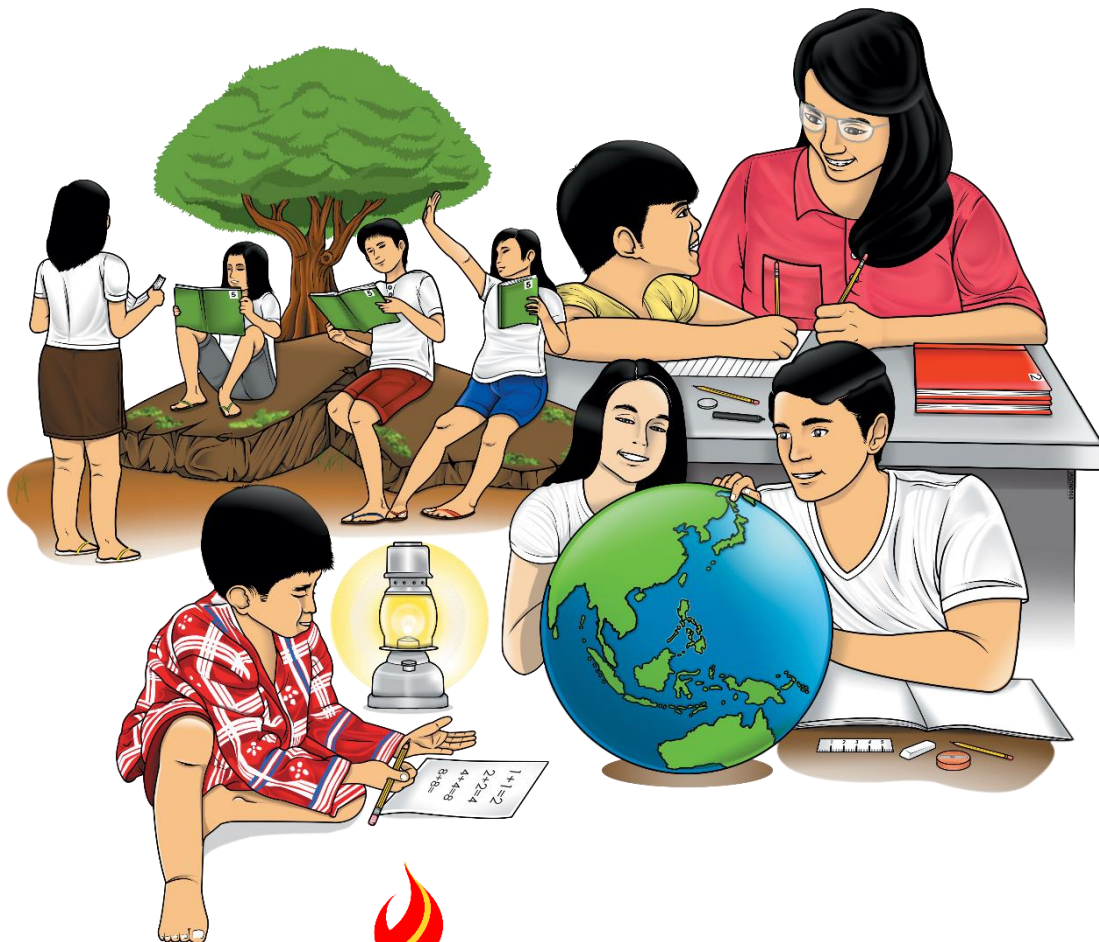


Science

Quarter 4 – Module 2: Biomolecules



Science – Grade 10
Alternative Delivery Mode
Quarter 4 – Module 2: Biomolecules
First Edition, 2020

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Science
Quarter 4 – Module 2:
Biomolecules

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

This module presents activities that lead to your understanding of the structure of biomolecules which are made up mainly of carbon, hydrogen and oxygen as well as proteins and nucleic acids and some derivatives of carbohydrates and lipids.

This module is specifically crafted to focus on the different activities that will assess your level in terms of skills and knowledge with the expectation to demonstrate through the learning material. Read and answer the suggested tasks and accomplish them to understand how biomolecules are essential to life.

