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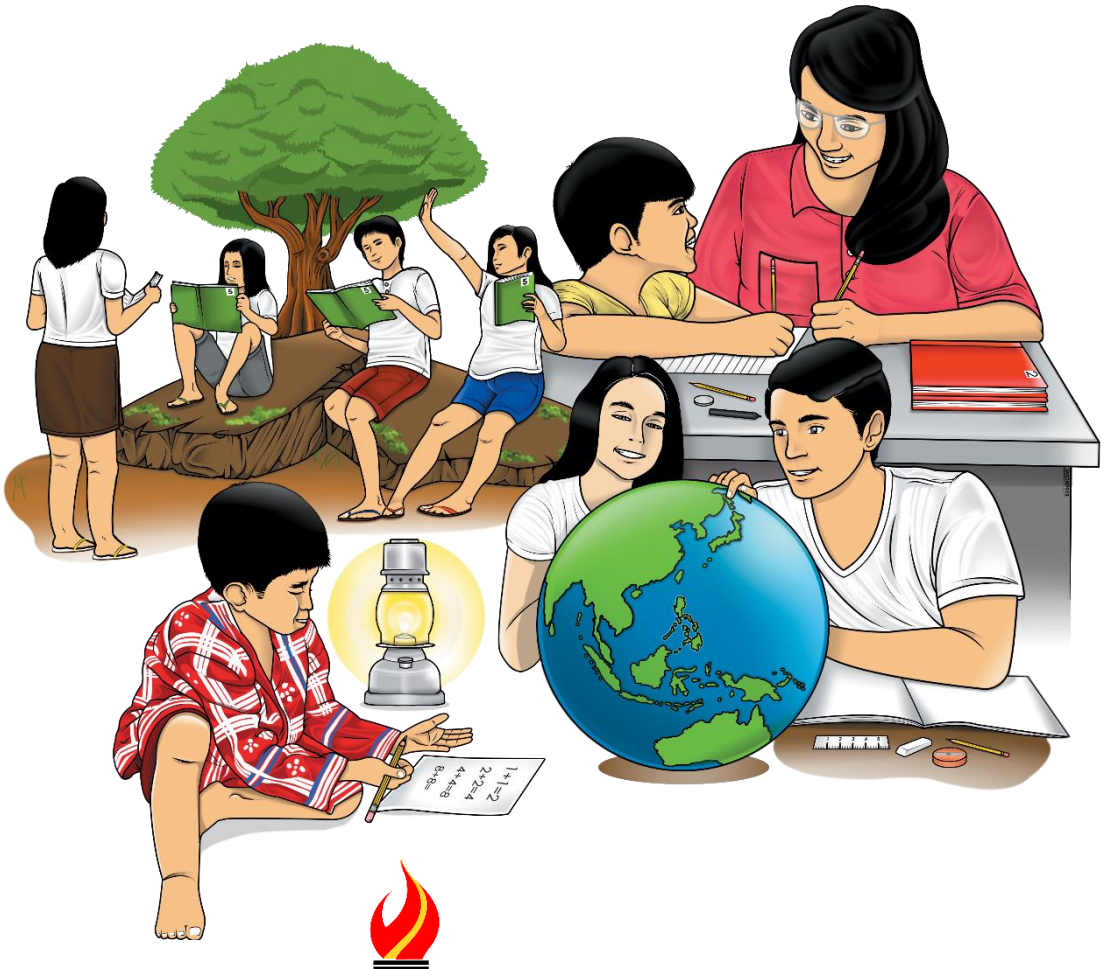
DEPARTMENT OF EDUCATION

Science
Quarter 2- Matter
Module 5: Uses of Organic Compounds



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Science – Grade 9
Alternative Delivery Mode
Quarter 2: Matter - Module 5: Uses of Organic Compounds
First Edition, 2020

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Published by the Department of Education
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Undersecretary: Diosdado M. San Antonio

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Printed in the Philippines by _____

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Quarter 2- Matter
Module 5: Uses of Organic Compounds

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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

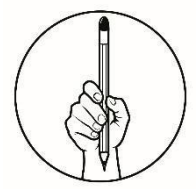
This module was designed and written with you in mind. It is here to help you master Uses of Organic Compounds. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course, but the order in which you read them can be changed to correspond with the textbook you are now using.

