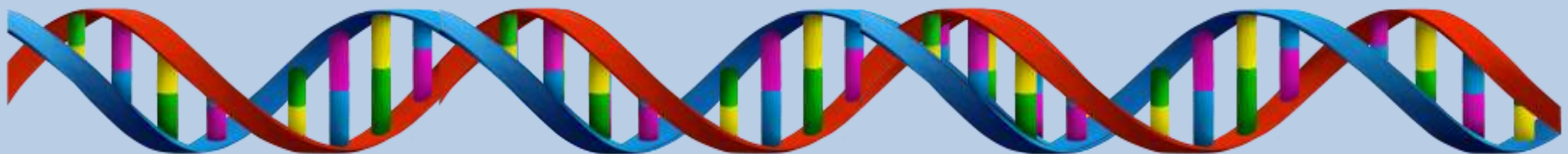
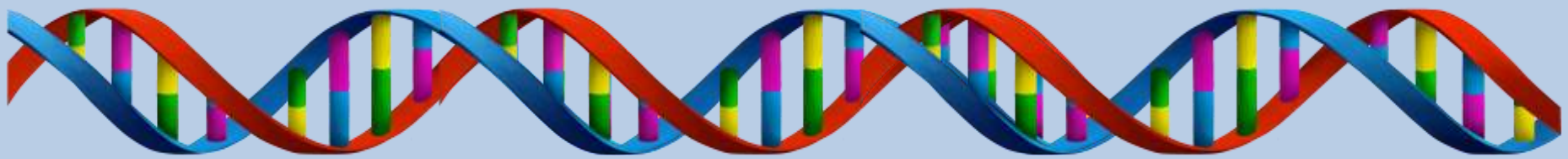


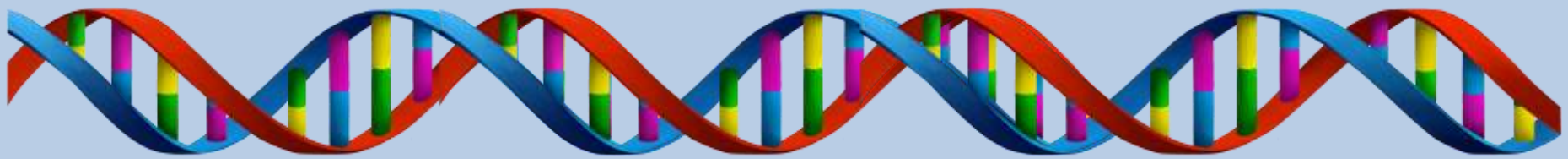
- 1. What is the polysaccharide that animals make?**
- 2. What is an example of a lipid made by a plant?**
- 3. What macromolecules may have been in your dinner last night?**





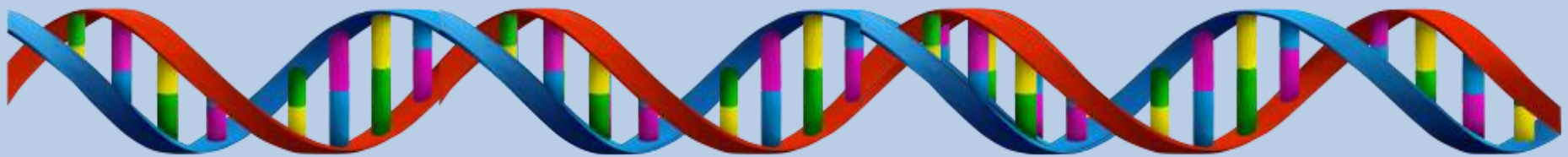
- 1. What are the 4 types of macromolecules?**
- 2. What is the process of making polymers called?**
- 3. What macromolecules may have been in your dinner last night?**
- 4. Is the importance of a element in the body related to its percentage of body weight? USE EVIDENCE FROM THE DATA TABLE.**





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



Logistics

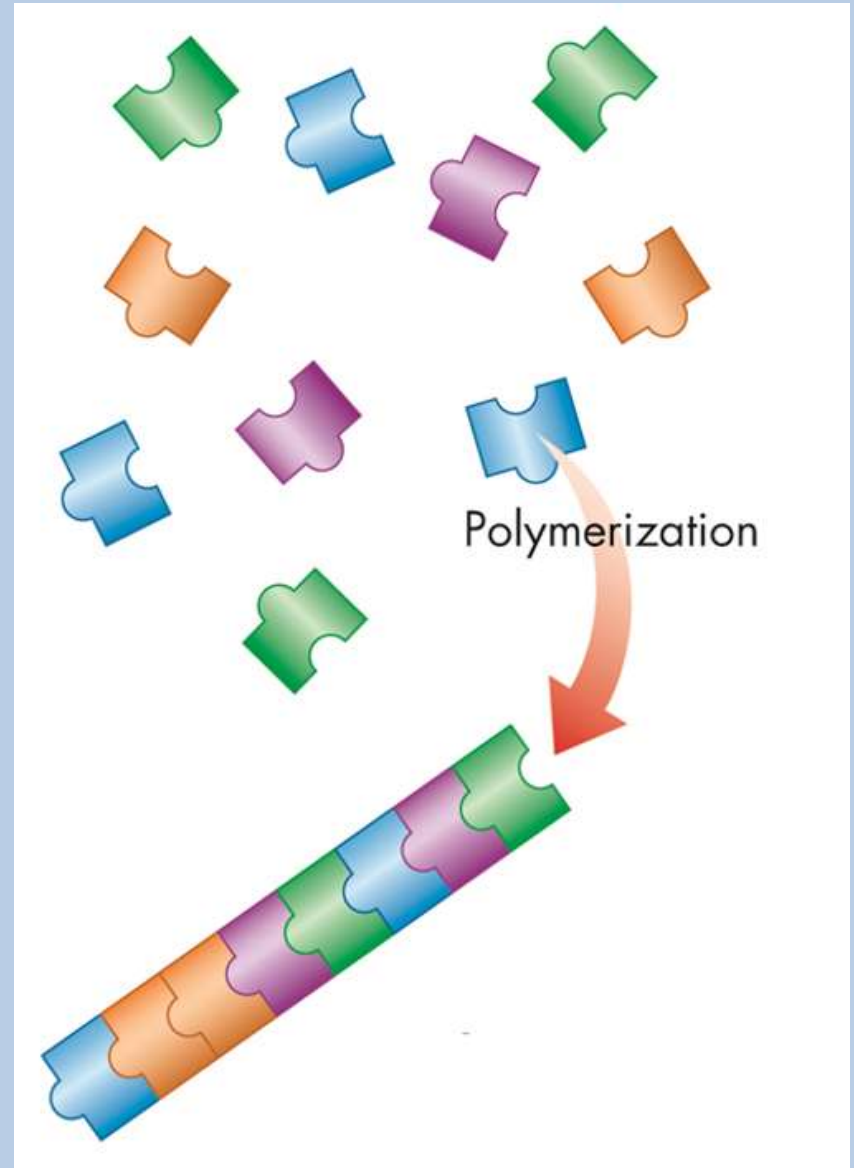
- **Unit 1 Assessment is on Thursday, October 3rd**
- **Covers chapters 1-2**