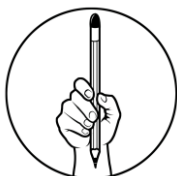
After going through this module, you are expected to:

1. Recognize the major categories of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids (**S10MTIVc-d-22**);

Going through this module can be a meaningful learning experience. All you need to do is make use of your time and resources efficiently. To do this, here are some tips for you:

1. **Take the pretest** before reading the rest of the module.
2. **Take time** in reading and understanding the lesson. Follow instructions carefully. Do all activities diligently. This module is designed for independent or self-paced study. It is better to be slow but sure than to hurry and miss the concepts you are supposed to learn.
3. Use a **clean sheet of paper** for your answers in each activity/ assessment. **Don't forget to write your name.** Label it properly.
4. Try to **recall and connect the ideas** about waves that you had in the lower years. Use the concept discussed in the lesson to explain the results of activities or performance tasks. You may answer in English or a combination of your vernacular and English.
5. **Be honest.** When doing the activities, record only what you have really observed. Take the self-assessments after each activity, but do not turn to the Answer Key page unless you are done with the entire module.
6. **Don't hesitate to ask.** If you need to clarify something, approach or contact your teacher or any knowledgeable person available to help you. You may also look into other references for further information. There is a list of reference at the back part of this module.
7. **Take the posttest** prepared at the end of the module, so you can assess how much you have learned from this module.
8. You can **check your answers** in the activities, self-assessments, and posttest after you finished the entire module to know how much you have gained from the lesson and the activities.

Before you proceed in studying this module, let's check how much you know about this topic. An answer key is provided at the end of the module. But do not try to look at it while answering. You can check your answer after you are done with the pre-test.

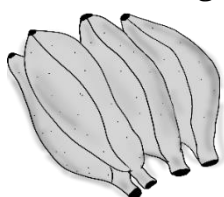


What I Know

Directions: Read carefully each item. Choose the letter of the correct answer.
Use a separate sheet of paper for your answers.

1. Which of the following food items contains the most lipids?

A.



banana

Illustrator: Noel Valedict R. Imus

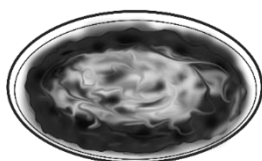
C.



cheese

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B.



champorado

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D.



cooking oil

Illustrator: Noel Valedict R. Imus

2. A macromolecule is composed of smaller units called _____.

A. cells

C. monomers

B. isomers

D. polymers

3. Which of the following is a correct monomer-polymer pair?

A. monomer: disaccharide

C. monomer: polysaccharide

B. polymer: monosaccharide

D. polymer: polysaccharide

4. What will be the correct pairing of monomer of proteins and its function?

A. fat: structure

C. DNA, RNA: store genetic material

B. starch, sugar: cell machinery

D. amino acid: tissue repair

5. Which of the following is **not included** in the main classes of biomolecules?

A. carbohydrates

C. nucleic acids

B. lipids

D. phosphates

6. What do you call the long chain of molecules which may consist of similar building blocks or repeated patterns of molecules?

A. molecules

C. polygons

B. monomers

D. polymers

7. These are large molecules composed of thousands of covalently connected atoms which comprise the main classes of biomolecules.

- A. macromolecules
- B. micromolecules
- C. minimolecules
- D. monomolecules

8. What macromolecule is responsible for cell membrane and energy storage?

- A. carbohydrates
- B. lipid
- C. nucleic acid
- D. protein

9. Which of the following statements is **not true** about monomers?

- A. These can be composed of more than one atom.
- B. These exhibit patterns which ~~is~~ are repeated.
- C. These are single basic building unit of all organic compounds.
- D. When joined together, these form smaller groups called micromeres.

10. Which of the following elements **cannot** be found in biomolecules?

- A. hydrogen
- B. mercury
- C. oxygen
- D. phosphorus

11. Which of the following macromolecule contains carbon, nitrogen, oxygen, phosphorus and hydrogen in its structure?

- A. carbohydrate
- B. lipid
- C. nucleic acid
- D. protein

12. What class of biomolecules do DNA and RNA belong?

- A. carbohydrates
- B. lipids
- C. nucleic acids
- D. proteins

13. Sugar, starch, cellulose and glucose are examples of what class of biomolecules?

- A. carbohydrates
- B. lipids
- C. nucleic acids
- D. proteins

14. What class of biomolecule does the structure represent in Figure 1?

- A. carbohydrates
- B. lipids
- C. nucleic acids
- D. proteins

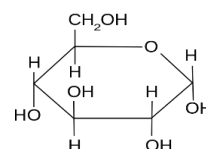


Figure 1. glucose

Illustrator: Noel Valedict R. Imus

15. The image shown in Figure 2 is a structure of oleic acid. What class of biomolecule does it fall?

- A. carbohydrates
- B. lipids
- C. nucleic acids
- D. proteins

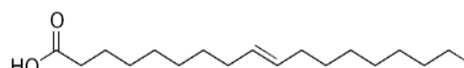


Figure 2. trans - oleic acid

Illustrator: Noel Valedict R. Imus



Answer Key on page 17

How did you find the pretest? What was your score? If you got 15 items correctly, you may skip the module. But if your score is 14 and below, you must proceed with the module.