The module focuses on achieving this learning competency:

Explain how the structure of the carbon atom affects the type of bonds form. (S9MT-IIg-h-17)

After going through this module, you are expected to:

- determine the different uses of organic compounds and cite examples of each organic compound;
- find the properties of common organic compounds through experimentation; and,
- appreciate the uses of organic compounds.



What I Know

Choose the letter of the best answer. Write your answer on a separate sheet of paper.

1. Which of the following can a Propane (C_3H_8) and Butane (C_4H_{10}) in fluid form be utilized?
   A. Compressed Natural Gas (CNG)
   B. Oxygen cylinders
   C. Butane
   D. Liquid Petroleum Gas (LPG)

2. Which of the following is utilized for artificial maturing of fruits?
   A. Acetone B. Phenol C. Acetylene D. Butane

3. Which of the following is broadly utilized within the oxy-acetylene welding and cutting metals?
   A. Methanol B. Acetylene C. Ethylene D. Phenol

4. Mary's car halted at the center of the street. She found out that her car has run out of fuel. Which compound must she purchase?
   A. Acetone B. Gasoline C. Isopropyl D. Water

5. Juan Victor's grandma was cooking their dinner when she shortly stopped and said, "Oh, the tank is already empty!" Then her grandmother ask him to purchase another tank. What did Victor's grandma instructed him to buy?
   A. Acetone
   B. Formalin
   C. Lubricating oil
   D. Liquefied petroleum gas (LPG

6. Juan Miguel needs to keep his bicycle's parts from rusting quickly. Which of the following material do you think will Miguel utilizes?
   A. Water C. Formalin
   B. Isopropyl alcohol D. Lubricating oil

7. Michelle told her grandson, Miguel, never to play with gasoline. Why do you think she does not permit him to do it?
   A. Gasoline is explosive
   B. Gasoline is flammable
   C. Gasoline is dangerous
   D. all of the above

8. Martin Luis cut his finger inadvertently when he was cutting his nail. He applied something on his wound so that it would not get contaminated. Which compound was utilized?
   A Butane
   B. Isopropyl alcohol
   C. Formalin
   D. Acetone

9. Why is it vital to know the properties of the common fluid materials?
   A. To know how these fluid work
   B. To know the uses of the fluid
   C. To know conceivable threat from these kinds of material
   D. All of the above

10. Which hydro carbon compound contains a double bond within the atom?
   A. ethane
   B. methane
   C. propene
   D. propyne

Lesson 1 Uses of Organic Compounds

In the previous module, you have learned about the differences of organic from inorganic compounds. In this module, you will learn about the different uses of organic compound. You are going to cite examples of each organic compound.

Here are some key questions for you to ponder after finishing this module:

1. What are the uses of organic compounds?
2. What are the examples of each organic compounds?
3. What are the properties of common organic compounds?

What's In

Let's recall your understanding of concepts of organic compound application

A mother and daughter are living together. One morning the mother needed to leave their house for work. The mother told her daughter to cook their lunch. She instructed her daughter to cook using their stove, but unfortunately their LPG is empty. They have a stock of butane stove. The daughter asked her mother what butane is? Butane is blended with propane and other hydrocarbons. It is used for fuel primarily in cigarette or other small lighters; it is also used for gasoline blending as fuel gas, fragrance extraction solvent. So, the daughter got an idea to make use of butane stove to cook for their dinner.

Guide Questions:

1. What is butane?
2. How is butane utilized in the situation above?

What's New

Isopropyl Alcohol V.S COVID-19 Pandemic

Within the pharmaceutical sector, isopropyl alcohol is utilized to create a wide range of items, including alcohol wipes, swabs hand sanitizer, disinfectants, oral mouth wash, and different other producers. Isopropyl alcohol is additionally utilized as a

sterile sometimes regulating infusion to kill surface microbes. The worldwide flare-up of novel coronavirus, COVID-19, is encourage invigorating the request for hand sanitizer and other cleanliness items, subsequently driving the development of the isopropyl alcohol advertise. A key fixing a hand sanitizer and restorative disinfectant has gotten to be troublesome to induce, enacting its cost to surge to an all-time high. Isopropyl alcohol fetched has more than tripled inside the Philippines.

Guide Questions:

1. What are the uses of alcohol?
2. How is alcohol utilized in COVID – 19 pandemics?
3. What do you think might happen when there is no such organic compounds at time of COVID – 19 pandemics?