Monomers and Polymers

- **Polymerization handshake!**

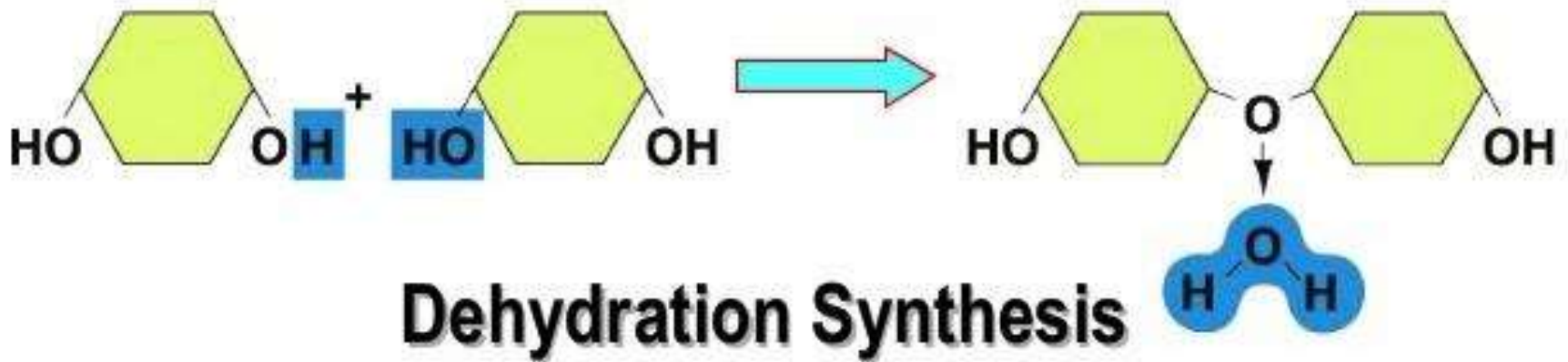
Monomers and Polymers

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

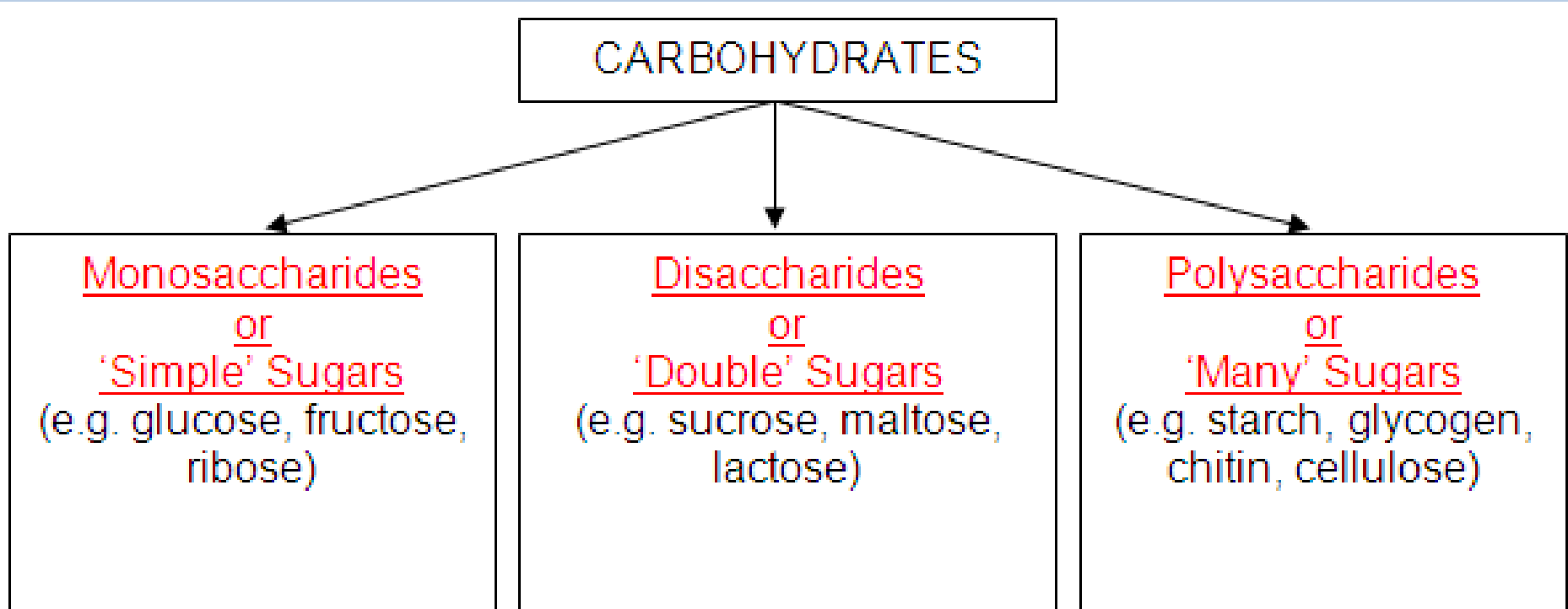


Monomers and Polymers

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

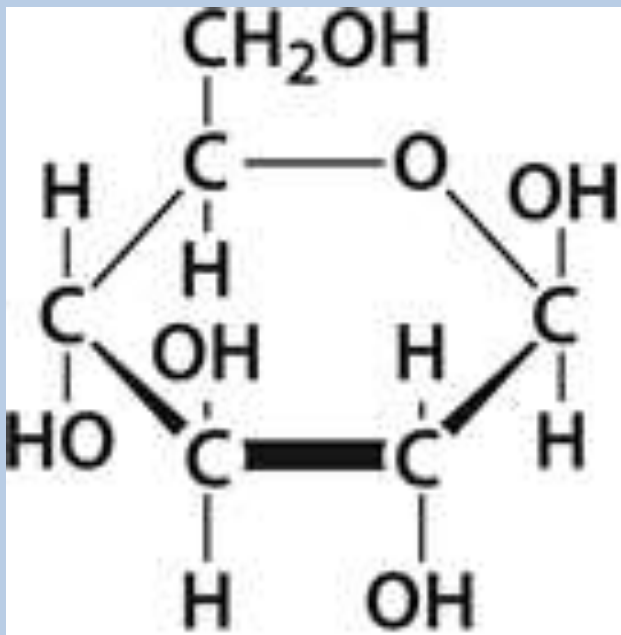


Carbohydrates

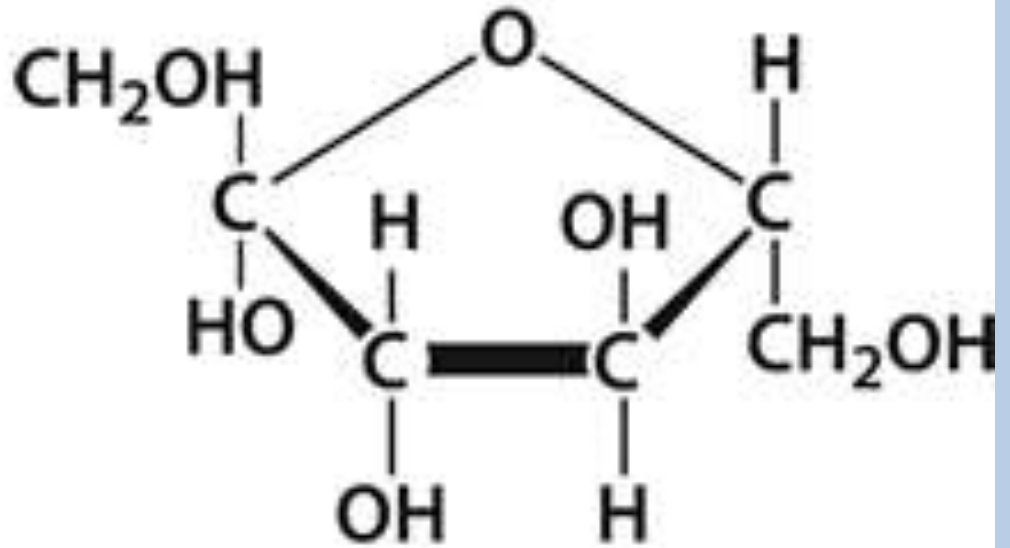


