Frayer model: a strategy to improve the science vocabulary of grade 9 students of bagbag national high school

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ABSTRACT
PURPOSE This study aimed to investigate the effectiveness of Frayer Model a strategy to improve the Science vocabulary of Grade 9 students of Bagbag National High School in Rosario Cavite. DESIGN/ METHODOLOGY/ APPROACH This study used Quasi – Experimental method utilizing the two-group, control group and treatment group, pre-test- post-test design. The chosen participants were sixty (60) students of Grade 9 students of Bagbag National High School. The assessment of the result was conducted through a posttest given to the participants only. T-test is used for two sample means, average means and standard deviation were used to compare the results of the pre-test and post-test. FINDINGS There was a significant difference between the post-test results of the two groups. It means that experimental group has higher test result in Science after being exposed to Frayer Model than the control group. Thus the experimental group performed better than the control group. And also there were a significant difference between the gain scores of the control group and experimental group. The gained score of experimental group were greater than the control group which means that experimental group under Frayer Model was effective. Research Limitation and Implication: Frayer Model focused only on enhancing science vocabulary through the use of graphic organizers and its impact on the achievement level of the student on the Science subject. The Researcher of the study recommends some ways in modifying the use of Frayer Model, depending on the topic needed. The whole study focused on the competencies of the second quarter. Originality/ Value: The study focused on how the Science achievement level learning outcome assessment result can be increased through Frayer Model.

Keywords: frayer model , vocabulary enhancement, graphic organizer.

1 CONTENT AND RATIONALE

Nowadays, students have difficulties in building vocabulary of certain topic in science. Although it may sound simple, it is hard to actually foster an atmosphere in which students are not repressed to ask questions to the authority, because they fear reprisal or embarrassment. As a result, teachers monopolize the classroom discussion which lead to low performance in science.

.In recent years, a great deal of needed attention has been finally given to academic vocabulary and disciplinary literacy. To contribute to this body of knowledge, we believe it is critical to examine how the complex relationship between vocabulary and comprehension may be addressed in secondary content area classrooms, given the unique nature of the academic vocabulary students encounter daily in school (Harmon & Wood, 2018). Kennedy described learning activity as learners involve with the content and encourage cognition. Interactivity is the continuous dynamic interplay between events, functional interactivity or the students' actions and their cognitive interactivity cognition. (The Herridge Group, 2004).

It is said to be interactive when there should be an interaction of the learner or the learner has something to do whether it is of poor or good quality interactivity. Mind and body activities should always be engaged, for example open questions, simulations, instructional games, tools and calculators. (elearningguru, 2004).

The simplest way to promote interactive learning in the classroom is to maintain a teaching style that encourages healthy debate between students and the teacher. The development of true critical-thinking skills however requires just such an open and honest exchange of ideas.

One of the strategies is Frayer model; wherein it promotes critical thinking; can be used individually, in small groups, or whole group; draws on students' prior knowledge and creates a visual reference to compare examples. In a discussion, students contribute through analyzing problems and thinking of possible solutions. This way of getting their attention is to motivate them to embrace the learning process (ANN B. et. al2019).

As cited in Vocabulary strategy – Frayer Model. The purpose of the Frayer Model (Frayer, 1969; Buehl, 2001) is to identify and define unfamiliar concepts and vocabulary. Students define a concept/word/term, describe its essential characteristics, provide examples of the idea and suggest non examples of the idea (knowing what a concept isn't helps define what it is). This information is placed on a chart that is divided into four sections to provide a visual representation for students. According to Shore et al. (2015). Two of the strategies that influence retention of science vocabulary words among 7th grade students are drawing pictures and talking about the definition of the terms were developed to involve the students in more constructive and interactive exercises when compared to the technique that was in common use copying definitions from the back of the textbook. The model prompts students to understand words within the larger context of a reading selection, as it asks students to analyze the concept/word (definition and characteristics) and then synthesize or apply this information by thinking of examples and non-examples. It also activates prior knowledge of a topic and builds connections.

Although the strategies are not unique to each individual content area, they are often adapted for use in a specific discipline. According to Armstrong et al (2018), mathematicians use mathematical

language to make sense of new ideas and information and to organize that information in a specialized way. Content literacy strategies can help mathematics students accomplish these goals. And one of the six practical strategies to help build students' content skills in the mathematics classroom is the Frayer model.

In the study of Estacio, D. R. & Martinez, O. D. (2017) it provides a meaningful information about the use and effects of a Modified Frayer Model in developing student's scientific vocabulary. The results of the study support the claims of researches about the effect of Frayer Model in developing and improving student's vocabulary. In addition, the study provides a significant finding on how the Modified Frayer Model helps and improves the teaching-learning process, and integrating the Modified Frayer Models in teaching as instructional material and formative assessment tool has a great impact in developing student's scientific vocabulary and academic performances.