What is It

Properties of Organic Compound

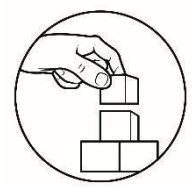
Every kind of natural compound includes a particular property or characteristics. Although these compounds may appear likeness in a few properties each of these compounds does not have precisely the same properties.

Gasoline, lamp fuel, diesel oil, lubricating oil, vanillin, acidic and ethyl alcohol are natural compounds with diverse properties. You'll discover out around the properties to be specific odor thickness, viscosity and combustibility of a few other compound.

Odor is the smell of compound. Each compound has it possess particular odor. Consistency could be a degree of fluid to flow. Instability is the degree of the inclination of a compound to vanish or turn into vaporous state. Combustibility is the degree of how fabric effectively burns. Flammability is the ability of a chemical to burn or ignite. Melting point is the temperature at which a given solid materials changes from solid state to a fluid, or melts. The boiling point of a fluid is the temperature at which its vapor pressure is rise to the weight of the gas above it.

Here are some examples of organic compound:

Organic Compounds	**Uses of Organic compounds**
Methane	Black in color, in making motor tire and printing ink, in the production of light and energy, in making methyl alcohol, formaldehyde and chloroform etc.
Butane	In liquid state it is used as LPG fuel.
Ethylene	In fruit ripening and fruits preservation, in making mustard gas, in the form of anesthesia, in oxy-ethylene flame
Acetylene	In producing light, oxy-ethylene flame, in the form of narselin anesthesia, in making neoprene (artificial rubber), in artificial ripening etc.
Methyl alcohol	In making methylated spirit, artificial color, banish and polish, mixing with petrol and utilized as fuel of engines etc.
Ethyl alcohol	It is used for making wine and other alcoholic drinks, tincture, banish and polish, in the form of solvents, in methylated spirit, in artificial colors in perfumes and scent of fruits, in transparent soaps, in spirit lamps and stoves, in the form of fuel of motor vehicle in cleaning the wound, in the form of insecticide etc.
Acetone	In making banish, cordite, Clodion cellulose, artificial silk, synthetic rubber, sulphonyl, chlorodyne, chloroform, iodoform etc. as medicines etc.
Acetic acid	As laboratory's reagent, in the form of vinegar, in making sauces and jelly etc.
Glucose	In making different types of wine, in sweets and preservations of fruits juices, medicines like gluconate etc.
Benzene	In the form of solvent, in dry cleaning, by mixing it with petrol and used as fuel of engines etc.
Phenol	In the production of carbolic soap, in the form of insecticide, in Bakelite, in predestine, aspirin, cellar etc.
Benzaldehyde	In color industry, in the manufacturing of perfumes etc.
Benzoic acid	In the making drugs, as preservation of fruits juices etc.
Ether	As anesthesia, solvent, coolant, in the production of alcohol etc.



What's More

Activity 1: Word Hunt

Below are the definition of what has been discussed about the different organic compounds. Encircle the words with the definition given below. Write your answer on a separate sheet of paper.

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

1. It is utilized for making nitroglycerine, in cleaning the components of watches, in stamp ink.
2. It is used in making bug sprays, in fixation of gelatin film on the photographic plates, and in making waterproof cloths by blending it with egg outside whitely portion.
3. It is utilized for making wine and another alcoholic drinks, tincture, varnish and clean, within the form of solvents.
4. It is used in dark in color, in making engine tire and printing ink.

5. In fluid state it is utilized as LPG fuel.
6. In fruit ripening and fruits preservation, and making mustard gas.
7. It is used in creating light, oxy-ethylene fire, within the shape of narselin anesthesia
8. .It is used in making varnish, cordite, Clodion cellulose, artificial silk, synthetic rubber.
9. It is used in the form of fertilizer, used in making formaldehyde and urea plastic, drug etc.
10. It is used in exchange of colors, in manufacturing of drugs etc.

Activity 2: Complete Me!

Supply the correct letter to determine what is being described in the given statement. Write your answer on a separate sheet of paper.

E		H		R

1. It is used as anesthesia, solvent, coolant, in the production of alcohol etc.

P		E			L

2. It is used in the production of carbolic soap, in the form of insecticide, in Bakelite, in predestine, aspirin, or celolal etc.