**Always have the ratio:
1 carbon: 2 hydrogen: 1 oxygen**

Carbohydrate monomers: monosaccharides

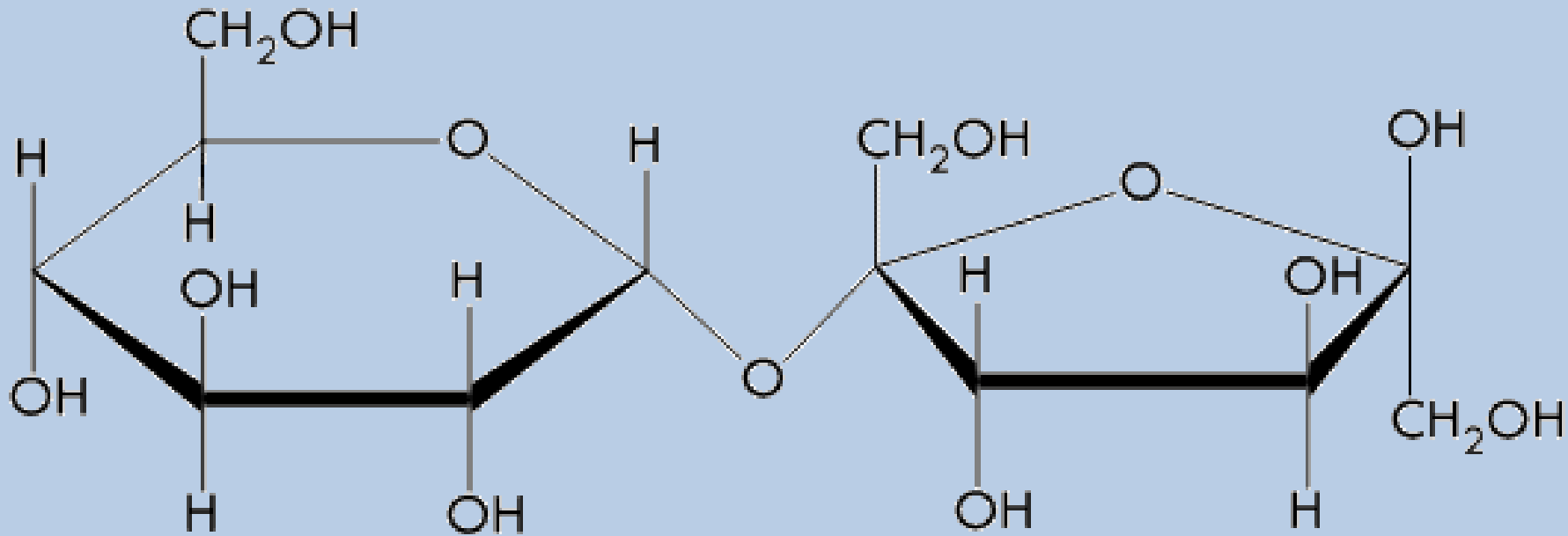


glucose



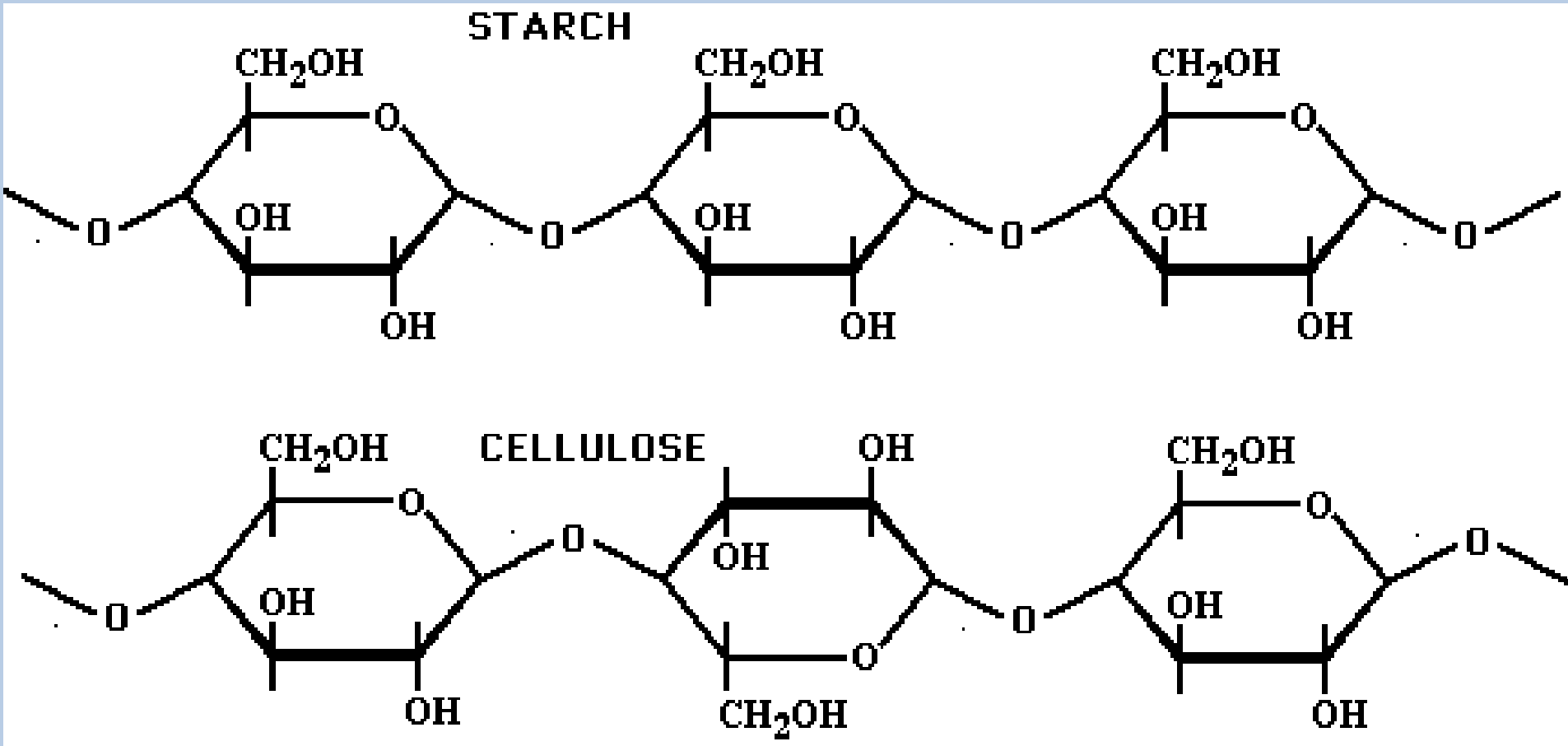
fructose

Carbohydrate dimers: disaccharides

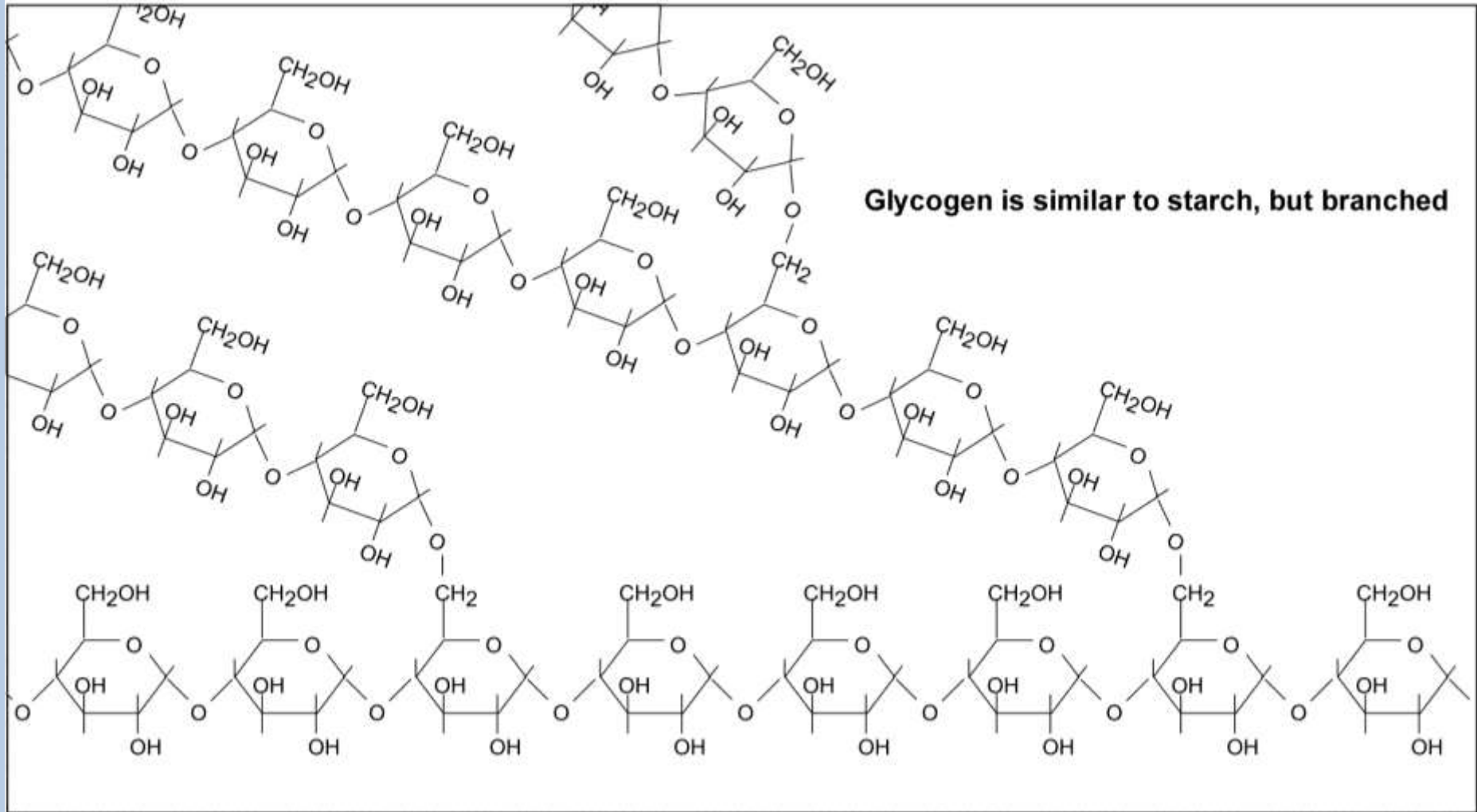


Sucrose

Carbohydrate polymers: polysaccharides in plants

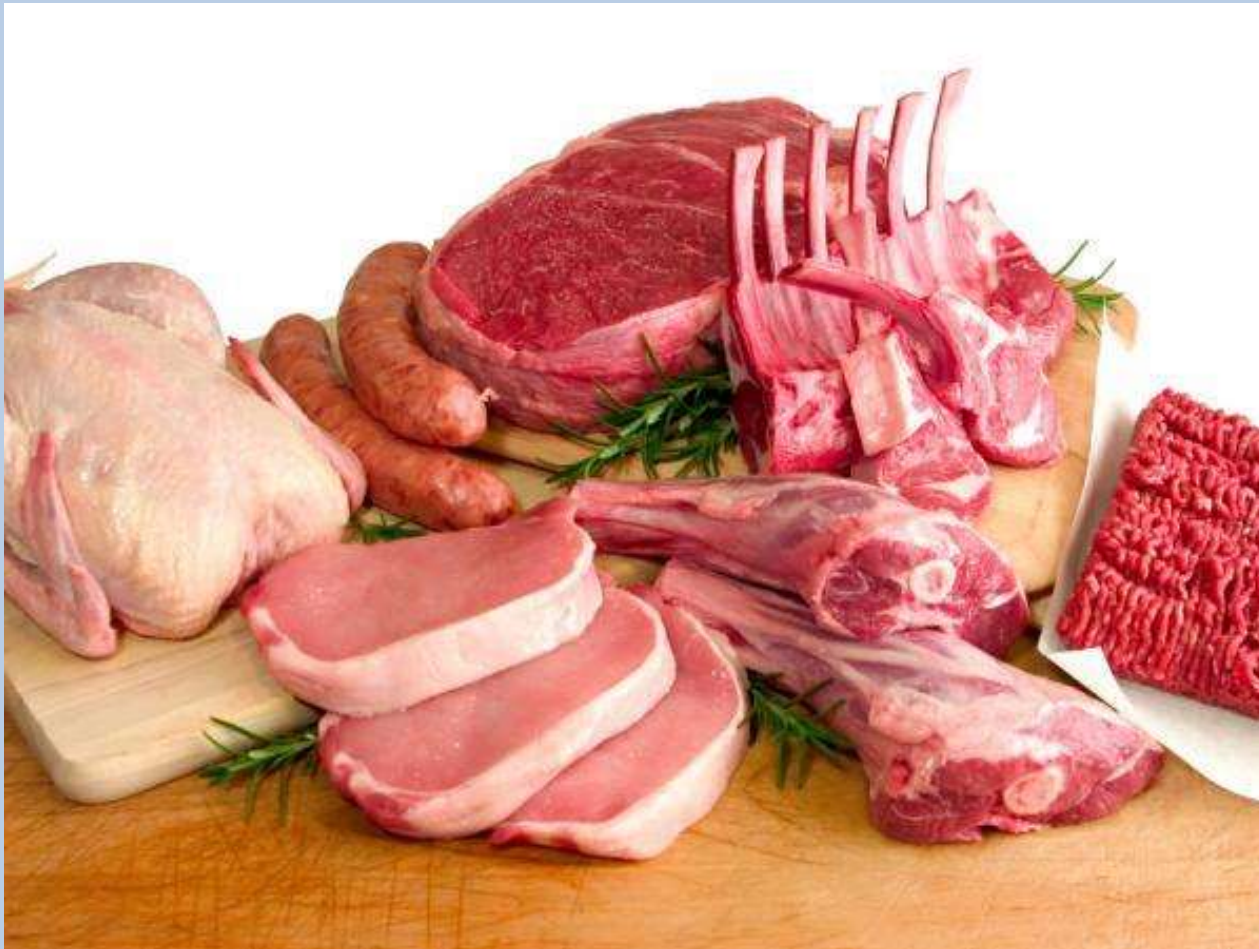