Thus, this study aimed to engaged all the learners in the discussion and let them participate actively in different activities which were related to certain topic. Students where be able to cope with their learning difficulties or weaknesses as they developed their assets and acquire more knowledge by interacting with the teacher and also other students that lead to improve their science performance. To increase literacy in science, students must learn how to derive the meaning of unfamiliar words. (Tamara, 2007)

2 PROPOSED INNOVATION, INTERVENTION & STRATEGY

Table 1. Intervention and Strategy

Title of Innovation	Intervention	Strategy
Utilization the use of Frayer Model (graphic organizer)	Vocabulary Enhancement Activity	Frayer Model

The idea of this study focused on the effectiveness of Frayer Model in Improving the science vocabulary of Grade 9 students of Bagbag National High School in Rosario, Cavite. After the study, the intervention was conducted to the selected students using the Frayer Model strategy. Therefore, the Frayer Model strategy is employed. Adapting a tool called the Frayer Model, the activity guides students in developing a conceptual understanding of news by creating a definition, listing essential characteristics, and coming up with examples and non-examples (Bowe 2019).

3 ACTION RESEARCH QUESTIONS

This study aimed to determine the effectiveness of Frayer Model in Improving the science vocabulary of Grade 9 students of Bagbag National High School in Rosario, Cavite.

Specifically, this study sought to answer the following question:

1. What are the results of pre-test of the two groups?

2. Is there a significant difference between the pre-test of the two groups?
3. What are the results of post-test of the two groups?
4. Is there a significant difference on the post test results of the two groups after implementing the Frayer model?
5. What is the gain score of the two groups after the implementation?

4 ACTION RESEARCH METHODS

This study employed the quasi – experimental design utilizing the two-group, control group and experiment group, pre-test- post-test design. The chosen participants were sixty (60) students of Grade 9 students of Bagbag National High School. Competencies for the 2nd quarter were considered on making the material. Other competencies of Grade 9 level were not considered due to time constrain.

A. Participants and / or other Sources of Data and Information

Participants – Two heterogeneous section were group as control (30 students) and experimental group (30 students). The respondents of this study were randomly selected from two section of Grade 9 students St. Anthonty and St. Matthew of the said institution.

B. Data Gathering Methods

Instrument - In order to obtain the appropriate outputs, a pre-test and a post-test were used as the main instrument of the study. The result of the post- test was used to measure the performance of the learners. The instrument is composed of 30 item tests was selected from the questions provided on Grade 9 Learner's Module given by the Department of Education. This instrument was used in pre-test and post-test.

Validation- The pre-test-post-test instrument were taken from the items in the assessment of Department of Education (DepEd) Learning Manual. However, the test was edited and revised to implement the scope of the topics covered in this study. That is why this test is assumed to be valid and reliable and needs no validation.

Administration- Two heterogeneous sections were grouped as control and experimental groups. Both control and experimental groups were given pre-test. This two group are handled by same teacher to avoid bias. The control group taught by conventional approach while the experimental group used the intervention the Frayer Model, to enhance their science vocabulary. At the end of the implementation, both groups were given post-test to find out if there is a significant difference in the science performance of the learners in the control and experimental groups.

Treatment of Data – The data generated from the research instrument were recorded, analyzed and interpreted using appropriate statistical tools. Numerical values were assigned in measuring the variables for statistical computation and subsequent analysis. The pre-test and post-test results of this study were scored and interpreted based on the following using Likert Scale.

Table 2. Likert Scale

Score	Interpretation
25-30	Very High
19-24	High
13-18	Average
7-12	Low
1-6	Very Low

The research is quantitative in nature following the descriptive design which aims to describe the science achievement level of the students. Data gathered from the participants will be analyze through the use of different statistical analysis and treatment of analyzing the data. Table summarizes the statistical treatment that utilized for each research question posed for the study.

Table 3. Summary of Statistical Treatments for each Research Question.