Lesson

1

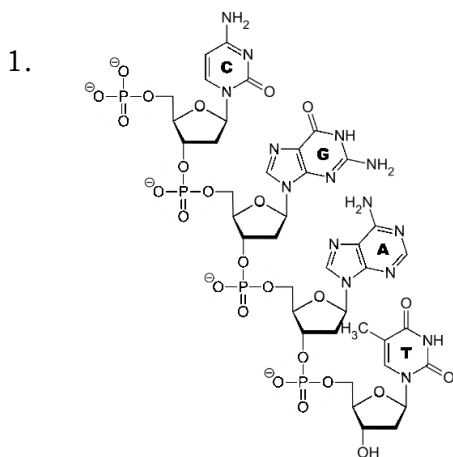
Major Categories of Biomolecules

You are aware that humans, plants and animals are made up of many chemical substances. There are certain complex organic molecules which form the basis of life.

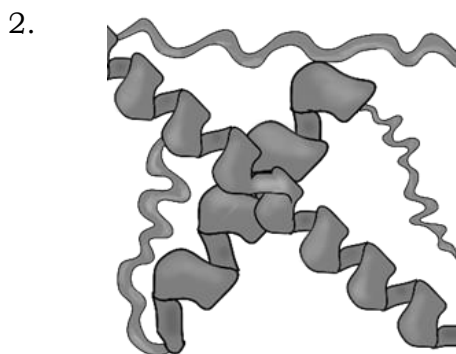


What's In

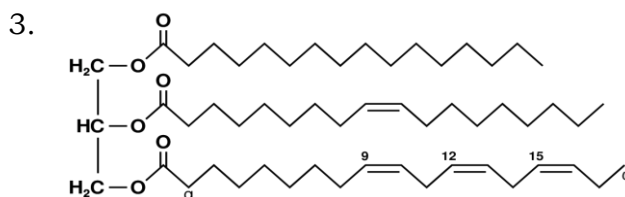
Directions: Do you still remember your discussions in Organic Chemistry during your Grade 9? Below are the different molecular structures and chemical models related to biomolecules that will be discussed in this module. Supply the missing letters of the unknown terms. Write your answers on a separate sheet of paper.



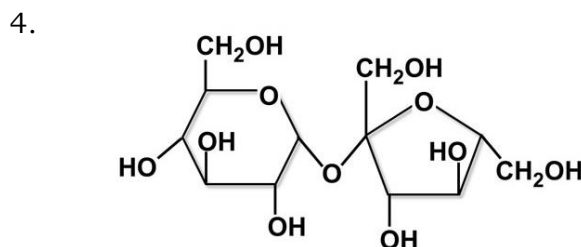
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Illustrator: Noel Valedict R. Imus



p r _ t _ _ n
Illustrator: Noel Valedict R. Imus



l _ p _ d
Illustrator: Noel Valedict R. Imus



c _ r b _ _ y _ r _ t e
Illustrator: Noel Valedict R. Imus

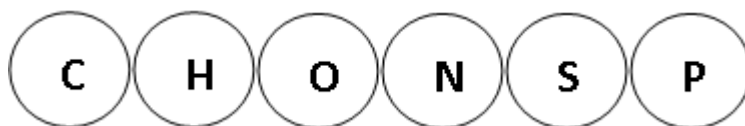
Have you recalled the terms well? You may refer back to this page when you want to be familiarized with the structure of these substances.

There are certain complex organic molecules which form the basis of life. These substances are part of the chemical composition of all living organisms. These substances-are also required for their growth, maintenance and even for survival in extreme environment conditions. These substances are called **biomolecules**.

The **main classes of biomolecules** are **carbohydrates, proteins, lipids, and nucleic acids**.

These are **macromolecules** - large molecules composed of thousands of covalently connected atoms.

There are **six (6) most common elements** that can be found in biomolecules. These are called **CHNOPS or CHONSP elements**; the letters stand for the chemical abbreviations of the names of these elements.



What's New

Activity: Major Composition

Directions: Look for the six (6) most common elements that can be found in biomolecules. Box the name of the elements that you've found. Use the acronym CHNOPS as basis of the element names. **Use the attached activity sheet at the last page of this module.**

Y	A	N	E	G	O	R	T	I	N	U
S	B	Q	R	L	T	O	N	I	S	R
U	C	P	S	E	N	T	O	L	T	B
R	H	O	T	I	E	O	K	E	A	A
O	D	Y	U	R	G	Y	R	A	R	N
H	E	N	D	A	Y	A	O	C	K	S
P	F	M	V	R	X	A	U	O	U	L
S	G	L	W	Z	O	I	L	L	Y	L
O	X	I	D	A	N	G	F	Y	T	X
H	H	K	X	Y	M	U	E	R	C	Z
P	I	J	C	A	R	B	O	N	W	K



What Is It

Did you find all the elements in the previous activity? Are these elements related to biomolecules?

