



APRIL 13-17, 2020

TOPIC: BIOMOLECULES (CARBOHYDRATES)

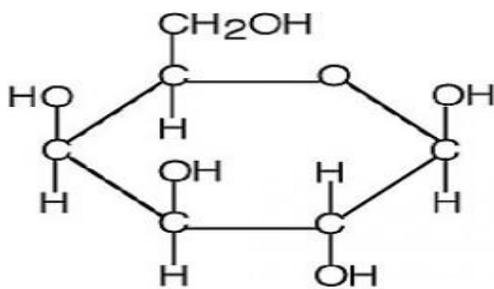
Key Concepts

1. Carbohydrates

- The most abundant biomolecules in the biosphere.
- has a biochemical function, it is important food group for most organism, and their metabolism provides an amount of energy to most organism.

- Monosaccharides- also known as simple sugar, this is the building blocks of large carbohydrate molecules.
- Disaccharides- Two monosaccharides units bond to each other to form a disaccharides. Three most common disaccharides are; sucrose, lactose, and maltose.
- Polysaccharides- are made up of several monosaccharides unit joint together by covalent bonds called glycosidic bonds.
 - Common polysaccharides include starch, glycogen and cellulose.

Structure of Carbohydrates;



Activity 1

Starch can be identified by its reaction with iodine solution. The presence of starch in the sample is indicated by the change in color of the sample to blue-black.

In this activity, you will test for the presence of starch in some common food samples. Prepare the following materials, iodine solution, medicine dropper, small plastic plates, different food samples (e.g., biscuit, candy, etc.)

Procedure:

1. Place a piece of food samples on small plates.
2. Add one drop of iodine solution to each sample.
3. Take note of the color change of iodine in the samples you tested.

Illustration:



Guide Question:

1. Which food contains starch? Which do not?

2. Which food contains more starch? Compare each sample.

Conclusion



Activity 2

Fats in Foods!

Objectives:

1. Extract the fats present in food samples.
2. Describe the extracted fat in the sample qualitatively.

Materials:

Food samples: chocolate (without nuts or raisin), cheese, margarine, acetone; beaker; petri dish; stirring rod; graduated cylinder; balance; mortar and pestle; laboratory goggles

Note: Do not eat the food samples. Wear your laboratory goggles while doing this activity.

Procedure: (This activity is good for two days.)

1. Grind the chocolate using the mortar and pestle.
2. Place about 5 g of ground chocolate in a beaker.
3. Measure the mass of the beaker with the chocolate.
4. Then add 10 ml acetone.
5. Stir and mix well. Do this in a fume hood or in a well-ventilated area. Allow the mixture to settle for one minute.
6. Decant the acetone layer into the petri dish. Make sure that the chocolate layer still remains in the beaker.
7. Repeat steps 4 to 5 using the same chocolate in the beaker. Decant the acetone layer again in the same petri dish with the initial acetone layer.
8. Allow the petri dish with acetone and a beaker with chocolate to dry overnight.
9. Weigh the beaker with the chocolate again the following day. Record the mass. The difference of the two weights is the amount of fats extracted from the chocolate.
- 10 Repeat steps 2 to 9 using the butter and margarine.

Guide questions:

1. What is the purpose of acetone in the experiment?
2. What is the difference in the weight of the food sample?
3. What can you say about the fat extracted in the petri dish in terms of the following:
 - a. odor
 - b. color
 - c. appearance
4. Are the lipid extracted in liquid form or in solid form at room temperature?
5. What makes butter different from margarine?
6. Which do you prepare to buy- butter or margarine? Why?
7. If water is used instead of acetone, do you think you can extract the lipid in the same food sample? Why or why not?

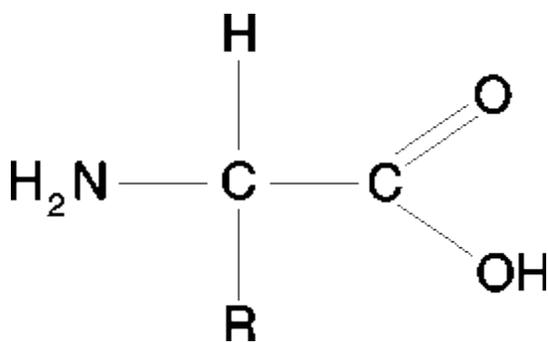


TOPIC: BIOMOLECULES (Proteins and Nucleic acid)

Key Concepts;

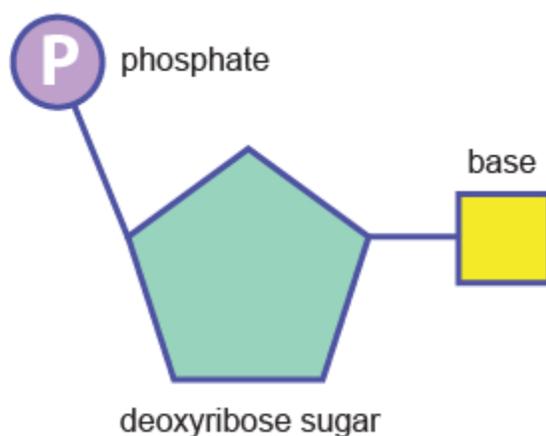
1. Protein- is the vital component of all living systems. It is present in the different parts of the body like muscles, skin, nails, and others. It catalyze reactions, transport oxygen, as well as serve as hormones in the regulation of specific body processes and act as antibodies and blood clotting agents.
2. Amino Acid- it is the building blocks of proteins.