Research Question	Statistical Treatment
1. What are the results of pre-test of the two groups?	Descriptive Analysis using Average and Standard Deviation
2. Is there a significant difference between the pre-test of the two groups?	Test of Significance for Difference Between Two Means using t-test
3. What are the results of post-test of the two groups?	Descriptive Analysis using Average and Standard Deviation
4. Is there a significant difference on the post test results of the two groups after implementing the Frayer model?	Test of Significance for Difference Between Two Means using t-test
5. What is the gain score of the two groups after the implementation?	Test of Significance for Difference Between Two Means using t-test

5 DISCUSSION OF RESULTS AND REFLECTION

A. Data Analysis and Interpretation

1. What are the results of the pre-test of the two groups?

Table 4. Score Distribution of the Pre-test of the Control Group

Control Group			
Score	Frequency	Percentage	Interpretation
6-10	15	50	Low
1-5	15	50	Low
	30	100	
X_1 = 6.60 (Low)			

Table 4 shows that the result of the pretest of the control, group which has a mean of 6.60 is low. This means that the knowledge of the subjects under the control group in the pre-test was low which

indicates that they lack scientific abilities towards the learning competencies covered in Grade 9 Chemistry.

Table 5. Score Distribution of the Pre-test of the Experimental Group

Experimental Group			
Score	Frequency	Percentage	Interpretation
6-10	15	50	Low
1-5	15	50	Low
	30	100	
X_1 = 6.30 (Low)			

As shown on table 5, the experiment group got a mean score of 6.30 which means low. This means that the pre- test performance of the subject before they had been exposed to Frayer Model was low. This indicates that the learners had poor knowledge regarding the learning competencies in Grade 9 Chemistry before exposing them to the treatment set up.

2. Is there a significant difference between the pre-test of the two group?

Table 6. Computation of the t-test comparing the Pre-test Results of the Control and Experimental Groups.

Group Statistics

	VAR00002	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	control_group	30	6.6000	1.97571	.36071
	experimental_group	30	6.3000	2.05359	.37493

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
VAR00001	Equal variances assumed	.228	.635	.577	58	.566	.30000	.52028	-.74145	1.34145
	Equal variances not assumed			.577	57.914	.566	.30000	.52028	-.74148	1.34148

Table 6 shows the pre-test results of both the control and experimental group were computed and compared using the t-test independent sample. The control group had an average of 6.60 while the experimental group had 6.30 with a mean difference of 0.30. The t-test for independent samples was used to determine whether the two groups were equal in terms of science performance. The computation revealed that the *p* value is 0.57 value at 0.05 level of significant with 58 degree of freedom. Therefore, there is no significant difference between the pre-test results of the two groups. It implies that the learners

are best subject for the experimentation because they are equal in terms of scientific ability and the both lacked of knowledge on the subject. It shows that their performance during the pre-test is interpreted as low which suggest that the scientific skills toward the learning competencies covered should be improved.

3. What are the results of the post-test of the two group?

Table 7. Score Distribution of the Post-Test of the Control Group

Control Group			
Score	Frequency	Percentage	Interpretation
25-30	0	0.00	Very High
19-24	5	16.67	High
13-18	24	80.00	Average
7-12	1	3.33	Low
1-6	0	0.00	Very Low
	30	**100**	
			X_1 = 16. 50 (Average)

Based on the findings presented above table 7, the group taught using conventional teaching strategy got an average performance in the posttest with a mean score of 16.50.

Table 8. Score Distribution of the Post-Test of the Experimental Group

Experimental Group			
Score	Frequency	Percentage	Interpretation
25-30	11	36.67	Very High
19-24	17	56.67	High
13-18	2	6.66	Average
7-12	0	0.00	Low
1-6	0	0.00	Very Low
	30	100	
			X_1 = 23. 00 (High)

As shown on table 8, the experimental group got a mean of 23.00 which was interpreted as high. This means that the results of the post-test of the subject under Frayer Model is good.

4. Is there a significant difference on the post test results of the two groups after implementing the Frayer model?

Table 9. Computation of the t- test comparing the Post Test of Control and Experimental Groups

Group Statistics

	VAR00002	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	control_group	30	16.5000	2.56972	.46916
	experimental_group	30	23.0000	3.08500	.56324

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
VAR 00001	Equal variances assumed	2.094	.153	-8.867	58	.000	-6.50000	.73305	-7.96735	-5.03265
	Equal variances not assumed			-8.867	56.165	.000	-6.50000	.73305	-7.96837	-5.03163

The control group had an average of 16. 50 while the experimental group had 23. 00 with a mean difference of 6.500. The results showed that the *p* value is .000 at 0.05 level of significance with 58 degrees of freedom. Therefore, there was a significant difference between the posttest result of the two groups. It means that the experimental group has higher test results in science after being exposed to Frayer model. Thus, experimental group performed better than the control group.