Remember that biomolecules build up living organisms and are also required for their growth and maintenance. They are any of the numerous substances that are produced by cells and living organisms. Biomolecules have a wide range of sizes and structures and perform a vast array of functions; thus, they are composed of different kinds of elements. These are called **CHNOPS** elements; the letters stand for the chemical abbreviations of **Carbon, Hydrogen, Nitrogen, Oxygen, Phosphorus, and Sulfur**.

There are four major classes of Biomolecules – **Carbohydrates, Proteins, Nucleic acids and Lipids**.

The table below shows the elements that are present in the major classes of biomolecules.

Macromolecules	Elements Present
Carbohydrates	carbon, hydrogen and oxygen
Protein	carbon, hydrogen, oxygen, nitrogen and sulfur
Lipids	carbon, hydrogen, oxygen, phosphorus, sulfur (lipids can also contain N, but for most cases, this is sufficient)
Nucleic Acid	carbon, hydrogen, oxygen, phosphorus, nitrogen and sulfur

Carbohydrates

These molecules are comprised of the elements **carbon (C), hydrogen (H), and oxygen (O)**. Commonly, these molecules are known as *sugars*. Carbohydrates can range in size from very small to very large. Like all the other biomolecules, carbohydrates are often built into long chains by stringing together smaller units. This works like adding beads to a bracelet to make it longer. The general term for a single unit or bead is a *monomer*. The term for a long string of monomers is a *polymer*. Examples of carbohydrates include the sugars found in milk (lactose) and table sugar (sucrose).

Carbohydrates are chemically defined as polyhydroxy aldehydes or ketones or compounds which produce them on hydrolysis. In layman's terms, we acknowledge carbohydrates as sugars or substances that taste sweet. They are collectively called as saccharides (Greek: *sakcharon* = sugar). Depending on the number of sugar units,

carbohydrates can be as **monosaccharides (1 sugar unit)**, **oligosaccharides (2-10 sugar units)** and or **polysaccharides (more than 10 sugar units)**.

Carbohydrates have several functions in cells. They are an excellent source of energy for the many different activities going on in our cells. Some carbohydrates may have a structural function. For example, the material that makes plants stand tall and gives wood its tough properties, is a *polymer form of glucose* known as **cellulose**. Other types of sugar polymers make up the stored forms of energy known as **starch** and **glycogen**. Starch is found in plant products such as potatoes, and glycogen is found in animals.

Proteins

Proteins are another class of indispensable biomolecules, which make up around 50 percent of the cellular dry weight. Proteins are comprised of the elements carbon, nitrogen, oxygen, hydrogen and sometimes sulfur. Proteins are polymers of amino acids, arranged in the form of chain called polypeptide. Depending on how the structure of a protein is arranged, it gives rise to a certain level of structural organization. The level can be classified as **primary, secondary, tertiary and quaternary**.

Proteins play both structural and dynamic roles. They help form many of the structural features of the body including hair, nails and muscles. **Myosin** is the protein that allows movement by contraction of muscles. Proteins are also present as a major component of cell membranes. Being part of cell membranes, proteins act as carriers or channels, facilitating the movement of ions and molecules in and out of the cells. Ions like sodium, potassium and chloride, molecules like glucose are maintained at proper concentration for cells to function normally. Proteins also acts as catalyst. A large group of proteins, known as **enzymes**, enable the cells to carry out chemical reactions fast. In order for the organism to maintain growth and survival, the food being consumed must be converted to energy at an appreciable rate.

Lipids

The term **lipid** refers to a wide variety of biomolecules including fats, oils, waxes and steroid hormones. Regardless of their structure, location or function in a cell/body, all lipids share common features that enable them to be grouped together. They do not dissolve in water; they are **hydrophobic**. The hydrophobic nature of the lipids dictates many of their uses in biological systems. Lipids are composed primarily of **carbon, hydrogen, oxygen, phosphorus and sulfur (lipids also contain nitrogen in some cases)**. Fats are a good source of stored energy while oils and waxes are used to form protective layers on our skin, preventing infection. Some lipids, the steroid hormones, are important regulators of cell activity. The activities of steroid hormones such as estrogen have been implicated in cancers of the female reproductive system.

