are four classifications of macromolecules**
- **To learn more about them we will be learning and sharing**
- **Tape the table on to page 12 and title the page “Carbon Compounds”**

Macromolecules

- Table Groups: 5 min
 - Read about the kind of macromolecule on the card you are given
 - Fill out your column of the table
 - **MAKE SURE EVERYONE UNDERSTANDS THE INFORMATION**

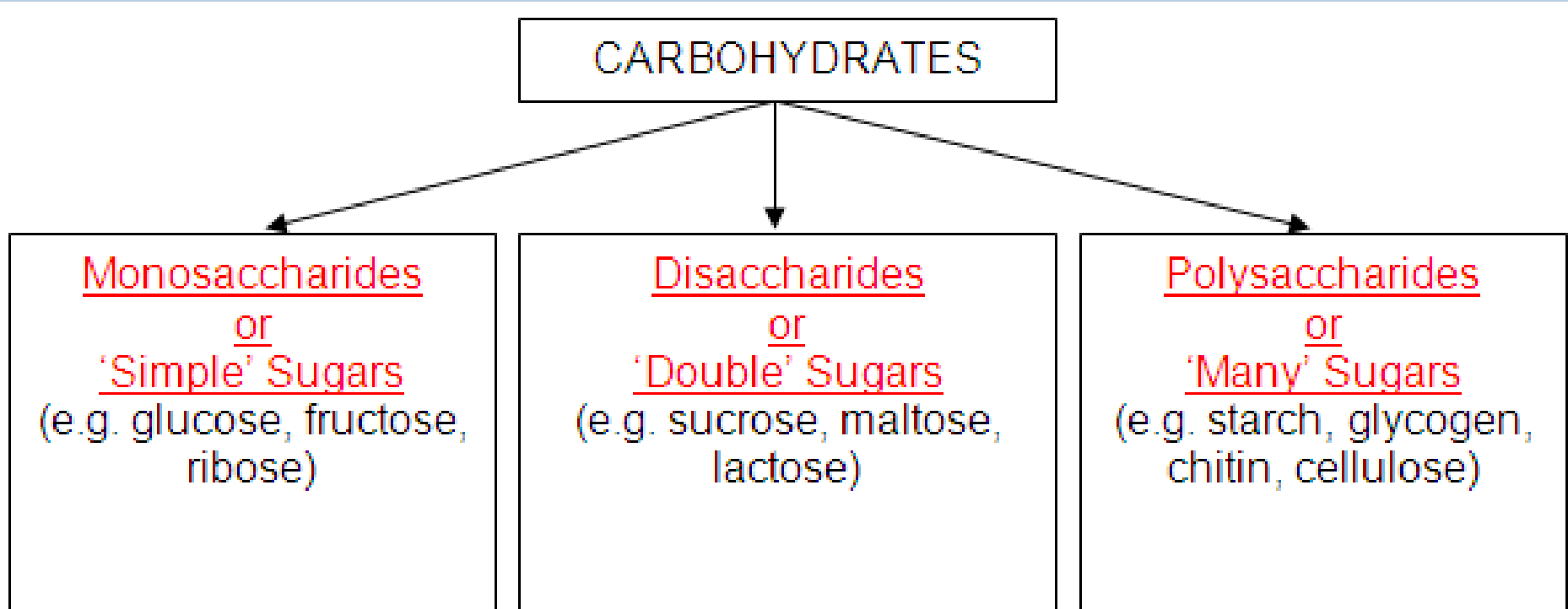
Macromolecules

- Letter Groups: 10 min
 - Table groups 1-4
 - A's go to station 1
 - B's go to station 2
 - C's go to station 3
 - D's and E's go to station 4
 - Table groups 5-8
 - A's go to station 5
 - B's go to station 6
 - C's go to station 7
 - D's and E's go to station 8

Macromolecules

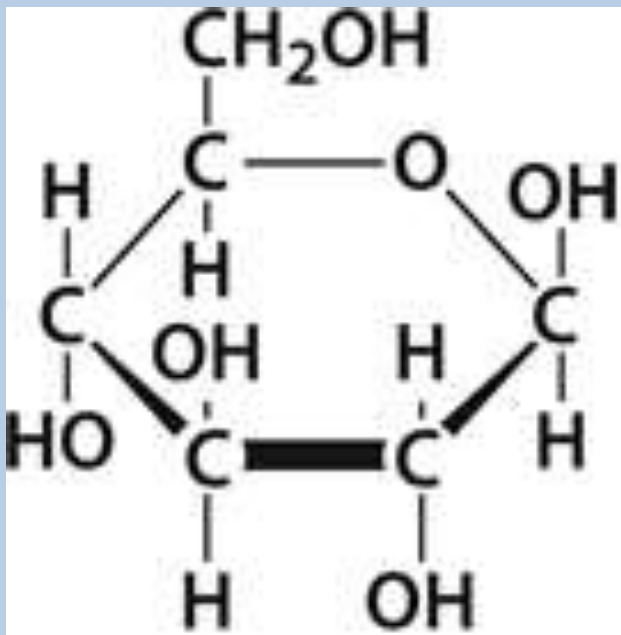
- Letter Groups: 10 min
 - Each person should teach the others about the kind of macromolecule they learned about
 - Everyone should fill in the table in their own notes