Formula for amino acid:



3. Nucleic acids- a class of biomolecules that can be found in all living organisms and are responsible for the storage of genetic information. It is important in building proteins for our body.
4. Monomer- is the most basic subunit of a complex molecule. Nucleic acids are made from monomer known as nucleotides.

Parts of Nucleic Acid



5. DNA- stores genetic information of your body inside the nucleus of your cells to make copies of it.
6. RNA- takes the information from the nucleus as a message to help in different biological process.

Activity 3

This activity lets you study the structure of DNA and RNA.

Materials: Writing instruments, science notebook

Procedure:

1. Research the structure of the DNA and the RNA. You can consult reliable online resources.
2. Draw the structures of DNA and RNA in the box.



DNA



RNA

Guide Questions

1. What are the common features in the structure of DNA and RNA?
2. Why is the structure of DNA helical?
3. What is the importance of DNA and RNA in a living system?
4. If there were no DNA, and RNA, what do you think would happen to a living system?

Activity 4

Model of Life

Objective: Create a DNA model from locally available materials

Materials: Writing instruments, locally available materials

Procedure:

1. Using locally available materials make a model of the double helical structure of the DNA.
2. Present your model in class.

Guide Question:

1. What locally available materials did you use to represent the following?
 - a. Five carbon sugar-
 - b. Phosphate group-
 - c. Nitrogenous bases-
2. In what way(s) will the double helical structure of DNA be broken?
3. What is the purpose of DNA in a living system?



April 13 - 17, 2020

SUPPLEMENTARY LESSON

TOPIC: CITIZENSHIP

Definition of Terms:

1. **Citizenship** - refers to the recognition of a person as a member or part of the state.
2. **Jus Soli** - refers to an individual's affiliation according to the place of birth, regardless of the citizenship of family.
3. **Jus Sanguinis** - is where an individual can be affiliated to the state if his parents are both citizens of the said state.

1. How can you consider or identify a citizen as Filipino?
 - a. those who were Filipino citizens at the time the 1987 Constitution was approved and ratified
 - b. those whose mothers or fathers are Filipinos, or citizens of the Philippines
 - c. those born before Jan. 17, 1973, having Filipino mothers and chose to avail of a Filipino citizenship when they were of legally appointed age
 - d. naturalized citizens in accordance with the law
2. Who are the only ones qualified to become naturalized Filipinos?
 - a. must be at least 21 years old
 - b. must have lived in the Philippines continuously for 10 years
 - c. must own property on Philippine soil worth not less than ₱5,000 or must have a legal job, profession or be in the field of legal trade
 - d. must know how to speak English or any official language of the Philippines
 - e. must be of good moral character and believes in the principles underlying the Philippine Constitution
 - f. his or her under-aged children must be enrolled in any public or private school
3. How citizenship is lost?
 - a. through the process of naturalization in another country
 - b. through a formal letter stating an individual's voluntary renouncement of his/her citizenship
 - c. by accepting service and being commissioned by another country's army with permission from the republic of the Philippines
 - d. by swearing allegiance to the constitution or by-laws of a foreign country
 - e. by having been declared by a competent authority, a deserter of the Philippine Armed Forces in time of war
 - f. by canceling your certificate of naturalization in court

ACTIVITY 1

Directions: Give your opinion of the following questions.

1. What do you think is the reason why citizenship is part of our curriculum? Explain
2. As a student, what can you do to convince others not to change their citizenship? Explain
3. How important is citizenship in real life? Site an example. Why would you choose to be a citizen of that country?
4. If you would have a choice, would you still like to stay in the Philippines? Why or why not?

ACTIVITY 2

Directions: Make your own pledge for your commitment to the Philippines. Be creative in designing. Use a short bond paper.

ACTIVITY 3

Directions: Answer the following questions.

1. This refers to the recognition of a person as a member or part of the state.
2. This refers to the process of repossession or gaining back of the original citizenship of an individual.
3. This is entitled citizenship in the 1987 Constitution.
4. This is the principle of marriage to a citizen of that state to become a part of it.
5. This must be the age of a foreigner to become naturalized.
6. This section and article clarifies the concept of natural-born citizens.
7. This is the voluntary renouncement of citizenship in a country in favor of a citizenship in another country.
8. These countries use the principle of Jus Soli. Give at least two examples.
9. This is equivalent to citizenship although this refers to a wider concept.
10. These are the rights that a citizen possesses.

References: *Contemporary Issues in the Philippines*



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SUPPLEMENTARY LESSON

TOPIC: TRAVEL AND TOUR SERVICES

ACTIVITY

Directions: Reminisce the moments when you travelled at a tourist destination with your family/friends. Then answer the following questions below:

1.) What tourist destination that you visited became the most memorable for you? Describe the place, the foods, the surroundings and the other things that made that tourist destination special for you.

2.) Imagine that you are a tourist guide of the tourist destination that you visited. How will you promote the destination to the visitors? Use descriptive words to catch the attention of the tourists.

3.) If you will be going back to that tourist destination, how will you explore it if you will be given only a time of 12 hours? Draw a short itinerary that will show your plan on how to explore that destination.

4.) In case you are going to the same tourist destination once again, who would you want to accompany you?

5.) If you will become a Travel Management Company, will you recommend the tourist destination you visited to other people? How? Show your answer with a drawing of the place and then promote it in 2-3 meaningful sentences.