Nucleic Acids

Nucleic acid, naturally occurring chemical compound that is capable of being broken down to yield phosphoric acid, sugars, and a mixture of organic bases (purines and pyrimidines). Nucleic acids are the main information-carrying molecules of the cell, and, by directing the process of protein synthesis, they determine the inherited characteristics of every living thing. These molecules are comprised of elements **carbon, hydrogen, oxygen, phosphorus and nitrogen**. The two main classes of nucleic acids are **deoxyribonucleic acid (DNA)** and **ribonucleic acid (RNA)**.

DNA is the master blueprint for life and constitutes the genetic material in all free-living organisms and most viruses. DNA contains the information on what proteins will be created. On the other hand, RNA is the one responsible to create the proteins based on the information given by the DNA. RNA is the genetic material of certain viruses, but it is also found in all living cells.

Nucleic acids are **polynucleotides**—that is, long chainlike molecules composed of a series of nearly identical building blocks called **nucleotides**. Each nucleotide consists of a nitrogen-containing aromatic base attached to a pentose (five-carbon) sugar, which is in turn attached to a phosphate group. Each nucleic acid contains four of five possible nitrogen-containing bases: **adenine (A)**, **guanine (G)**, **cytosine (C)**, **thymine (T)**, and **uracil (U)**. A and G are categorized as purines, while C, T, and U are collectively called pyrimidines.

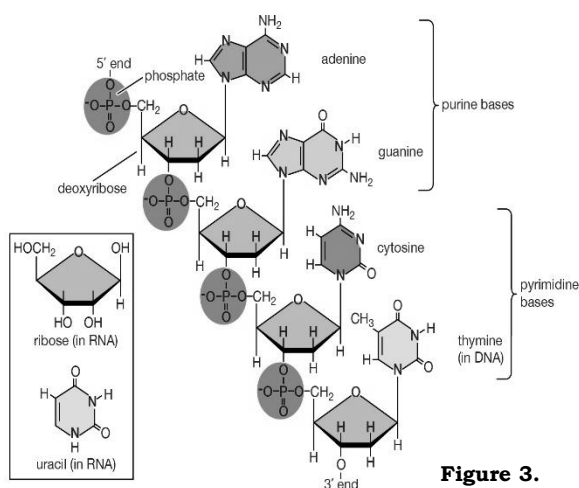


Figure 3.
polynucleotide
chain of (DNA)

Illustrator: Noel Valedict R. Imus

Biomolecules have a single basic building unit called a **monomer**. It comes from the Greek words **monos**, meaning "single" and **meros** meaning "part".



Illustrator: Noel Valedict R. Imus

A **monomer** is a **single unit forming a long chain of molecules creating a repeated pattern**. The long chain molecule is now composed of many atoms. Monomers are **joined together** to form **polymers**. The prefix “-poly” comes from the Greek word **polus**, meaning “many”, so polymer means "many parts." This is a **long molecule consisting of many similar building blocks, or a repeated pattern of various building blocks**.

What do macromolecules do?

Macromolecule	Elements present	Monomer	Examples	Uses
Carbohydrates	carbon, hydrogen, oxygen	monosaccharides	glucose, fructose, starch, glycogen, cellulose	energy storage; structure
proteins	carbon, hydrogen, oxygen, nitrogen, sulfur	amino acids	enzymes, some hormones	Storage; signals; structural; defensive; catalyst; transport; receptors
Lipids	carbon, hydrogen, oxygen, phosphorus, sulfur	fatty acid	Butter, oil, cholesterol, beeswax	energy storage, protection, chemical messengers, repel water
nucleic acids	carbon, hydrogen, oxygen, nitrogen, phosphorus	nucleotides	DNA, RNA	genetic information



What's More

Enrichment Activity 1. Macromolecules' Specific Elements

What You Have To Do

Match the macromolecules in column A with the elements present in them in column B by drawing a line to connect each dot.