Carbohydrates

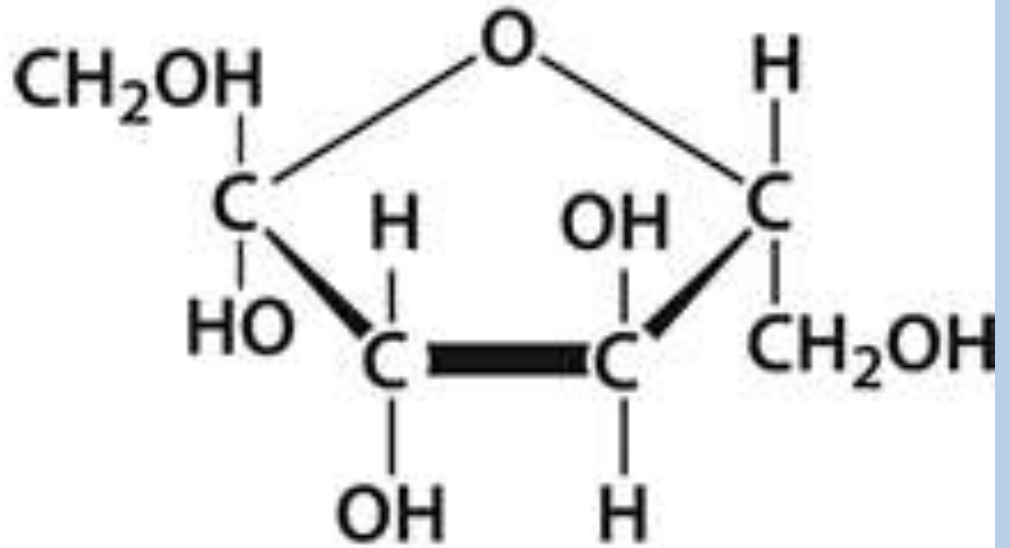


**Always have the ratio:
1 carbon: 2 hydrogen: 1 oxygen**

Carbohydrate monomers: monosaccharides

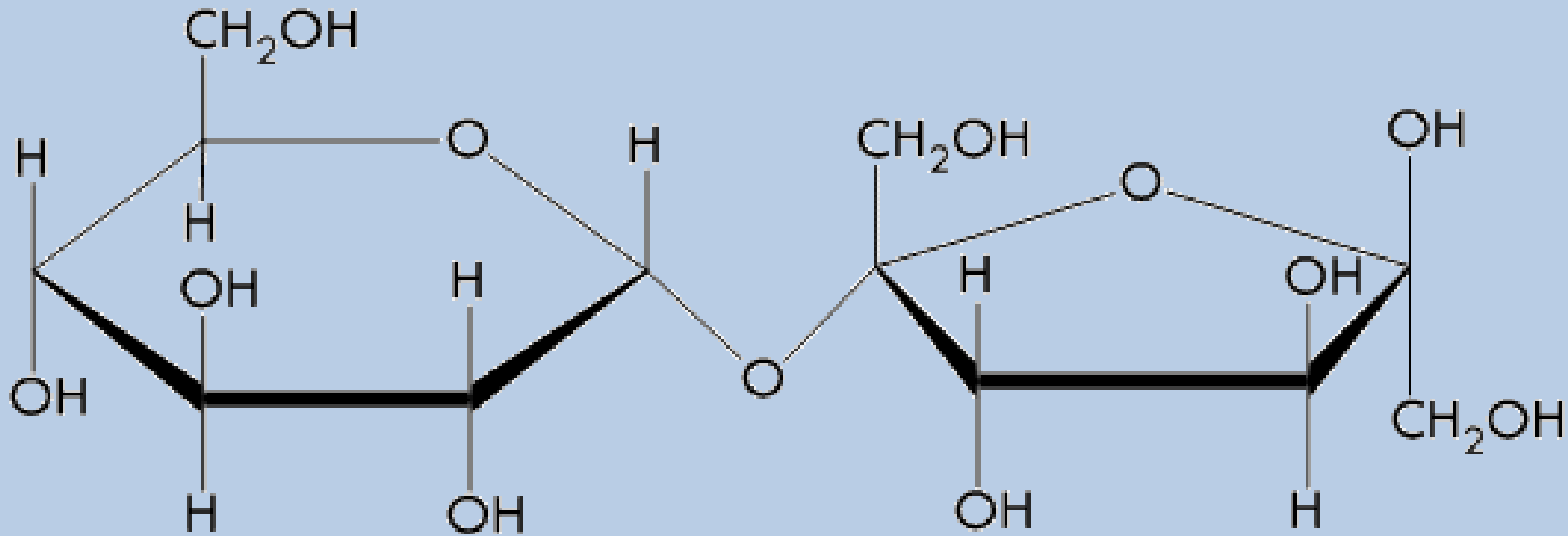


glucose



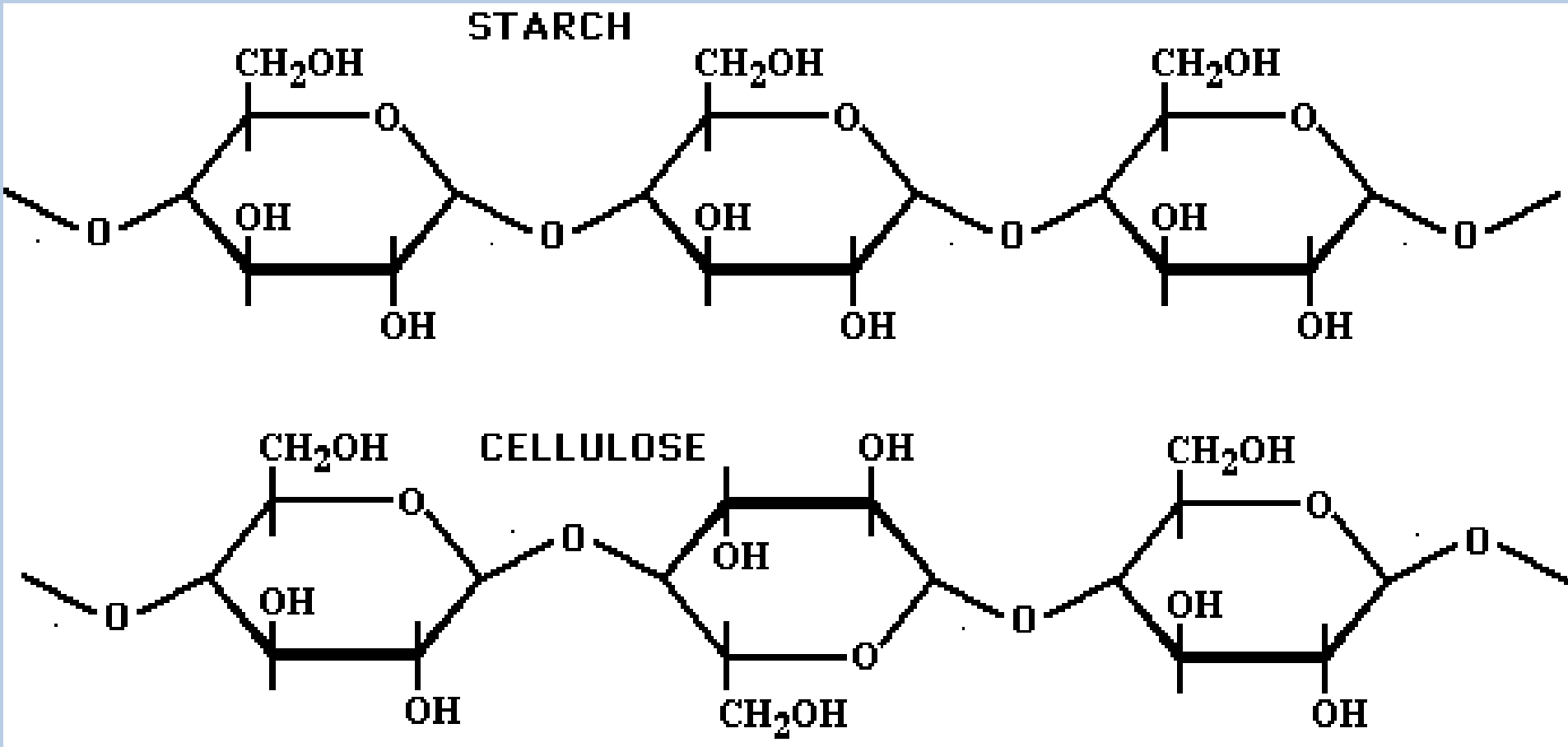