5. What is the gain score of the two groups after the implementation?

Table 10. Computation of the t- test comparing the Gain Score of Control and Experimental Groups

Group	N	Mean	Mean difference (Pre- Post)	Mean difference (CG- EG)	P value	Interpretation
Control	30	Pre- test – 6.60 Post -test – 16.50	-9.90	6. 80	.000	Significant
Experimental	30	Pre- test -6.30 Post – test- 23.00	-16.70			

The gain score of the control group and the experimental group were computed using t – test to determine if there is a significant difference between the two groups. The mean score of control group was 9.90 while the experimental is 16.70 with a mean score of 6.800. The results revealed that the *p* value is .000 at 0.05 level of significance with 58 degrees of freedom. This means that there is a significant difference between the gain scores of the control group and experimental group. The gain score of experimental groups is greater than the control group which means that experimental group under Frayer Model is effective.

Findings

1. There was a significant difference between the post-test results of the two groups. It means that the

experimental group has higher test results in science after being exposed to Frayer Model. Thus, the experimental group performed better than the control group.

2. There is significant difference between the gain score of control group and experimental group. The gain score of experimental group is greater than the control group which means that experimental group under Frayer Model is effective.

This study identified that the results provides an understanding of the effectiveness of Frayer Model in science achievement among Grade 9 students of Bagbag National High School. In general, the findings suggest that the implementation of Frayer Model effectively improves the science achievement in Bagbag National High School. Also, it shows that it increased the scientific abilities of the grade 9 students that enhances their critical thinking, analyzing problems and thinking of possible solutions.

6 ACTION PLAN

Programs/ Projects	Objectives	Strategies/ Activities	Person Involved	Target Date	Expected Outcomes	Source of Fund
In – Service Training and Orientation on Frayer Model	Prepare and Orient the science teachers on Frayer Model	Conduct in - service training program for science teachers on Frayer Model	Bagbag National High School science teacher	May 2020	Almost 100 % of Bagbag NHS science teachers knowledgeable and well oriented on Frayer Model	School Fund/ LGU Fund
Implementation of Frayer Model	Promote the use of Frayer Model as a teaching strategy among students	Conduct in service training program for science teacher on Frayer Model	Bagbag National High School science teacher	June 2020	Improves the science achievement of the students	School Fund/ LGU Fund
Innovation	Prepare Innovation of Frayer Model	Conduct in service training program for science teacher on the innovation of Frayer Model	Bagbag National High School science teacher	April 2021	Frayer Model with Innovation	School Fund/ LGU Fund

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COST ESTIMATES

The researchers allocated the following finances during the time of the study;

Printing of tools for FM	P 100
Photocopy of questionnaire	80
Materials for Printing of Research Paper	150
Total	P 330

APPENDIX A

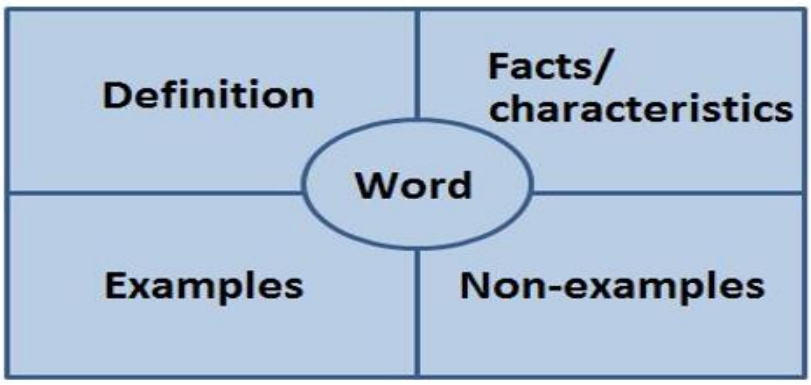
The Gant chart given below was the schedule of activities followed by the researcher during the conduct of the study, wherein it covered a duration of 4 months to finished the study.

Activities	July	August	September	October
Identification of Research Problem				
Gathering of Literature				
Writing the Research Proposal				
Preparation of instrument				
Conduct of the research				
Treatment of Data				
Writing the research paper				
Submission of research paper				