A		B
○	○	○
○	○	○
○	○	○
○	○	○

Column A: carbohydrate, lipids, proteins, nucleic acids

Column B: CHOPS, CHO, CHOPNS, CHONP

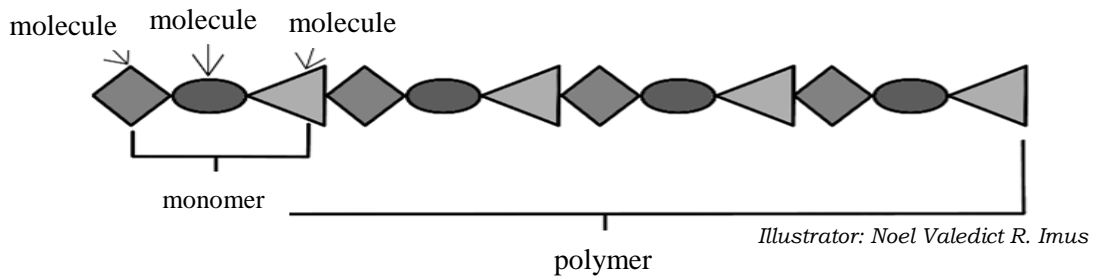
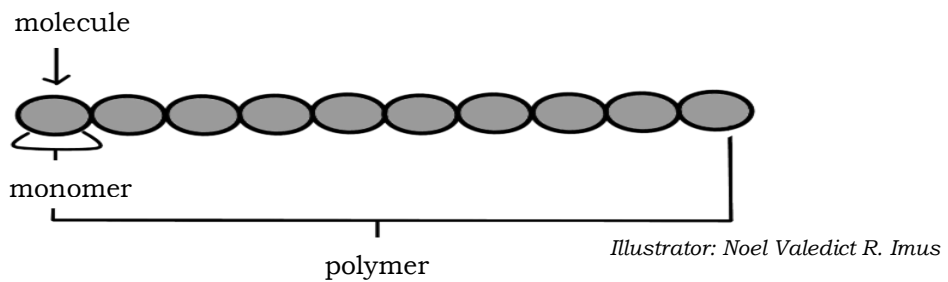
Assessment 1

Directions: Read and answer the following questions. Write only the letter of your choice. Use a separate sheet of paper for your answers.

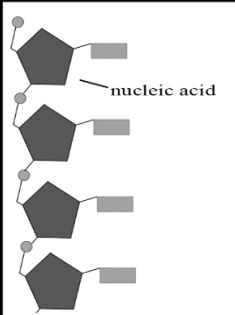
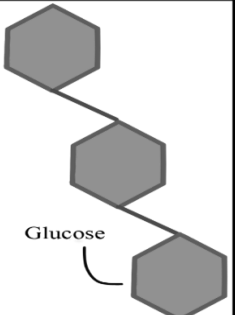
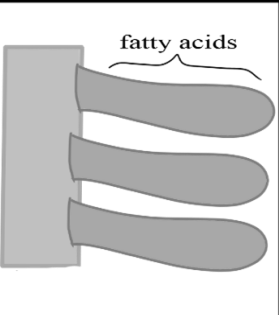
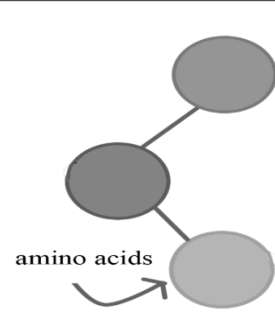
- Which of the following elements is **NOT** present in the composition of a carbohydrate?
A. carbon
B. hydrogen
C. nitrogen
D. oxygen
- Lipids are composed of what group of elements?
A. Carbon, Hydrogen, Oxygen, Phosphorus and Sulfur
B. Carbon, Nitrogen and Oxygen
C. Carbon, Oxygen and Phosphorus
D. Carbon, Oxygen and Sulfur
- These are macromolecules that serve as main information-carrying molecules of the cell.
A. carbohydrates
B. lipids
C. nucleic acids
D. proteins

4. Fats are example of which macromolecule?
 A. carbohydrate
 B. lipid
 C. nucleic acid
 D. protein
5. DNA and RNA are polymers of which macromolecule?
 A. carbohydrate
 B. lipid
 C. nucleic acid
 D. protein

All macromolecules are polymers made up of monomers. Monomers are repetitive units that form a larger compound. Look at the image below to familiarize yourself with monomer and polymer structure.



Monomers of Biomolecules

Nucleic Acid	Carbohydrates	Lipids	Amino Acids
 nucleic acid	 Glucose	 fatty acids	 amino acids

Illustrator: Noel Valedict R. Imus

The classes of biological molecules may be grouped into the types of polymers they form and the monomers that act as subunits:

- **Lipids** - polymers called **diglycerides, triglycerides**; monomers are **fatty acids**
- **Proteins** - polymers are known as **polypeptides**; monomers are **amino acids**

- **Nucleic Acids** - polymers are **DNA** and **RNA**; monomers are **nucleotides**, which are in turn consist of a nitrogenous base, pentose sugar, and phosphate group
- **Carbohydrates** - polymers are **polysaccharides** and **disaccharides**; monomers are **monosaccharides** (simple sugars)

Enrichment Activity 2. Mono – Poly

What You Have To Do

1. Match the MONOMer on the left to the macromolecules on the right. Write the letter of the corresponding macromolecule on the blank.

Fatty acids	_____	A. Carbohydrate
Monosaccharide	_____	B. Lipid
Nucleotide	_____	C. Nucleic acid
Amino acid	_____	D. Protein

2. Match the POLYmer on the left to the macromolecules on the right. Write the letter of the corresponding macromolecule on the blank.