fructose

Carbohydrate dimers: disaccharides

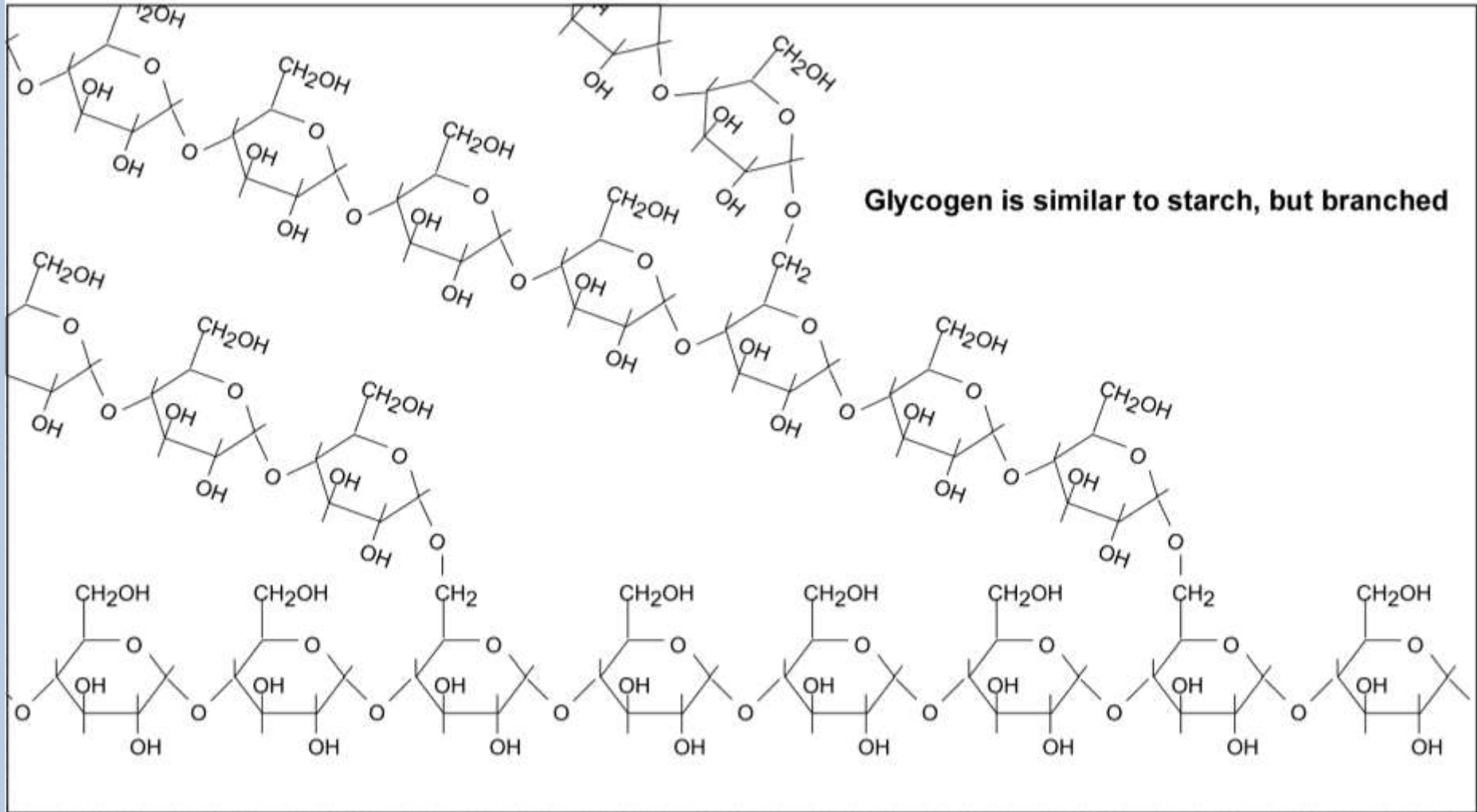


Sucrose

Carbohydrate polymers: polysaccharides in plants



Carbohydrate polymers: polysaccharide in animals

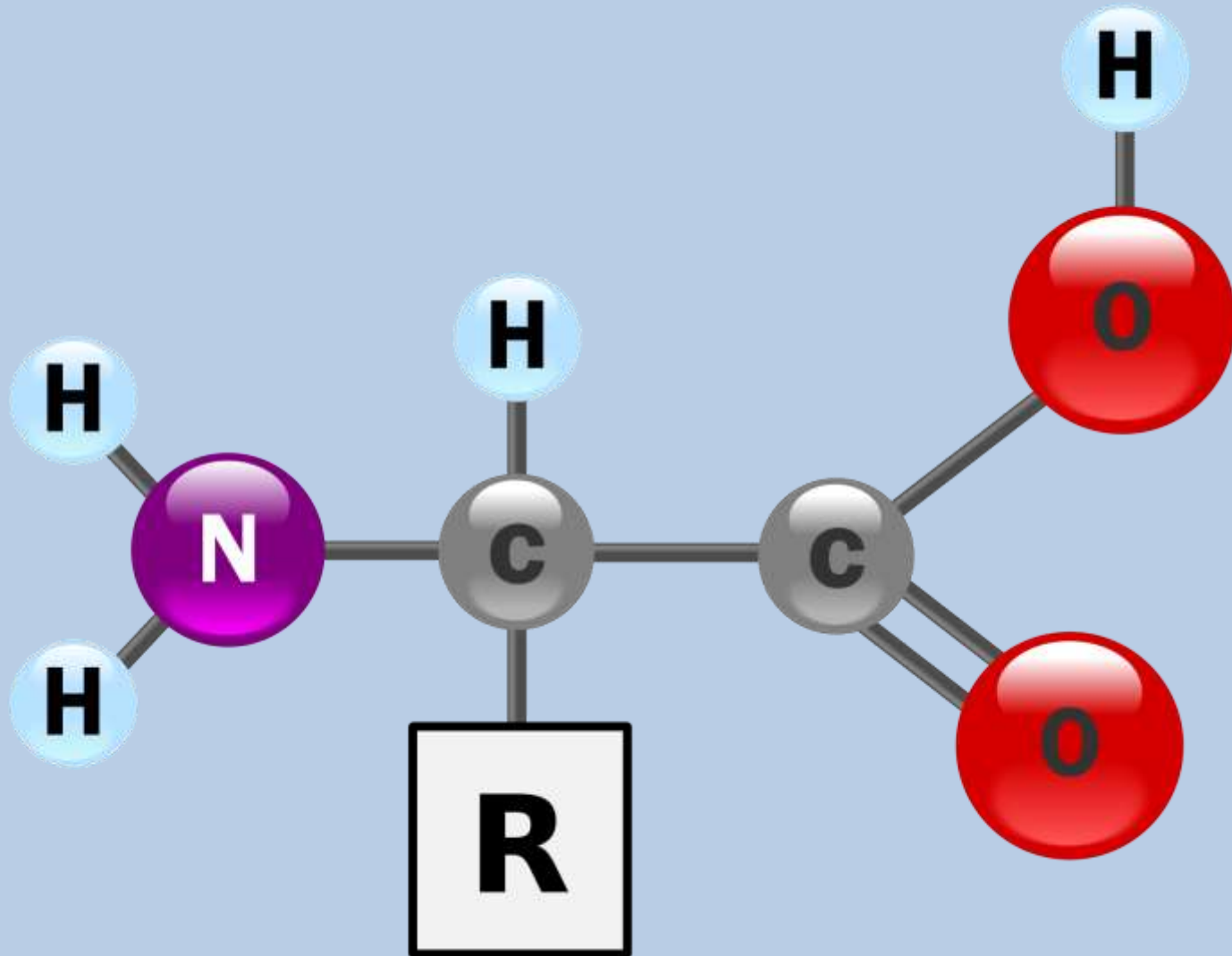


Proteins