APPENDIX B

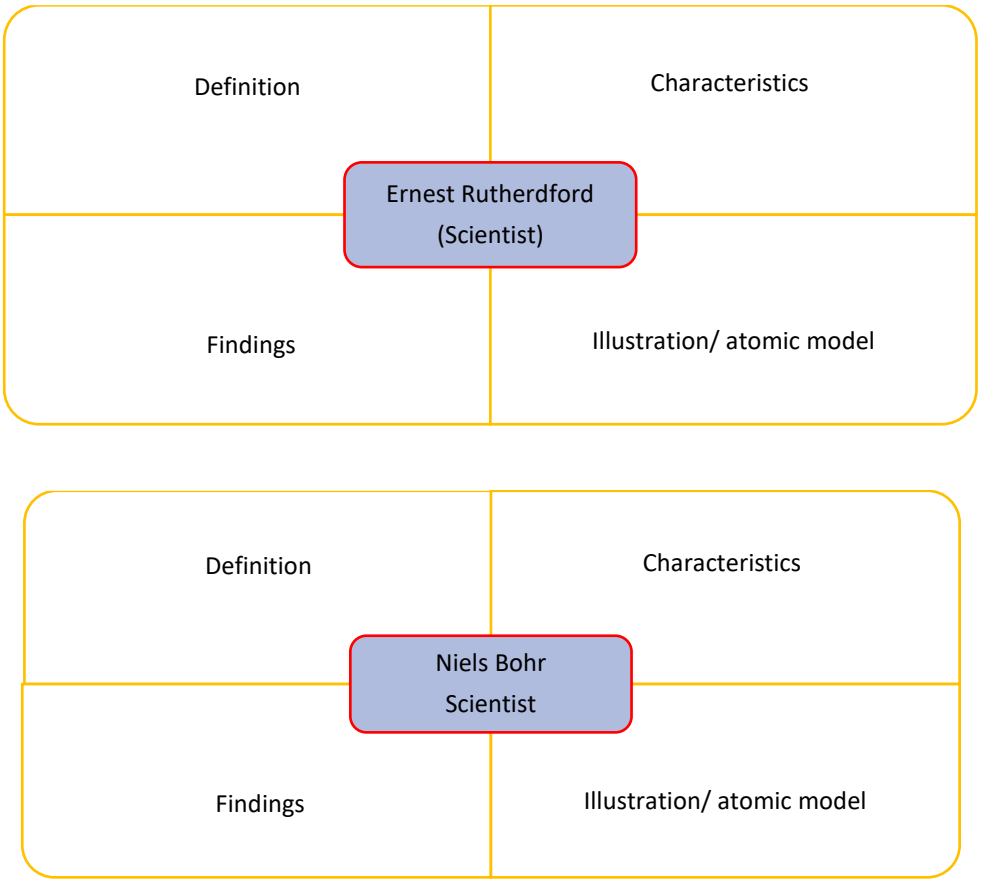
The Frayer Model (Graphic Organizer) Sample