Carbohydrate polymers: polysaccharide in animals

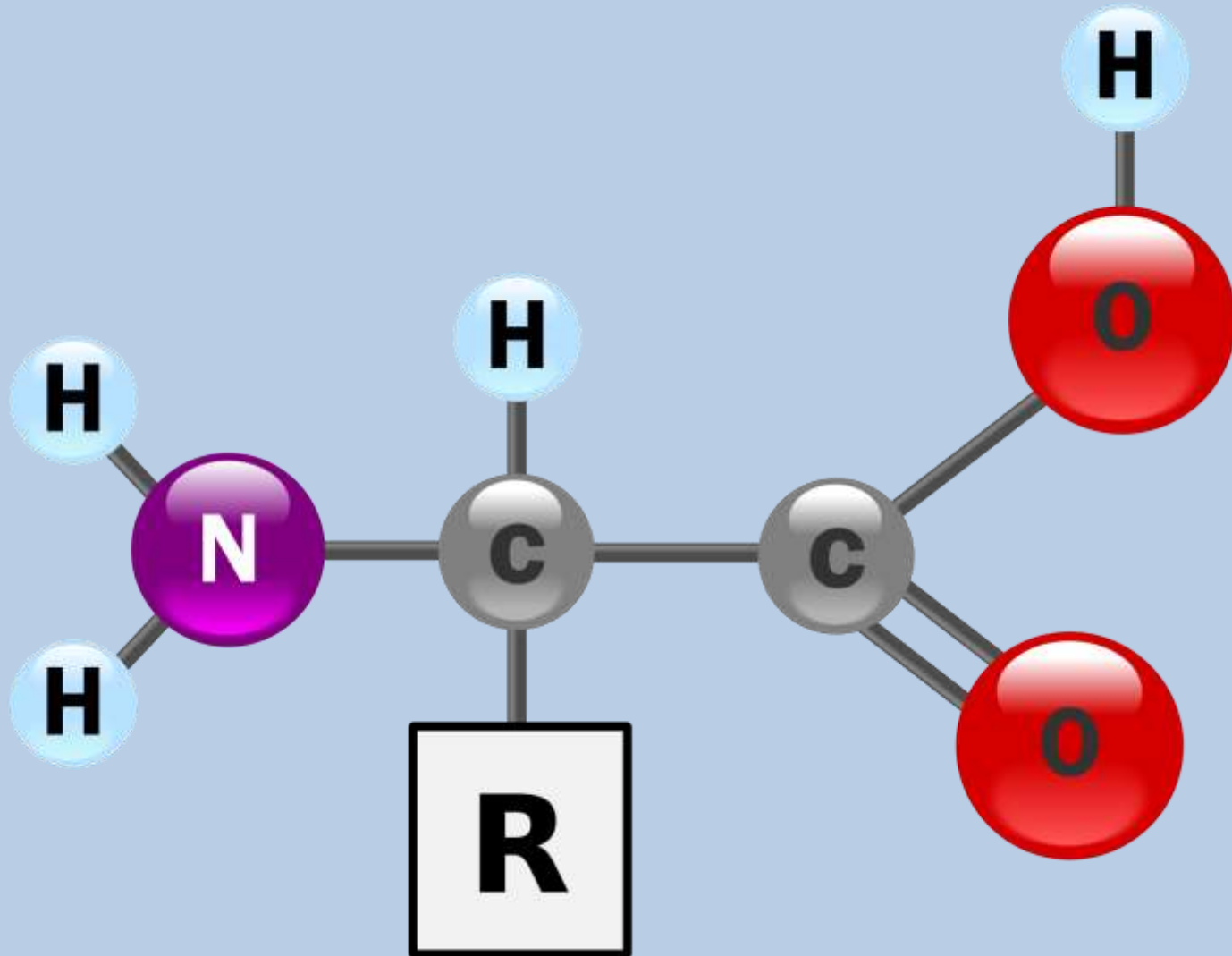


Proteins

Used for structure and function



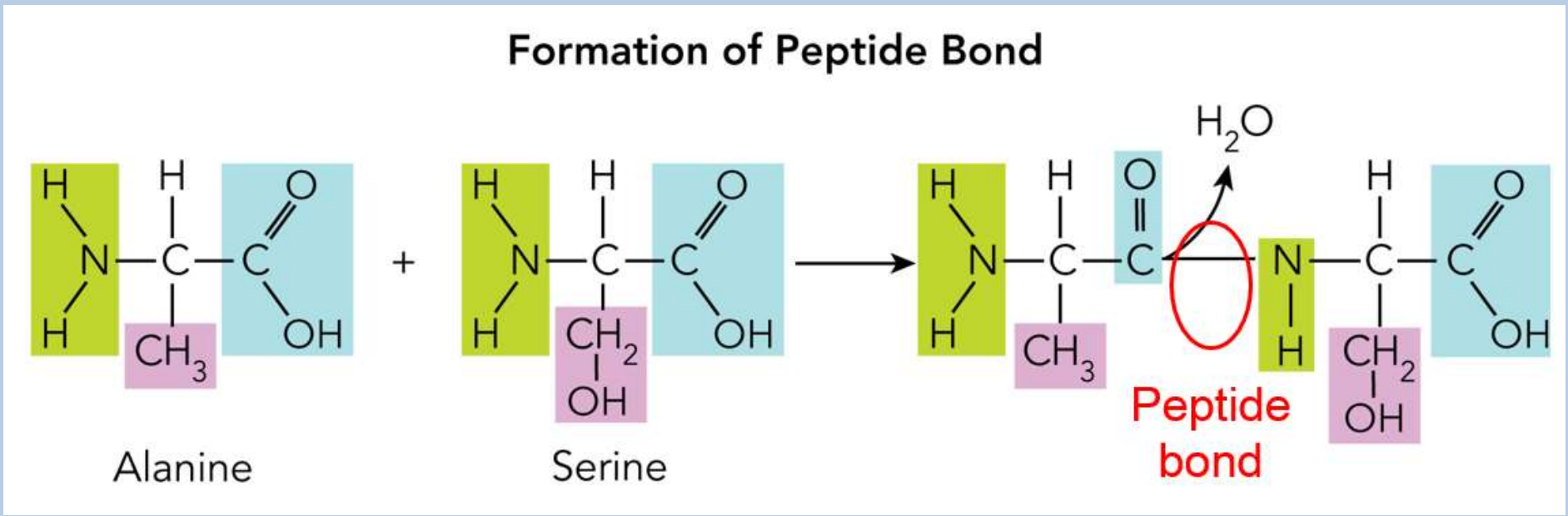
Protein Monomer: Amino Acid



Protein polymers: polypeptide chains

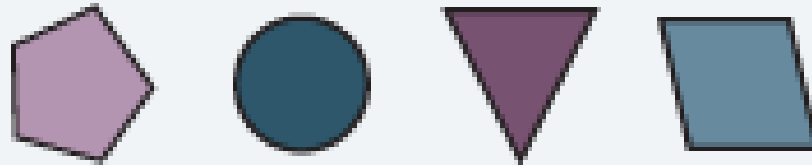
Amino acids are connected by peptide bonds

What kind of reaction is this?