Used for structure and function



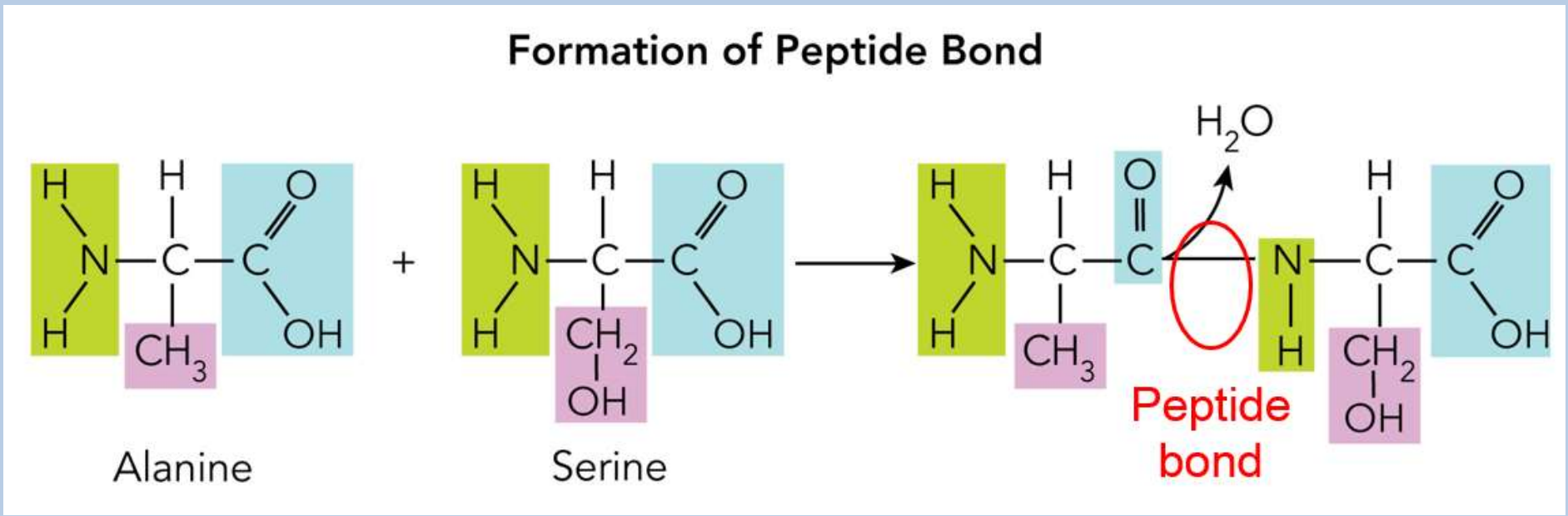
Protein Monomer: Amino Acid



Protein polymers: polypeptide chains

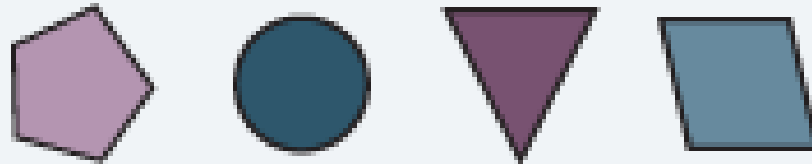
Amino acids are connected by peptide bonds

What kind of reaction is this?