	R		T		O		I		

3. It is used in the treatment of urological diseases.

B			Z		I	C		C		D

4. It is used in the making drugs, as preservation of fruits juices etc.

E			Y		B		O	M		N	E

5. It is used for making local anesthesia.

	O	R		A			N	T

6. It is used for making medicine of throats in making chewing tablets.

P		L	Y		T	Y		E	N	

7. It is used for the production of caps of bottles of acid, in making the body of the accumulator cells

G	A		M	E		E		

8. It is used in the form of germicide/ or insecticide

C		R		O		T	E		R		C			O		I		E

9. It is used as fire extinguisher.

B		N	Z		N	

10. In the form of solvent, in drying cleaning by mixing it with petrol and used as fuel of engines etc.

Activity 3: Check On Me!

Complete the table putting a check mark in appropriate column the uses of the compound. Write your answer on a separate sheet of paper.

Uses	Gasoline	Ethyl alcohol	Acetone	LPG	Kerosene	Acetic acid
Beverage						
Food						
Antiseptic						
Fuel						
Cleaner						

ACTIVITY 4: Match Up!

Match the description in Colum B with the uses of compounds in Column A. Write only the letter of the correct answers on a separate sheet.

A

____1. What is utilized for making nitroglycerine in cleaning the components of watches, in ink of stamp, in shoes cleaning and beauty care products, transparent cleanser, in pain reliever medicines of any broken portion of the body organs, in desserts, wine and fruits preservations' etc,

____2. Is utilized for the production of caps of bottles of corrosive, in making the body of the collector cells etc,

____3. In making a bug sprays, in fixation of gelatin fill on the photographic plates, in making waterproof cloths by blending it with outside whitely portion.

B

A. Acetone
B. Acetaldehyde
C. Formaldehyde
D. Polystyrene
E. Glycerol
F. Butane
G. Methane

___4. Used in making color medicines, in manufacturing meta acetaldehyde pharmaceutical used in resting, in the production of plastics.

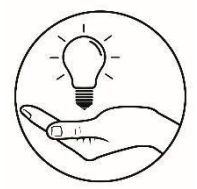
____5. Used in making varnish, cordite, Clodion cellulose, artificial silk, manufactured elastic, sulphonyl, chlorodyne, chloroform, iodoform etc. as medicines etc,

Activity 5: Properties of Common Organic Compounds

Complete the following sentences. Choose your answer from the box. Write your answer on a separate sheet of paper.

Chemical
Flow
Melting point
Odor
Boiling point

1. Viscosity could be a degree of fluid to _____.
2. Flammability is the ability of a _____ to burn or ignite.
3. Odor is a _____ of compound.
4. _____ is the temperature at which a given solid materials changes from solid state to a fluid, or melts
5. _____ of a fluid is the temperature at which its vapor pressure is rise to the weight of the gas above it.

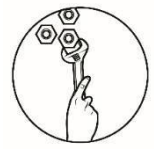


What I Have Learned

Determine the word that correctly completes the statement. Write your answer on a separate sheet of paper.

Alkanes incorporated (1) _____ like propane, octane, and methane. These are utilized broadly as powers for things like vehicle gasoline and domestic heating/cooking. (2) _____ incorporate chemicals like ethanol and isopropanol.

(3) _____ can also be utilized as cleaning agents and ethanol may be a staple of the refreshment industry (beer/wine). At last, (4) _____ incorporate a wide assortment of chemicals counting pharmaceuticals. (5)_____, one of the most seasoned commercial drugs.



What I Can Do

SITUATIONAL ANALYSIS

Analyze the given situation below and answer the question that follows. Write your answer on a separate answer sheet.

1. Brando is 8- years old boy whose father works in a funeral as an embalmer. One day, he saw a bottle of formalin and asked his dad what is its use. What do you think Brando's father answered?

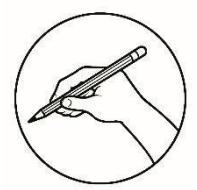
_____
_____
_____
_____
_____

2. Juan is playing basketball. The game is very tight; one of his opponents slipped on the floor. The other team-mates tell them to use alcohol. How is organic compound used in this kind of situation?

_____
_____
_____
_____
_____

3. Gabriela and their friends are planning to hike. One of her friends asked her what are the things they need to bring. Gabriela said they need to bring candies, food and butane. One of her friends is wondering why they need to bring butane. What do you think is Gabriela's answer?

_____
_____
_____
_____
_____



Assessment

Choose the letter of the best answer. Write your answers on a separate sheet of paper.