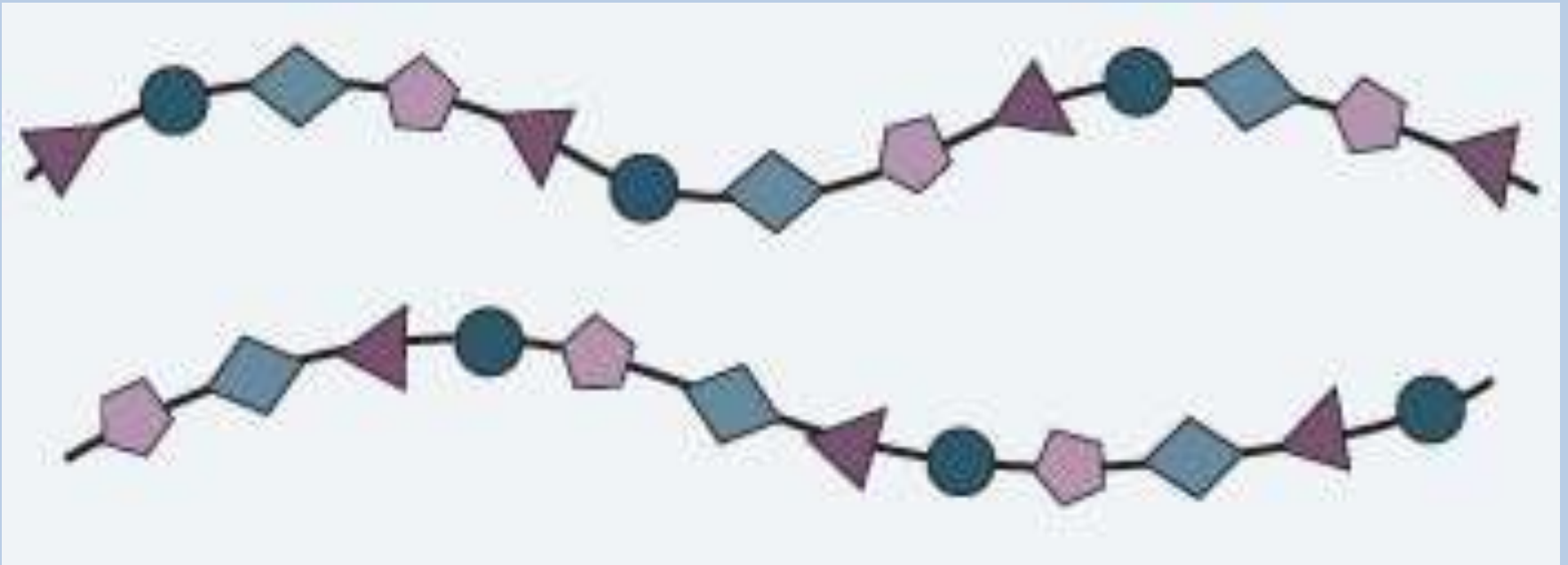


Protein polymers: polypeptide chains

Each shape represents a different amino acid

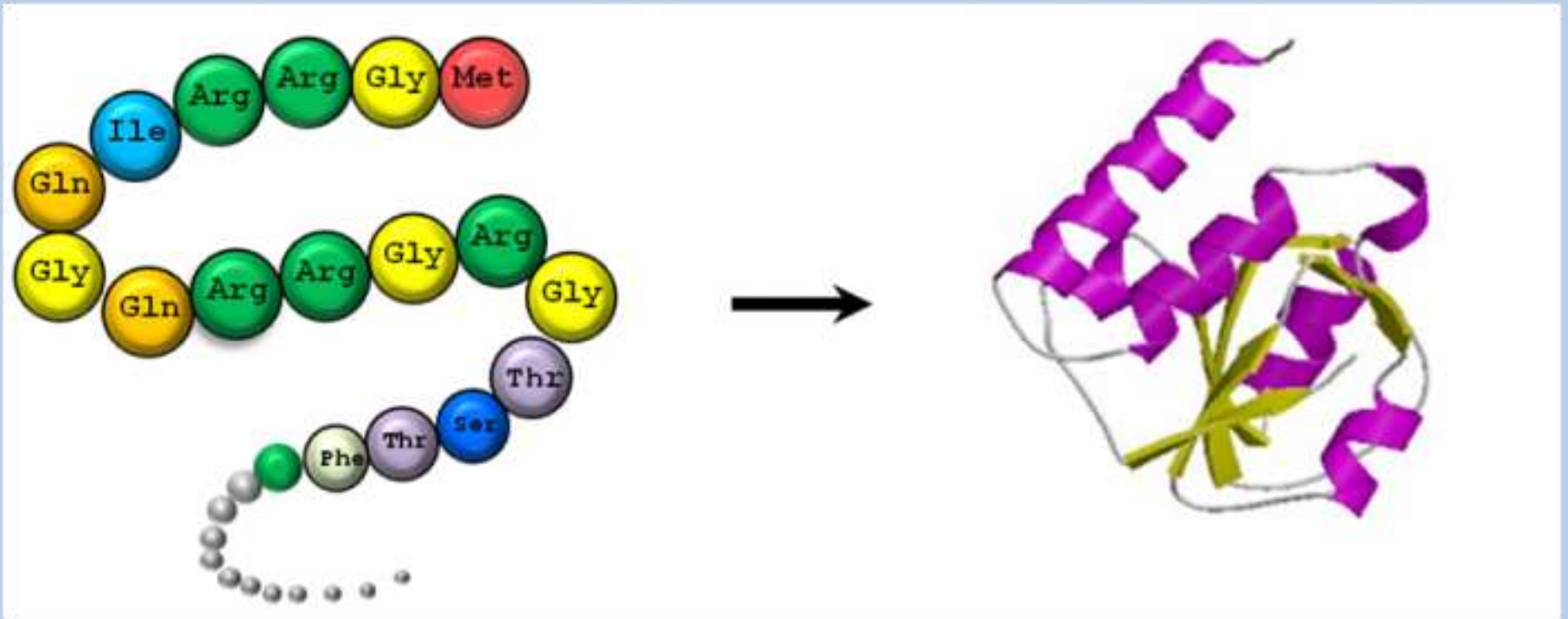


Amino acids are connected by peptide bonds



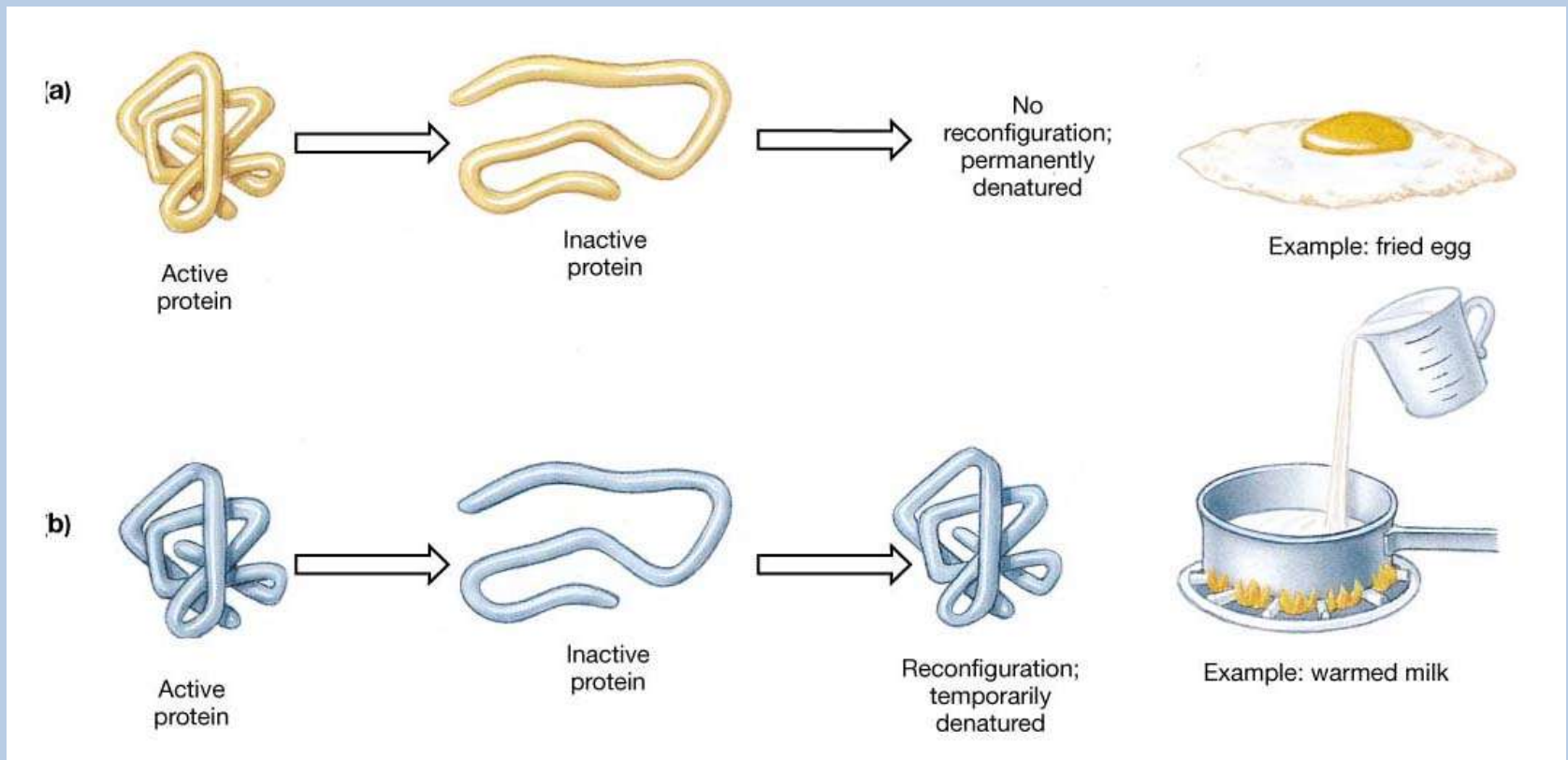
Protein Structure

Functional proteins are made of multiple polypeptide chains



Denatured Proteins

The structure of proteins determines the function



Lipids

Used for energy



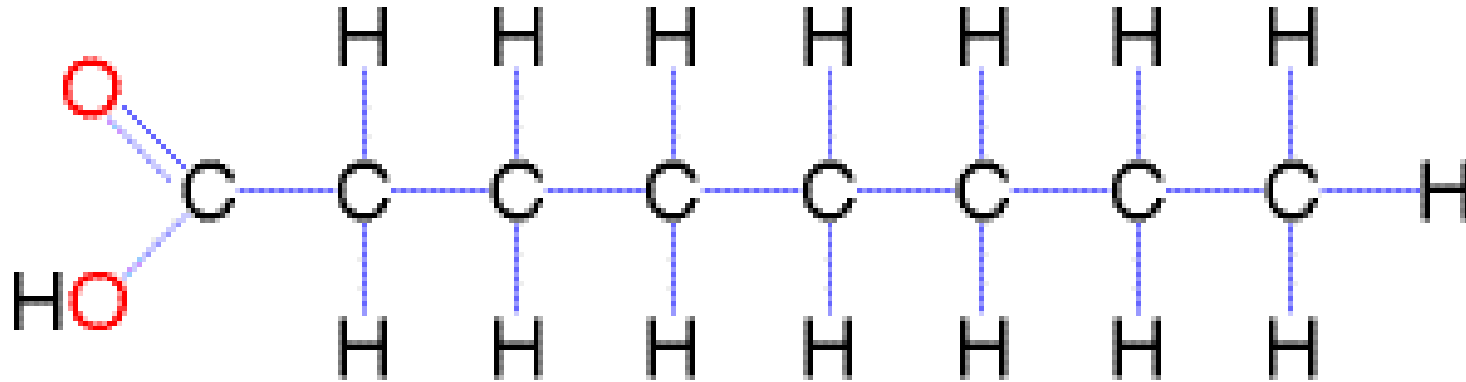
GOOD FATS

VS.