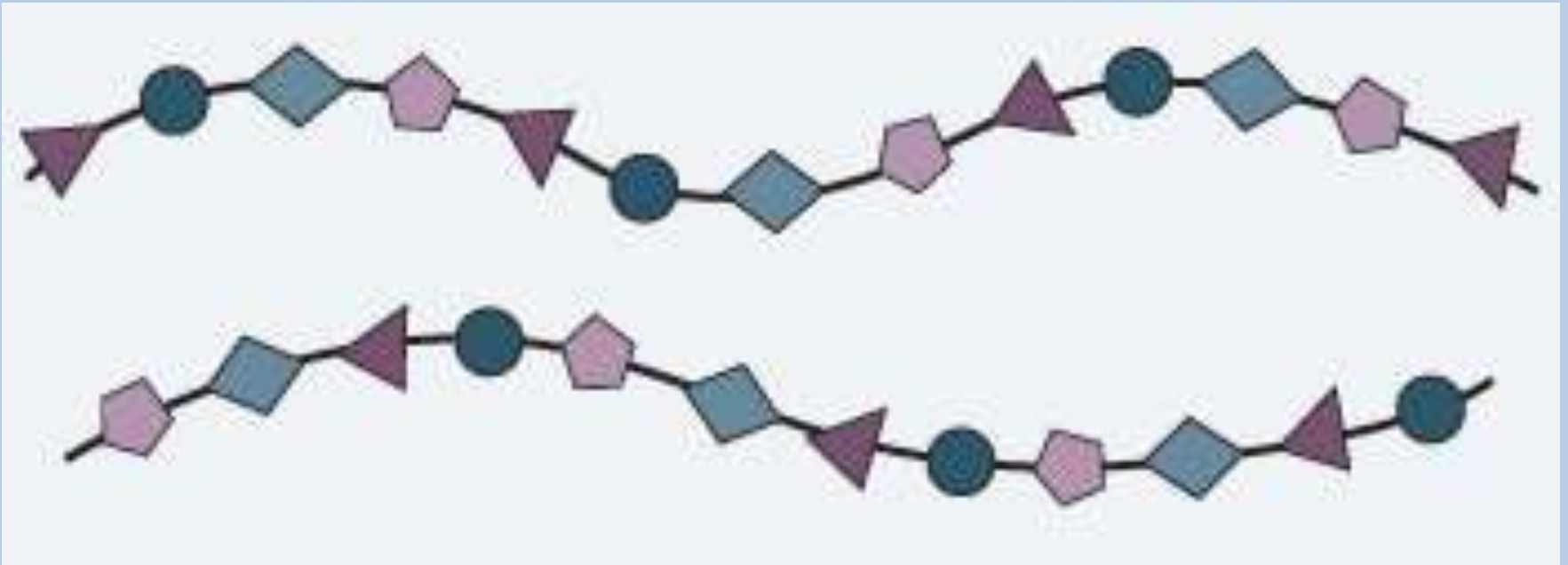


Protein polymers: polypeptide chains

Each shape represents a different amino acid

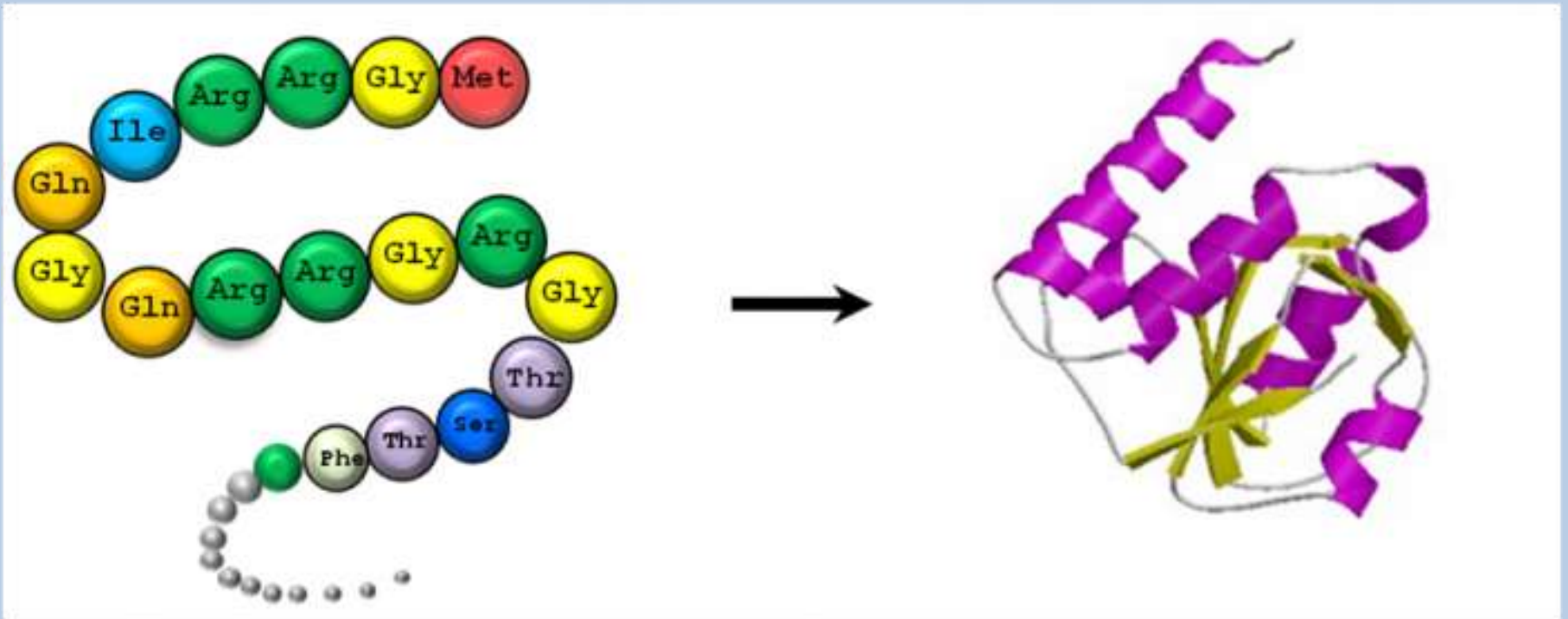


Amino acids are connected by peptide bonds



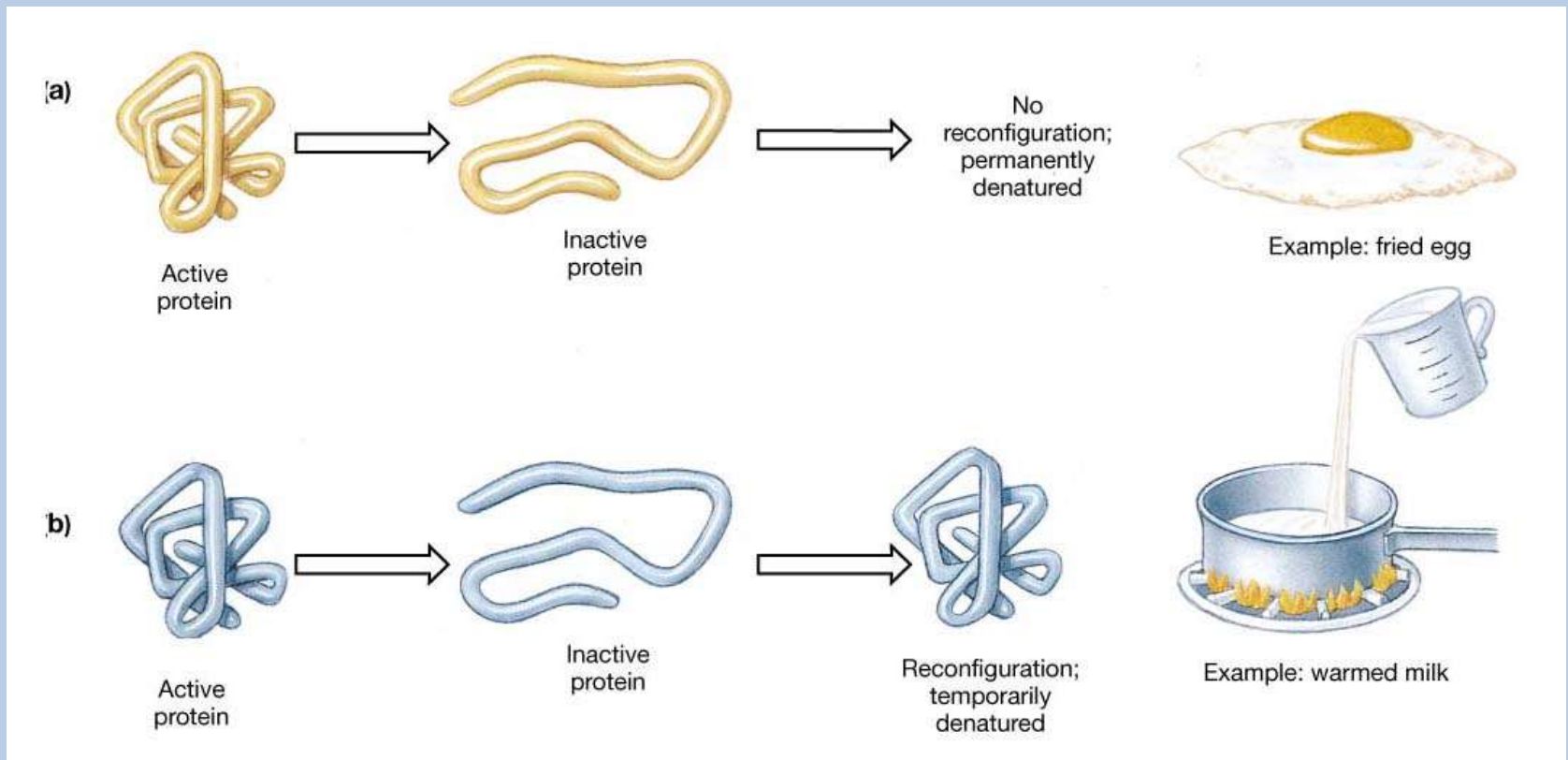