Module 1. Electronic structure of Matter Atomic

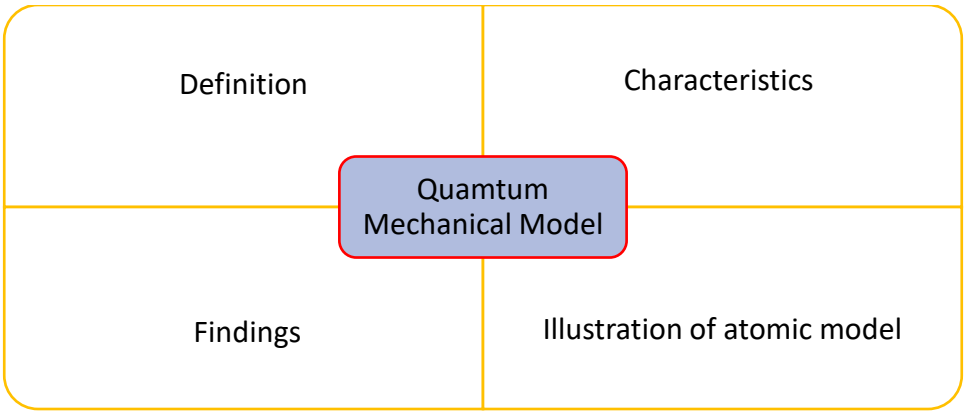


LC: Describe how the Bohr model of the atom improved Rutherford's atomic model

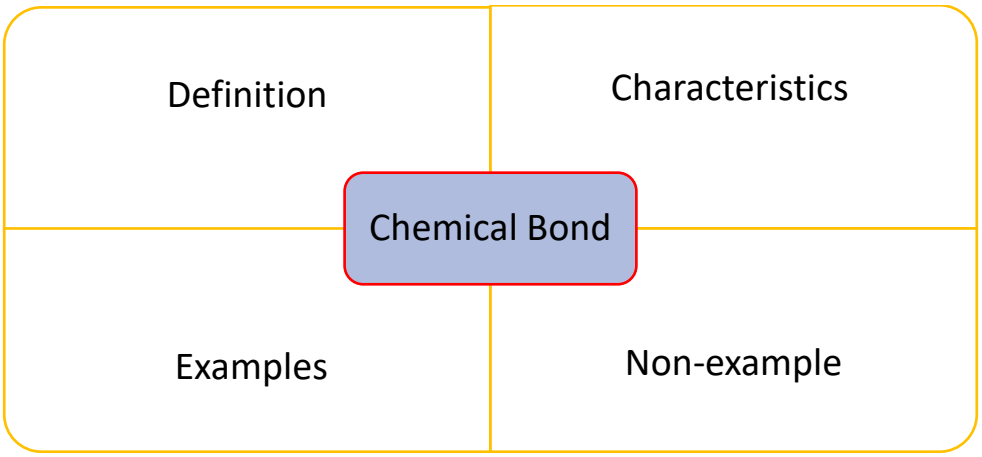
Code: **S9MT-IIa-21**

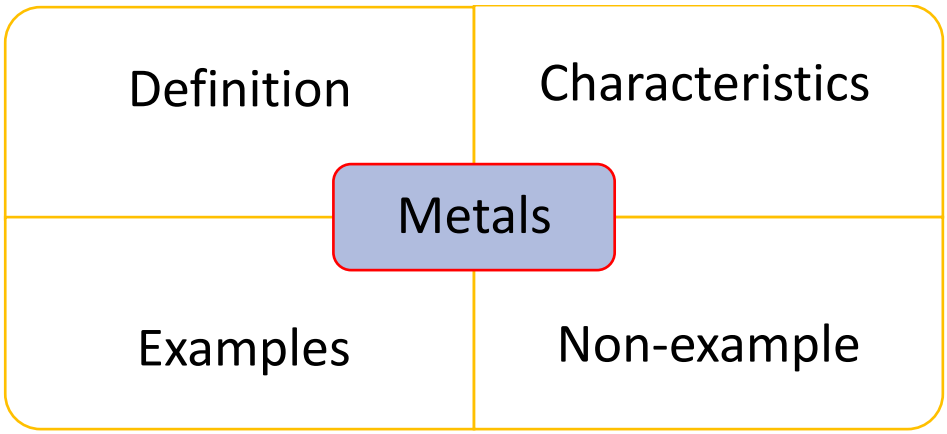


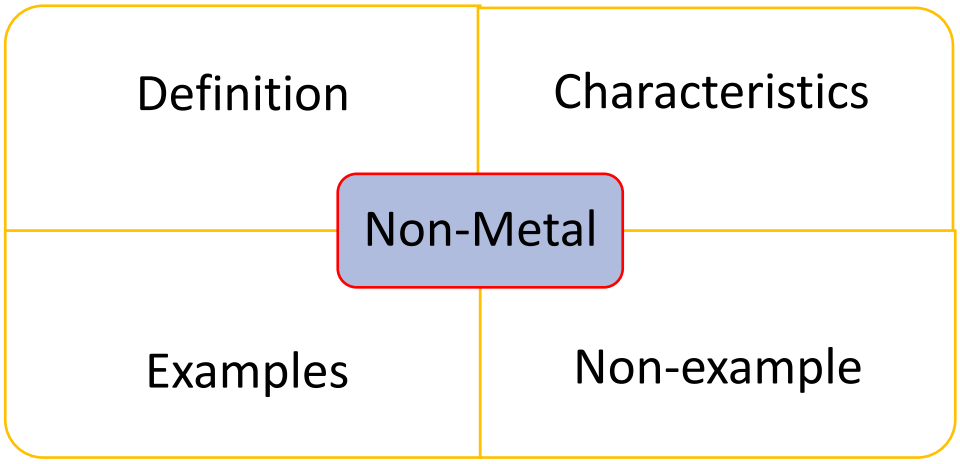
LC 2. Explain how the Quantum Mechanical Model of the atom describes the energies and positions of the electrons
Code: **S9MT-IIa-22**



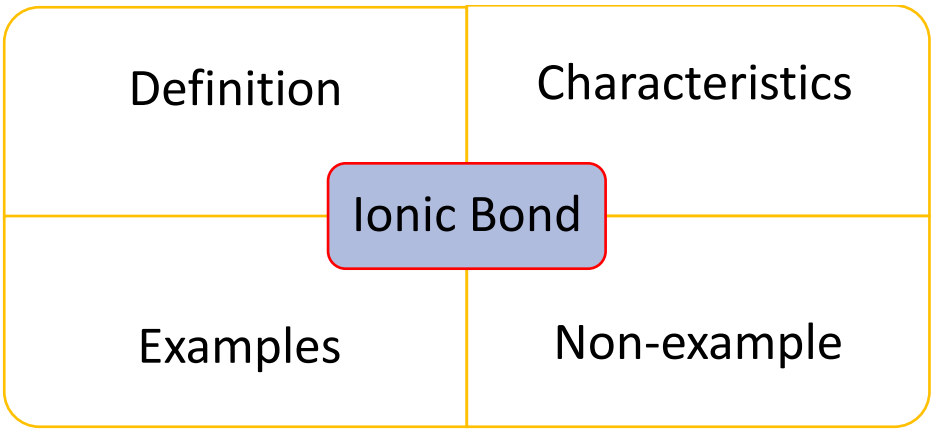
LC. Explain the formation of ionic and covalent bonds
Code: S9MT-IIa-13