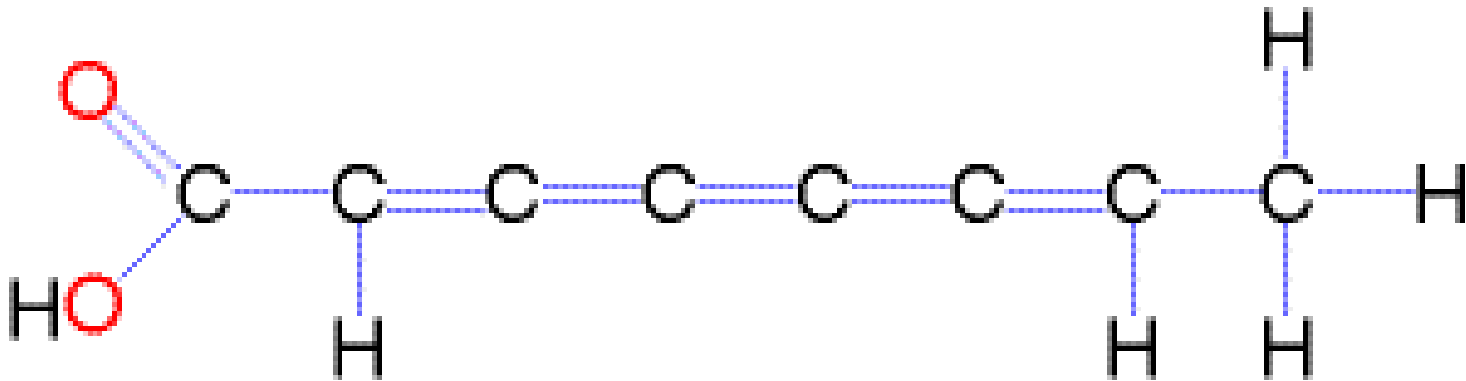
BAD FATS



Lipid monomers: fatty acids

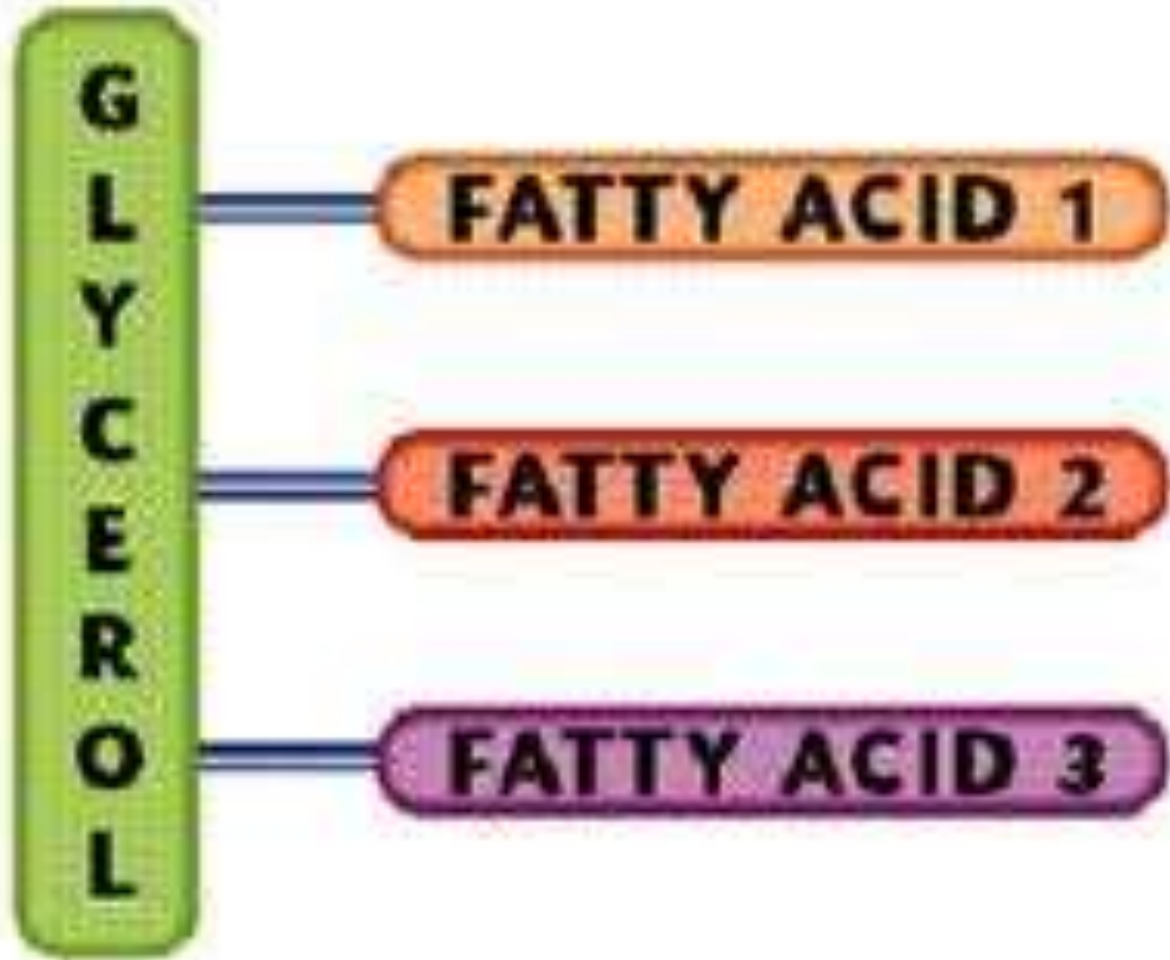


Saturated



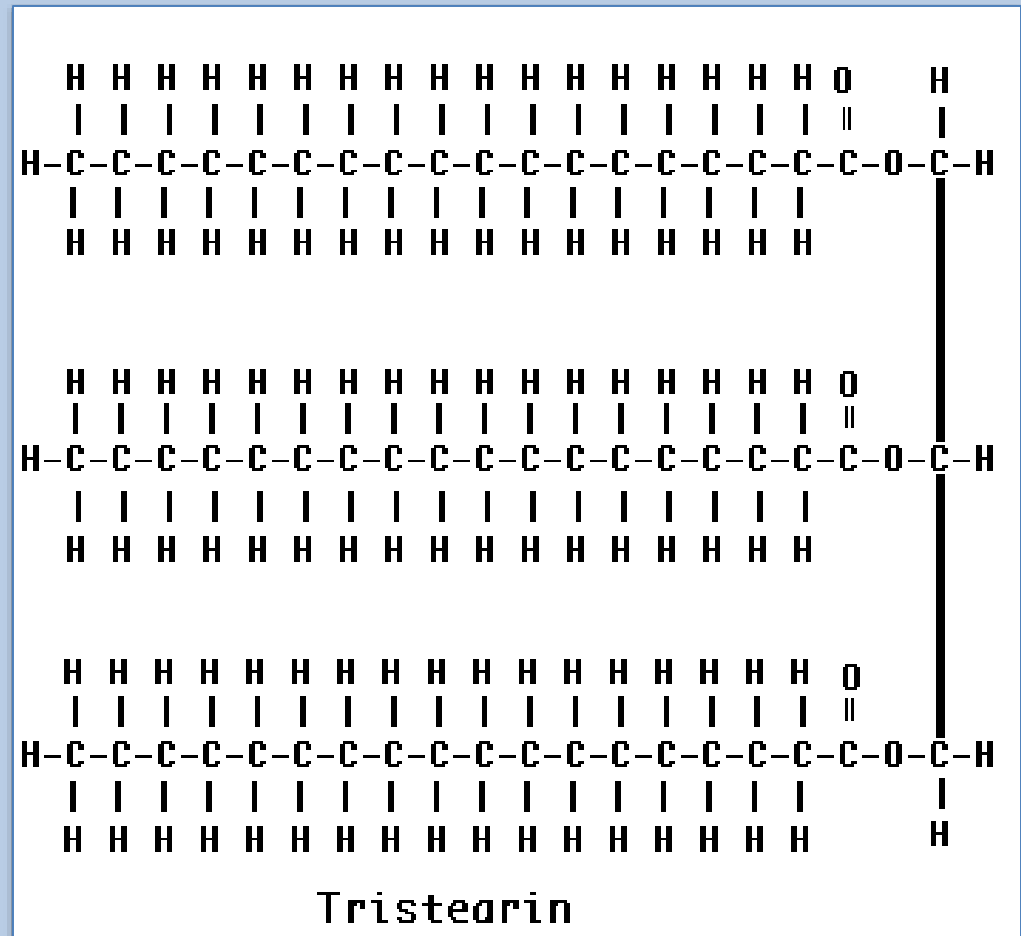
Unsaturated

Lipid polymers: triglycerides



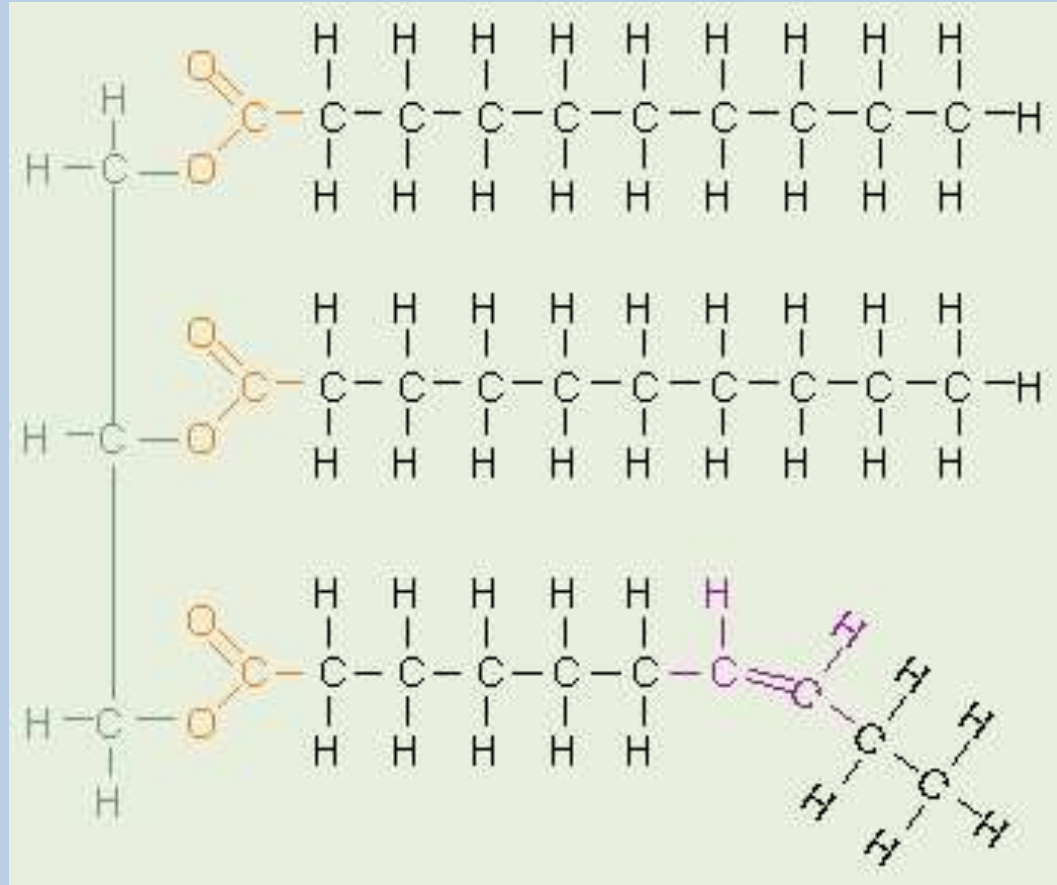
Lipid polymers: animal fats

- 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

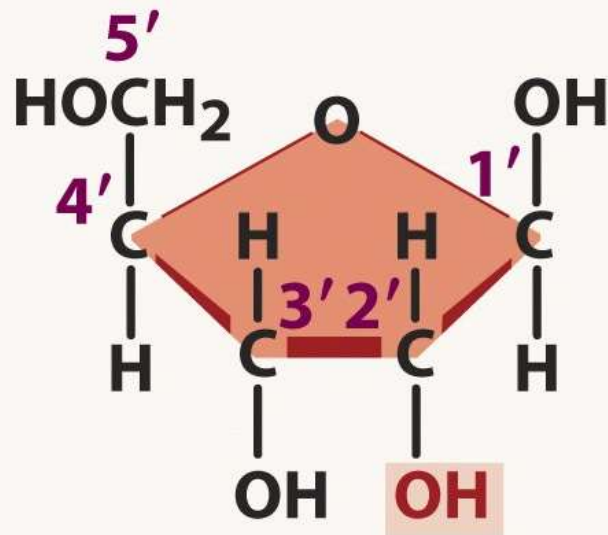
Used as instructions



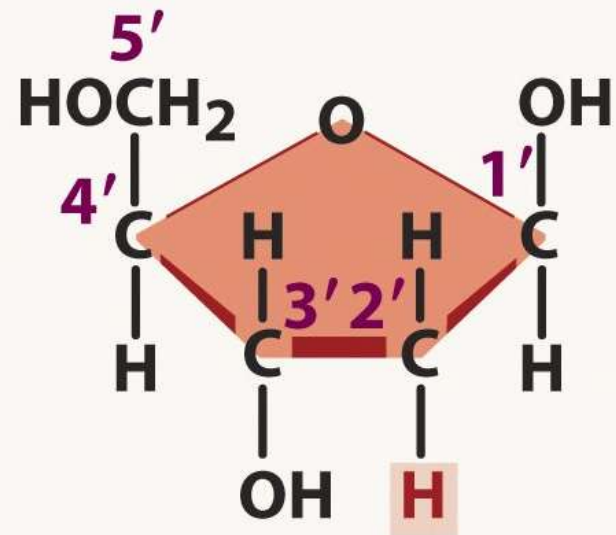
Nucleic acid types: RNA and DNA

RNA uses ribose sugar,
DNA uses deoxyribose

Sugars



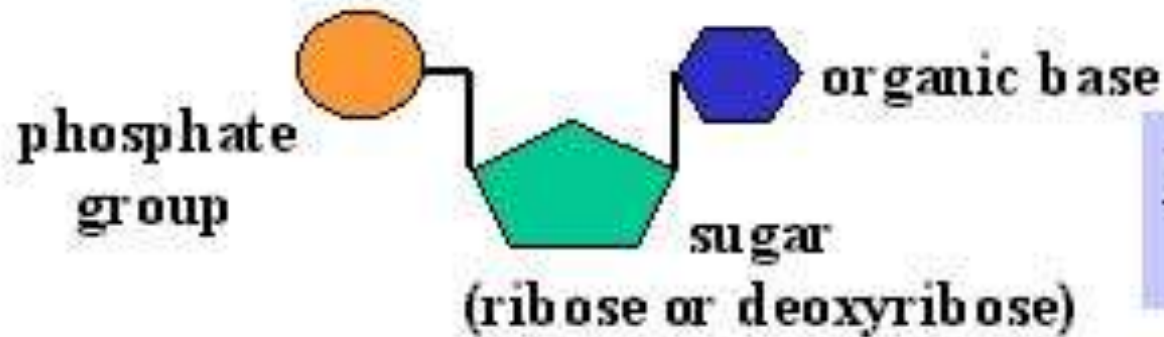
Ribose



Deoxyribose

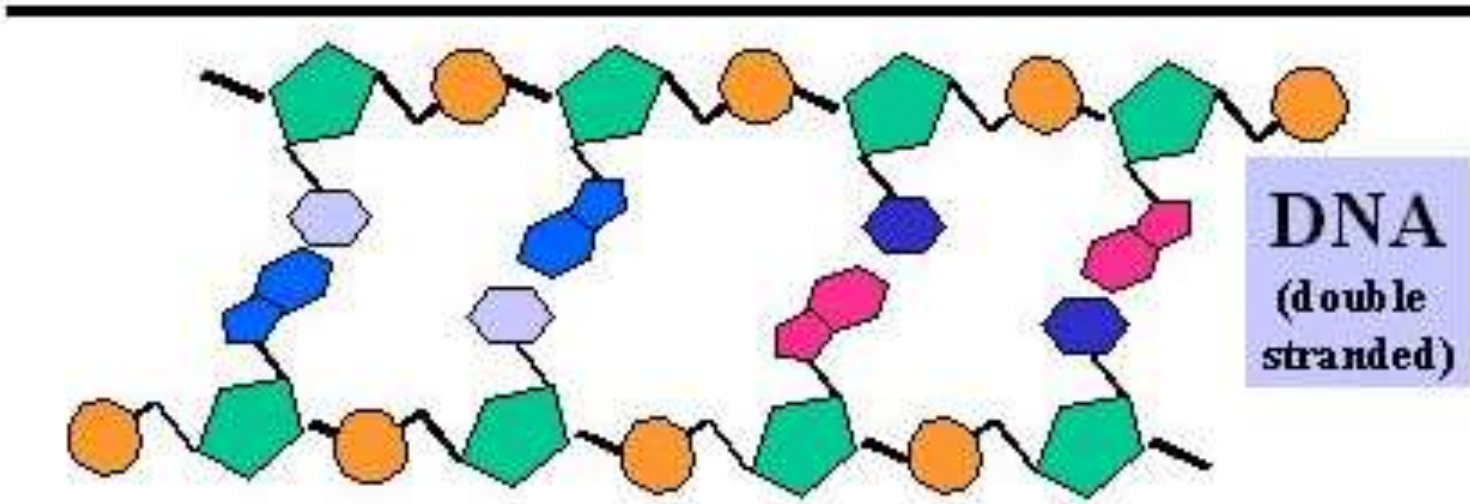
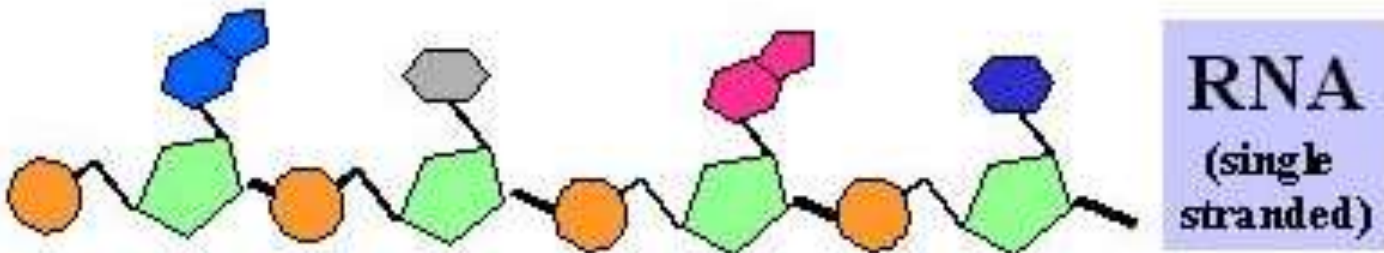
Nucleic acid monomers: nucleotide

Nucleotides have three parts:
Phosphate, sugar, base



**NUCLEOTIDE
MONOMER**

Nucleic acid polymers: RNA and DNA



Macromolecules

- **Why are polymers important for life?**



INTERMISSION



Indicator Lab