Protein Structure

Functional proteins are made of multiple polypeptide chains



Denatured Proteins

The structure of proteins determines the function



Lipids

Used for energy



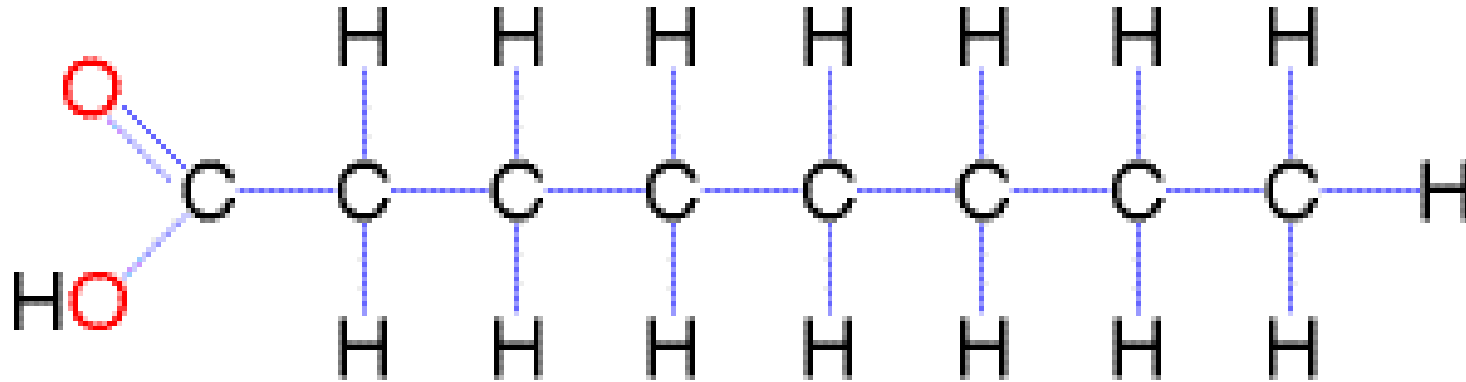
GOOD FATS

VS.