1. Ethene, which acts as a normal maturing agent of natural products, may be a characteristic gas created in plants.
   A. Methanol
   B. Formalin
   C. Acetylene
   D. Pentyne

2. Which alkane will most likely have a very bubbling point?
   A. Propane
   B. Methane
   C. Heptane
   D. Hexane

3. What is the usual use of methane?
   A. pesticide
   B. fertilizer
   C. car ventilator
   D. fuel

4. Which are TRUE about the use of isopropyl alcohol?
   I. Cleaner II. Fuel III. Disinfectant IV. Pesticide
   A. I and II only
   B. I and III only
   C. III and IV only
   D. I and IV only

5. Michael needs to expel the ruddy paint within the paint brush so that he may utilize it once more. What organic compound is used to expel the paint on the paint brush?
   A. Acetic acid
   B. Lubricating oil
   C. Kerosene
   D. Formaldehyde

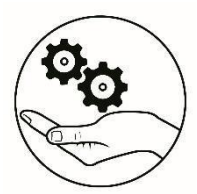
6. Which is NOT a common use of methane?
   A. Fertilizer
   B. Heating water
   C. Fruit ripening agent
   D. Antifreeze component

7. Which hydrocarbon is commonly used in disposable lighters and in fuel canisters for gas camping stoves and lanterns?
   A. Ethyne
   B. Butane
   C. Propene
   D. Pentane

8. Formaldehyde is an aldehyde with the formula HCHO, a colorless gas with a pungent and irritating odor. Which of the following is NOT a use of formaldehyde?
   A. Used to sterilized soil
   B. Embalming bodies
   C. Preservation of tissue specimens
   D. Fermenting corn or molasses

9. Which is responsible for the distinctive odors and flavors of many flowers, perfumes, and ripe fruits?
   A. Esters
   B. Ethers
   C. Alcohol
   D. Aldehyde

10. Marcy's car stopped at the middle of the road. She found out that her car has ran out of fuel. Which compound must she buy?
   A. kerosene
   B. gasoline
   C. lubricating oil
   D. water



Additional Activities

Look for some common organic compounds in your home. List them down on the table below and cite the uses of each compound. Write your answer on a separate sheet of paper.

Common compound	**Uses**
	.

Answer Key

What I Know

Pre- test

1. D	6. D
2. C	7. B
3. B	8. B
4. B	9. D
5. D	10.C

Activity no. 1

A	B	A	G	O	A	K	O	C	O
M	E	T	H	A	N	E	L	E	R
U	T	M	A	P	A	A	N	T	M
S	H	A	U	R	E	A	B	O	A
A	Y	L	U	I	P	E	R	N	L
L	L	U	I	S	G	O	S	E	D
A	A	B	B	U	T	A	N	E	E
A	L	E	T	H	Y	L	N	E	H
A	C	I	L	I	N	E	N	M	Y
B	O	Y	H	J	G	Y	J	N	D
E	H	H	Y	L	B	N	N	M	E
A	O	E	T	H	Y	L	G	O	M
B	L	U	R	E	A	G	A	B	O
A	C	E	T	Y	L	E	N	E	D
A	N	I	L	I	N	E	M	A	T

1. Glycerol
2. Formaldehyde
3. Ethyl
4. Methane
5. Butane
6. Ethyl
7. Acetylene
8. Acetone
9. Urea
10. Aniline

Activity no. 2

1. Ether
2. Phenol
3. Urotropine
4. Benzoic Acid
5. Ethyl bromine
6. Formament

7. Polystyrene

8. Gammexene

9. Carbon Tetrachloride

10. Benzene

Activity no. 3

Organic compound and their uses

Uses	Gasoline	Ethyl alcohol	Acetone	LPG	Kerosene	Acetic acid
Beverage		/				
Antiseptic		/				/
Fuel	/	/		/	/	/
Cleaner			/		/	

Activity 4. Write the chemical formula of the following:

1.E
2.D
3.C
4.B
5.A

Activity 5.

1. Flow
2. Chemical
3. Smell
4. Melting Point
5. Boiling point

What can I do?

- Answer may vary vary on student's output

Assessment

Post test

1. C
2. A
3. D
4. B
5. C
6. C
7. B
8. D

What I Have Learned:

Chemical
Alcohol
Organic
compound
Carboxylic
Ibuprofen

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