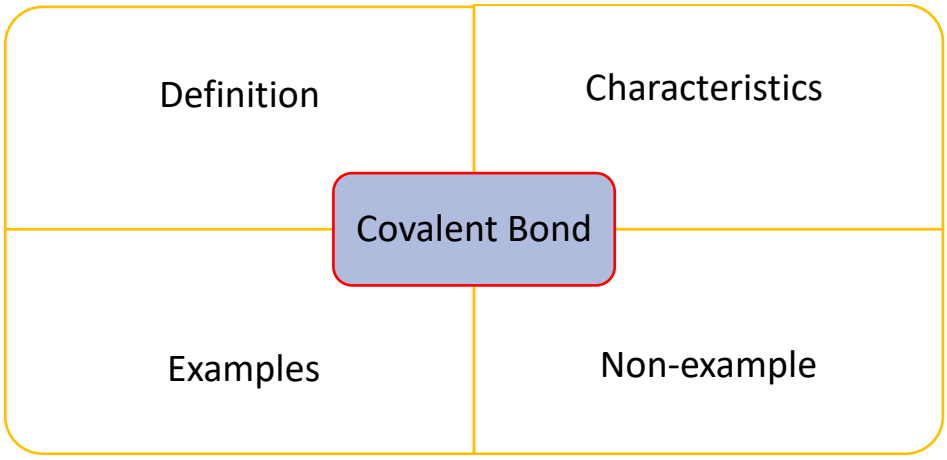




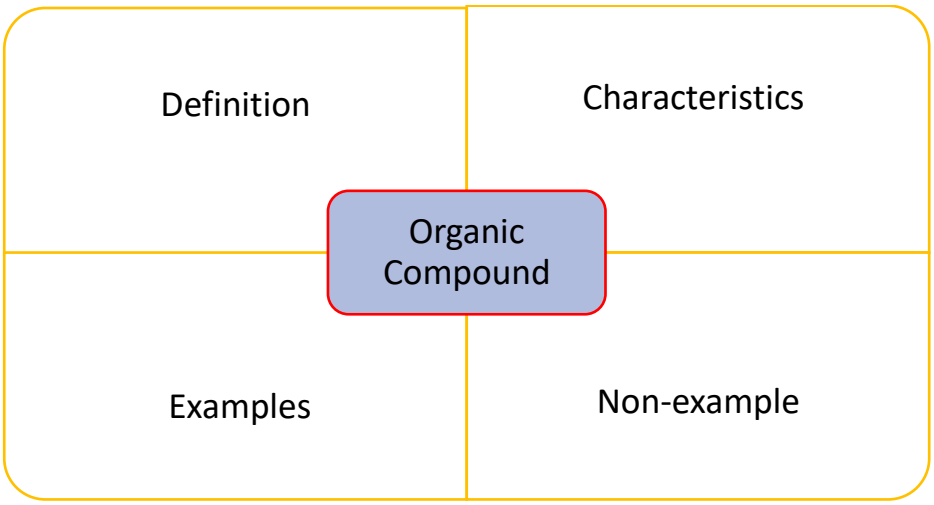


LC. Recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity.
Code: S9MT-IIb-14





LC 6: Recognize the general classes and uses of organic compounds
Code:S9MT-IIh-18



APPENDIX C

INSTRUMENT

BAGBAG NATIONAL HIGH SCHOOL

Bagbag II, Rosario, Cavite

Direction: Read the items carefully. Choose the letter of your **BEST** answer.

1. On the basis of Rutherford's model of an atom, which subatomic particle is present in the nucleus of an atom?

   A. Proton and Electron
   C. Neutron and Electron
   B. Proton and Neutron
   D. Proton only

2. According to Bohr's Theory, once that the electron from the lower energy level moves to higher energy level, the electron will absorb the energy. What do you think will happen if the electrons from the high energy level moves to a lower energy level?

   A. It remains the same.
   B. It will also be absorbed energy.
   C. It will emit energy in form of light.
   D. This process is not possible.

3. Quantum mechanical model gives information about energy of the electron. Nonetheless, these models also describe the region of space around the nucleus which is called the shells. What do you think are the sublevels of these shells?