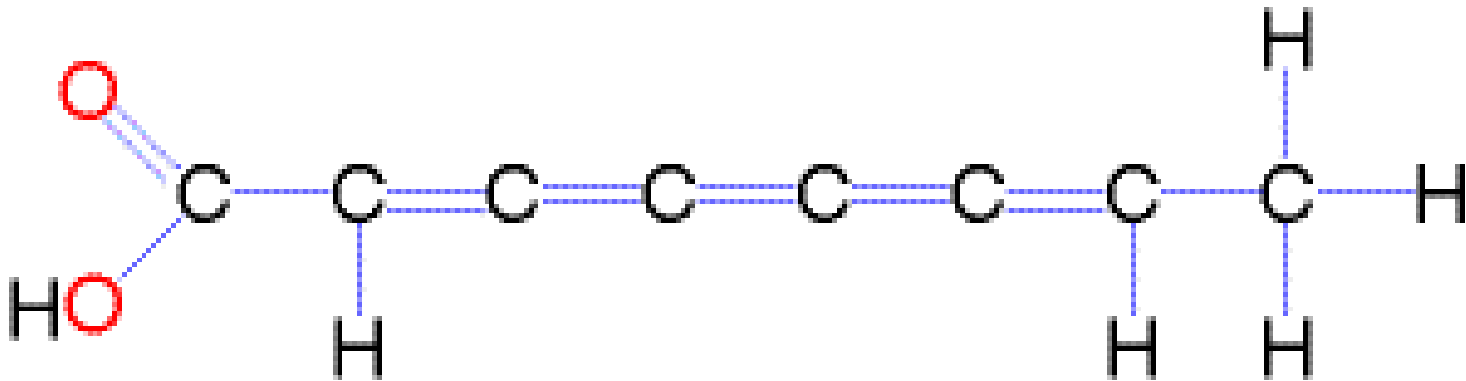
BAD FATS



Lipid monomers: fatty acids

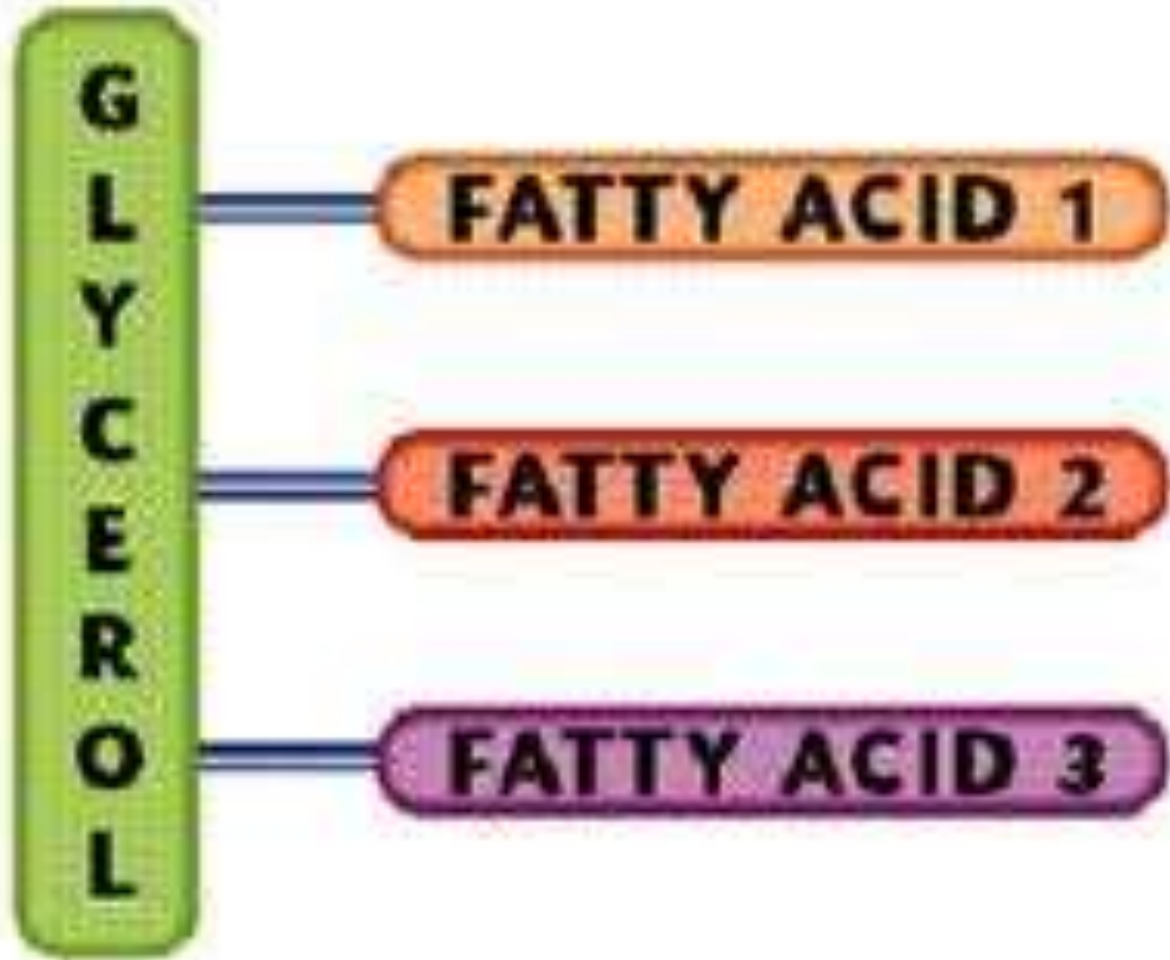


Saturated



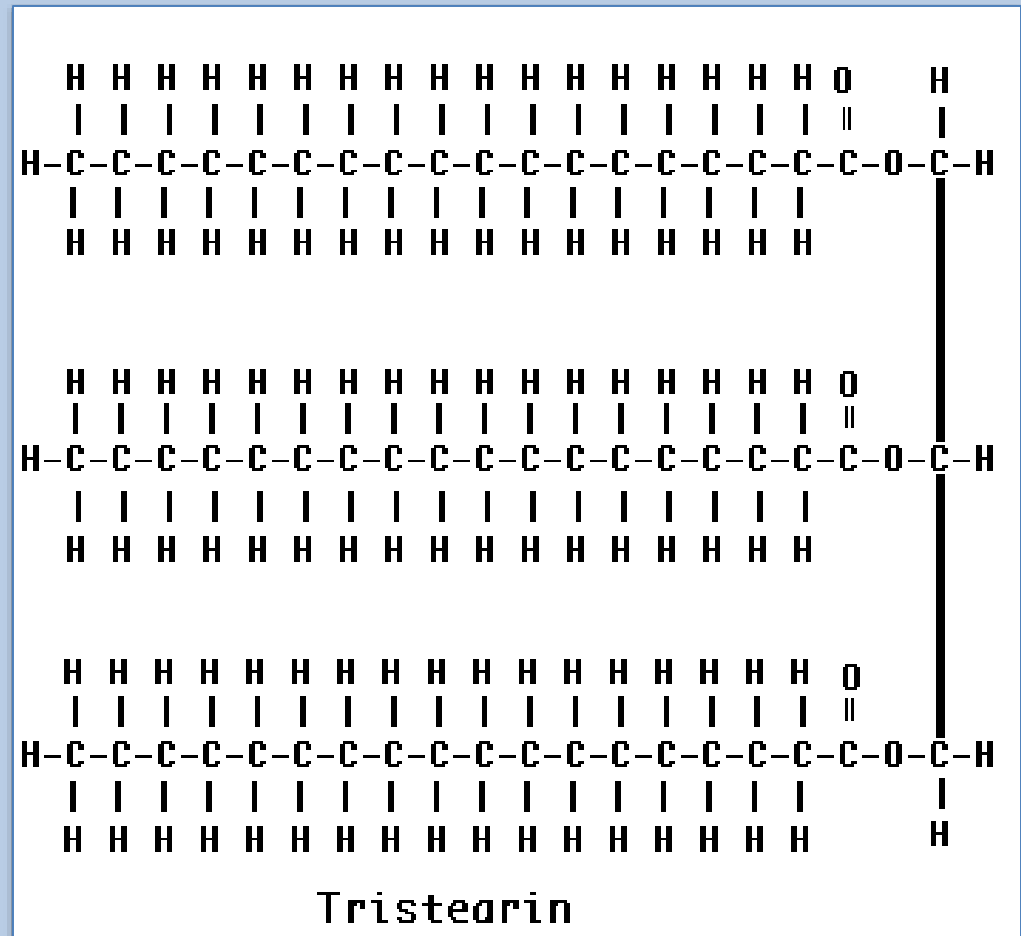
Unsaturated

Lipid polymers: triglycerides



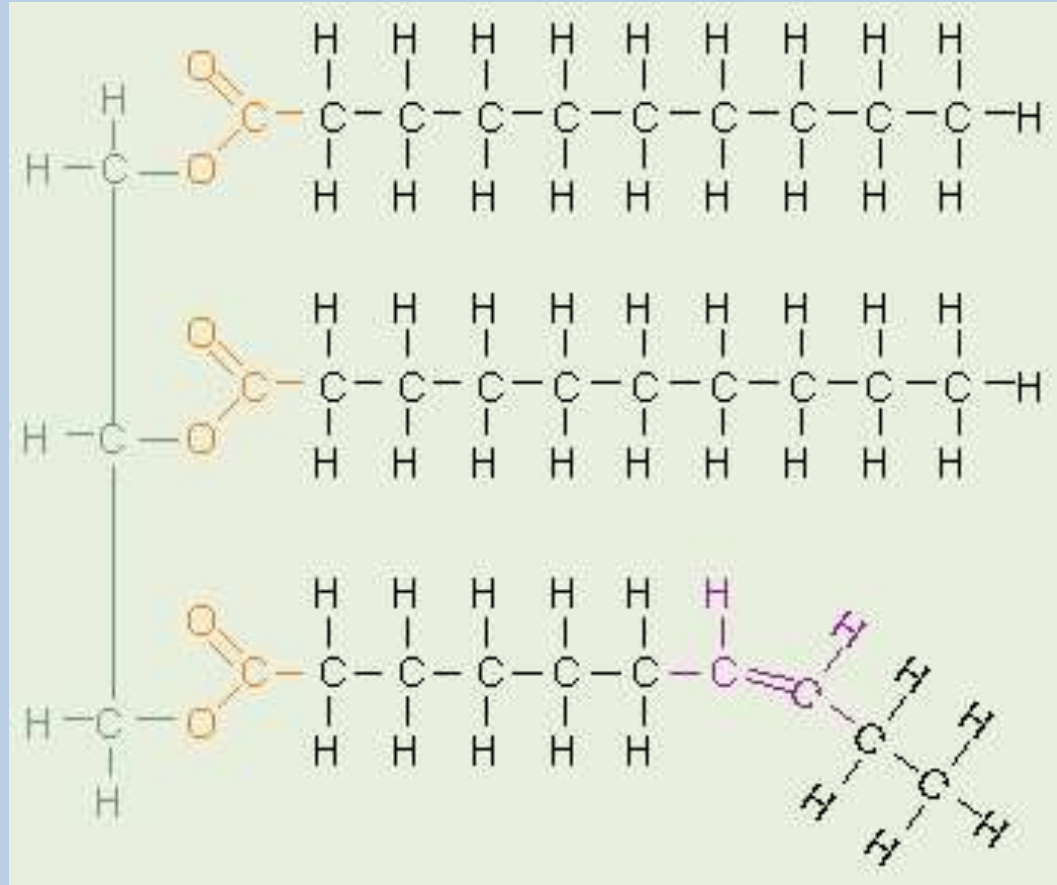
Lipid polymers: animal fats

- Animal fats are solid because they are made of saturated fatty acids, which are more compact



Lipid polymers: plant oils

- Plant oils are liquid because they are made of unsaturated fatty acids, which are not as compact