DNA	_____	A. Carbohydrate
Polypeptide	_____	B. Lipid
Triglyceride	_____	C. Nucleic acid
Polysaccharide	_____	D. Protein

3. Match the MONOMer on the left to the POLYmer on the right. Write the letter of the corresponding macromolecule on the blank.

Fatty acids and glycerol	_____	A. DNA
Glucose	_____	B. Polypeptide
Nucleotide	_____	C. Starch
Amino acid	_____	D. Triglyceride

Assessment 2

Directions: Complete the table below by supplying AT LEAST ONE example of a monomer with its polymer for each macromolecule. Use a separate sheet of paper for your answers.

Macromolecule	Monomer	Polymer
Lipids		
Carbohydrates		
Nucleic Acids		
Proteins		



What I Have Learned

Great job! You are almost done with this module. Let's summarize what you have learned from the lesson and activities by completing the sentences using the words inside the box. You can only use each word once.

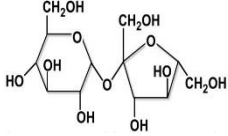
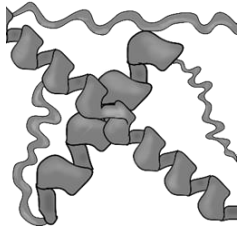
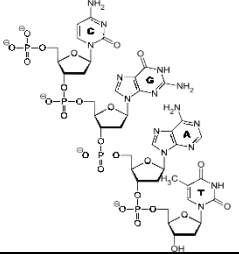
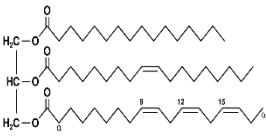
polymers	biomolecules	hydrogen	carbon	sulfur
monomer	macromolecules	nitrogen	phosphorus	oxygen

The main classes of (1)_____ are carbohydrates, proteins, lipids, and nucleic acids. These (2)_____ are large molecules composed of thousands of covalently connected atoms. There are six most common elements that can be found in biomolecules. These are called CHNOPS elements; the letters stand for the chemical abbreviations of (3)_____, (4)_____, (5)_____, (6)_____, (7)_____, and (8)_____. A (9)_____ is a single pattern repeated over and over. It can be composed of many atoms. Monomers join together to form (10)_____.



What I Can Do

The table below shows the functions, examples as well as the food source of the different macromolecules that you've learned from this module.

Biomolecule	Monomer(s)	Function	Food Source	Example(s)
	Monosaccharides	Provide material to build cell membrane Provide quick energy for cells	Pastas Breads Fruits Vegetables	Glucose Fructose Lactose Cellulose
	Amino Acids	Provide structure Aid in muscle movement Provide immunity	Seafood Milk Eggs Cheese	Insulin Hemoglobin Antibodies Enzymes
	Nucleotides	Contain genetic information Direct growth and development	---	DNA RNA
	Glycerol (backbone) Fatty Acids	Store energy Cushion and insulate organs Used for cell membrane	Butter Nuts Oil	Fats Oils Waxes

As an application of what you have learned, roam around your kitchen and collect some items that you can categorize as sources of each macromolecule. Make your own table with the list of items available in the place.

Macromolecules	Food Sources
Carbohydrates	
Proteins	
Nucleic Acids	
Lipids	

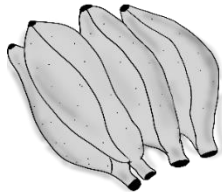


Assessment

Directions: Read carefully each item. Write only the letter of the correct answer for each question. Use a separate sheet of paper for your answers.

1. Which of the following food items contains the most lipids?

A.



banana

Illustrator: Noel Valedict R. Imus

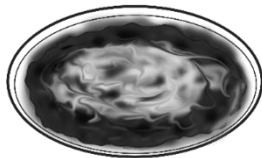
C.



cheese

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B.



champorado

Illustrator: Noel Valedict R. Imus

D.



cooking oil

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2. A macromolecule is composed of smaller units called _____.

A. cells

C. monomers

B. isomers

D. polymers

3. Which of the following is a correct monomer-polymer pair?

A. monomer: disaccharide

C. monomer: polysaccharide

B. polymer: monosaccharide

D. polymer: polysaccharide

4. What will be the correct pairing of monomer of proteins and its function?

A. fat: structure

C. DNA, RNA: store genetic material

B. starch, sugar: cell machinery

D. amino acid: tissue repair

5. Which of the following is **not included** in the main classes of biomolecules?

A. carbohydrates

C. nucleic acids

B. lipids

D. phosphates

6. What do you call the long chain of molecules which may consist of similar building blocks or repeated patterns of molecules?