- **Today you will be using chemical indicators to test for the presence of various macromolecules in the hopes of identifying each solution**

Indicator Lab

- Today we will complete lab data collection procedures
 - Follow the directions CAREFULLY
 - CLEAN UP AFTER YOURSELVES

Indicator Lab

- **A chemical indicator is a chemical that shows if a particular molecule is present or not**

Indicator Lab

- **When we run chemical indicator tests we always use a positive and negative reference**
 - **The following are references for the tests you will run for this lab**

Chemical Tests: Starch



Positive Lugol's Test

Negative Lugol's Test

Chemical Tests: Proteins

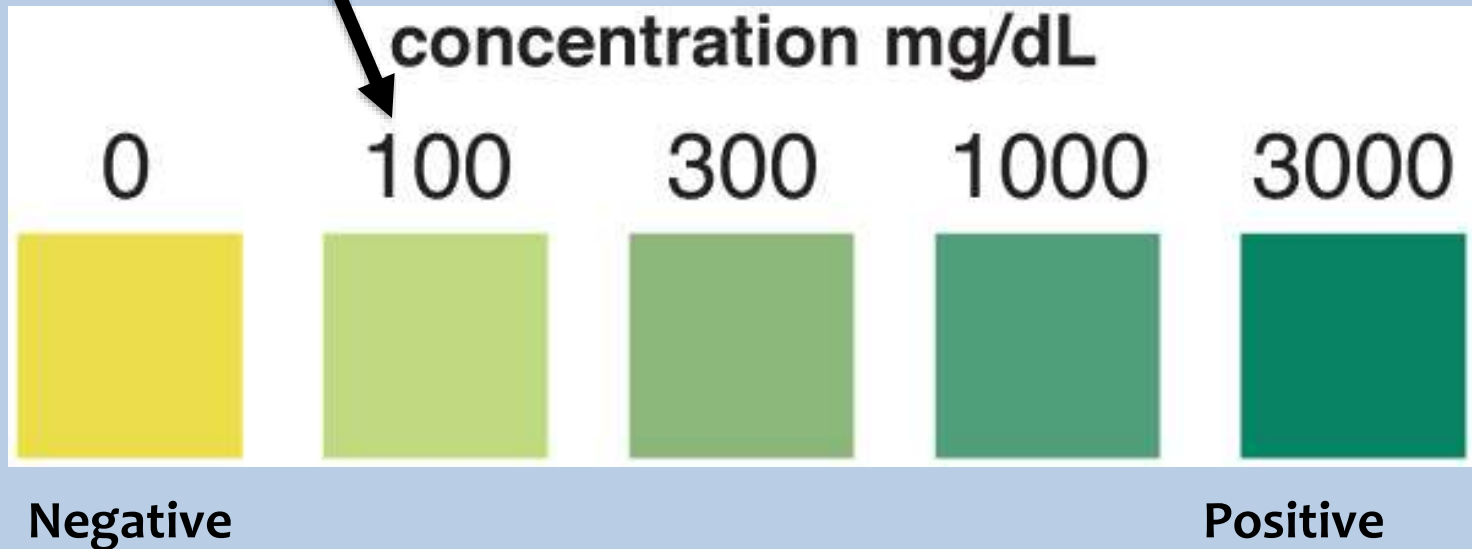


Positive Biurets Test

Negative Biurets Test

Chemical Tests: Glucose

(Even if it just turns very slightly green it is positive)



Chemical Tests: Lipids



Indicator Lab

- **PLEASE, PLEASE, PLEASE
CLEAN UP AFTER YO'SELF**
- **BE CAREFUL!**

Indicator Lab

- **Complete your pre-lab and hypothesis**
- **Get checked off**
- **Goggles on!**
- **Start your lab**

Indicator Lab

- Enter your results:
- <http://bit.ly/2mldQSt>



- Start Analysis

Indicator Lab

- **Pre-Lab:**
 1. What is a macromolecule?
 2. Based on your knowledge of macromolecules, which molecules do you think will be in...
 - a. The meat:
 - b. The cheese:
 - c. The bun:
 - d. The fries:
 3. What is a chemical indicator?
- **Hypothesis:** (If sample 1 is (*food item*) then it will contain (*molecule type*) because...

Indicator Lab

- **Include:**
 - Pre-Lab
 - Hypothesis
 - Data

<u>Food Item</u>	<u>Starch</u>	<u>Monosaccharide</u>	<u>Protein</u>	<u>Lipid</u>
1				
2				
3				
4				

Indicator Lab

- **Analysis:**
 1. Name the monomers for each macromolecule:
 - a. Carbohydrates:
 - b. Proteins:
 - c. Lipids:
 - d. Nucleic Acids:
 2. Which macromolecule was the most common in the food items?
 3. Which macromolecule was the least common in the food items?
 4. Was there any contradictory results for any of the food items? If so, identify and explain them.