Nucleic Acids

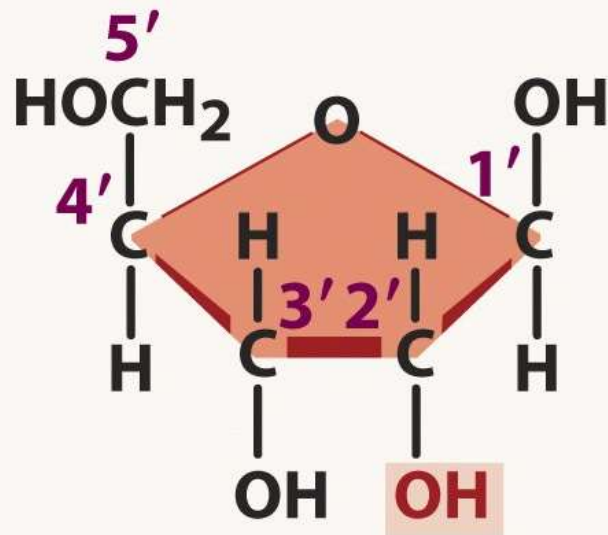
Used as instructions



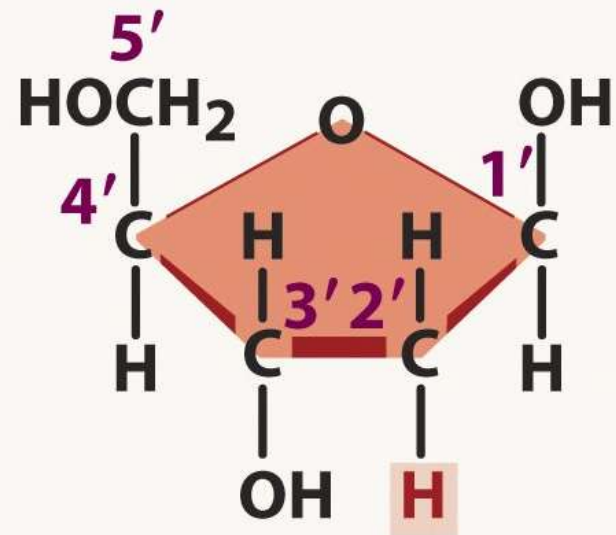
Nucleic acid types: RNA and DNA

RNA uses ribose sugar,
DNA uses deoxyribose

Sugars



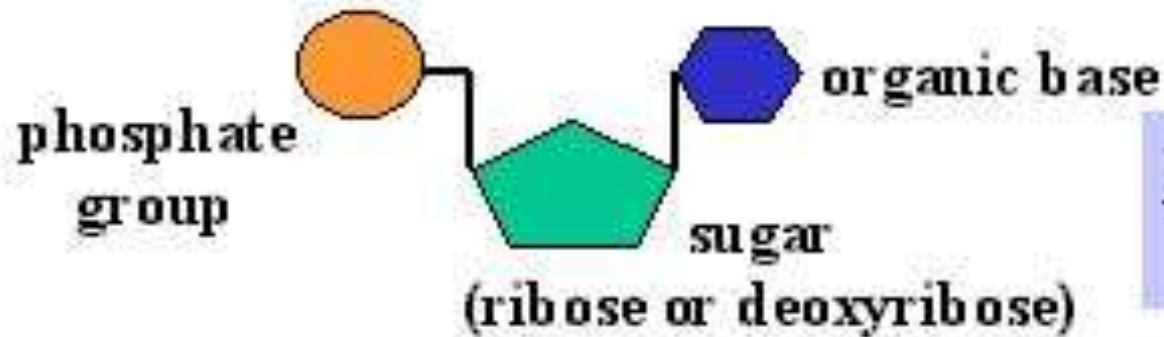
Ribose



Deoxyribose

Nucleic acid monomers: nucleotide

Nucleotides have three parts:
Phosphate, sugar, base



**NUCLEOTIDE
MONOMER**

Nucleic acid polymers: RNA and DNA