A. molecules

C. polygons

B. monomers

D. polymers

7. These are large molecules composed of thousands of covalently connected atoms which comprise the main classes of biomolecules.
- A. macromolecules
B. micromolecules
C. minimolecules
D. monomolecules
8. What macromolecule is responsible for cell membrane and energy storage?
- A. carbohydrates
B. lipid
C. nucleic acid
D. protein
9. Which of the following statements is **not true** about monomers?
- A. These can be composed of more than one atom.
B. These exhibit patterns which ~~is~~ are repeated.
C. These are single basic building unit of all organic compounds.
D. When joined together, these form smaller groups called micromers.
10. Which of the following elements **cannot** be found in biomolecules?
- A. hydrogen
B. mercury
C. oxygen
D. phosphorus
11. Which of the following macromolecule contains carbon, nitrogen, oxygen, phosphorus and hydrogen in its structure?
- A. carbohydrate
B. lipid
C. nucleic acid
D. protein
12. What class of biomolecules do DNA and RNA belong?
- A. carbohydrates
B. lipids
C. nucleic acids
D. proteins
13. Sugar, starch, cellulose and glucose are examples of what class of biomolecules?
- A. carbohydrates
B. lipids
C. nucleic acids
D. proteins

14. What class of biomolecule does the structure represent in Figure 1?

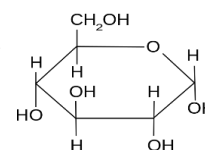


Figure 1. glucose

Illustrator: Noel Valedict R. Imus

15. The image shown in Figure 2 is a structure of oleic acid. What class of biomolecule does it fall?

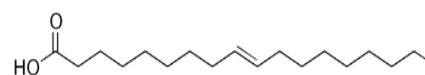
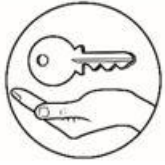


Figure 2. trans - oleic acid

Illustrator: Noel Valedict R. Imus

- A. carbohydrates
B. lipids
C. nucleic acids
D. proteins

Congratulations for accomplishing this module! May you apply the concepts of this lesson in doing your everyday tasks. You may now look at the correct answers to all the activities and assessments. The Answer Key is found on page 17.



Answer Key



Answer Key

What I Know (Pre-test) /Assessment (Post-test)

- 1. D 6. D 11. C
- 2. C 7. A 12. C
- 3. D 8. B 13. A
- 4. C 9. D 14. A
- 5. D 10. D 15. B

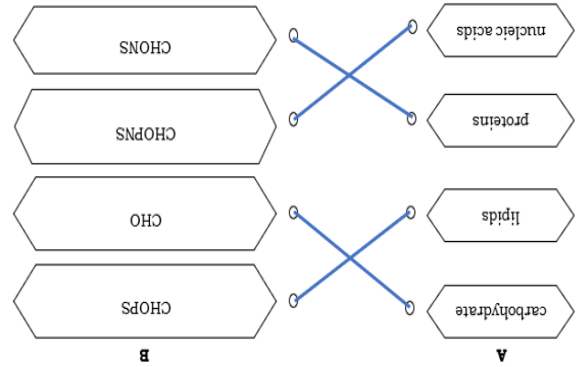
What's In

- 1. nucleic acid
- 2. protein
- 3. lipid
- 4. carbohydrate

Activity: Major Composition

Y	A	N	E	G	O	R	T	I	N	U
S	B	Q	R	L	T	O	N	I	S	R
U	C	P	S	E	T	O	L	T	B	
R	H	O	T	I	E	O	K	E	A	
O	D	Y	U	R	G	X	R	A	R	
H	E	N	D	A	Y	A	O	C	K	
P	F	M	V	R	X	A	U	O	T	
S	G	L	W	Z	O	I	L	Y	L	
X	X	I	D	A	N	G	F	Y	T	
H	H	K	X	V	M	U	E	R	C	
I	I	J	C	A	R	B	O	N	W	
K	K	X	V	M	U	E	R	C	Z	

Enrichment Activity 1



Assessment 1

- 1. C
- 2. A
- 3. C
- 4. B
- 5. C

Enrichment Activity 2

- 1. B 2. C 3. D
- A C D
- B A B

Assessment 2

Macromolecules	Monomers	Polymers
Lipids	glycerol and fatty acids	diglycerides, triglycerides
Carbohydrates	monosaccharides	polysaccharides and disaccharides
Nucleic Acids	nucleotides	DNA and RNA
Proteins	amino acids	polypeptides

What I Have Learned

- 1. biomolecules
- 2. macromolecules
- 3. carbon
- 4. hydrogen
- 5. nitrogen
- 6. sulfur
- 7. phosphorus
- 8. sulfur
- 9. monomer
- 10. polymers

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