   A. s only
   C. s, p, d, and f
   B. s, p, and f
   D. s, and p only

4. If the number of electrons in every energy level is calculated by using the formula $2N^2$, where N represents the number of electrons, how many electrons can the 3rd energy level must have?

   A. 18 electrons
   C. 2 electrons
   B. 24 electrons
   D. 8 electrons

5. Which of the following is the correct electron configuration on Magnesium if its atomic number is 12?

   A. $1s^2\ 2p^2\ 2s^6$
   C. $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6$
   B. $1s^2\ 2s^2\ 2p^6\ 3s^2$
   D. $1s^{12}$

6. Who proposed the probability that electrons will be found in certain location around the nucleus of an atom?

   A. Neils Bohr
   C. Erwin Schrodinger
   B. Ernest Rutherford
   D. J.J Thomson

7. Which atom has an electron configuration of $1s^2 2s^2 2p^6 3s^2 3p^6$?

   A. He B. Ar C. Ne D. Xe

8. What is the electron configuration of Gallium?
   A. $1s^2 2s^2 2p^6 3s^2 3p^5 4s^2 3d^{10} 4p^1$
   B. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^1$
   C. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^9 4p^2$
   D. $1s^2 2s^2 2p^6 3s^2 3p^5 4s^2 3d^{10} 4p^2$

9. Which of the following atomic structure shows the planetary model proposed by Neils Bohr?

A B C D

10. Which among the following shows that an atom is stable?
    A. Having 2 valence electrons
    B. Having 6 valence electrons
    C. Having 4 valence electrons
    D. Having 8 valence electrons

11. In every atom there are electrons located in their outermost shell. What do you call the electrons found in the outermost shell of the atom?
    A. Share electron
    B. Excess electron
    C. Valence electron
    D. Outermost electrons

12. Which of the following refers to the distribution of electrons within the orbitals of the atoms of an element?
    A. Excited state
    B. ground state
    C. electron configuration
    D. atomic orbitals

13. Why do atoms react with one another to form chemical bonds?
    A. To attain stability
    B. To form molecules
    C. To form compounds
    D. To produce ions

14. Magnesium bromide is an ionic compound with the chemical formula $MgBr_2$. What does the "2" tell you?
    A. There are two magnesium ions to every bromide ion.
    B. There are two bromide ions for every magnesium ion.
    C. Bromide has a 2+ charge Bromide has a 2− charge.
    D. Bromide has a 2− charge.

15. Which of the following is a characteristic property of ionic compounds?
    A. They have low boiling points
    B. They have low melting points.
    C. They have high melting and boiling point.

D. They have high melting point and low boiling point.

16. What is the difference between non-polar and polar covalent bond?

A. The electronegativity difference for non-polar covalent bond is 0.4 and below while polar covalent bond is 0.5 to 1.7

B. The electronegativity difference for non-polar covalent bond is 0.4 and below while polar covalent bond is 0.5 and above.

C. The electronegativity difference for non-polar covalent bond is 0.5 and below while polar covalent bond is 0.5 and above

D. The electronegativity difference for non-polar covalent bond is 0.5 and below while polar covalent bond is 0.5 and 1.7.

17. Which of the below elements will most likely form an Ionic Bond?

A. Ne and Cl B. Li and Mg C. Cs and O D. P and O

18. What does a double bond signify?

A. two pairs of electrons shared between two atoms

B. two pairs of electrons shared between four atoms

C. a bond between two atoms

D. one pair of electrons shared between two atoms

19. In which of the following molecular compounds are all the bonds single bonds?

A. NH_3 B. SO C. CO_2 D. N_2

20. Metal such as gold combines with non-metal which is fluorine. When the two of them reacts what do you think will form?

A. An ionic compound C. A low melting points

B. A covalent compound D. Water molecule

21. In the chemical formula for an ionic compound, which comes first?

A. Subscript C. Anion

B. Cation D. Superscript

22. Which of the following BEST describe about the properties of metals?

A. low ionization energy and good electrical conductivity
B. low ionization energy and poor electrical conductivity
C. high ionization energy and good electrical conductivity
D. high ionization energy and poor electrical conductivity

23. Which of the following sets of elements is arranged in order of *decreasing* electronegativity?

A. Be, C, N C. Br, Cl, S

B. F, B, O D. Cl, S, Se

24. In chemical bonding, we have ionic and covalent bonding, which one of them shared its electron and one of it transferred its electron. What do you call a type of bond share electrons between atoms?

A. Ionic Bond C. Elemental Bond

B. Metallic Bond D. Covalent Bond

25. How does ionic bonding take place?

A. Two non-metallic elements of different kinds form strong forces of attraction.
B. Two non-metallic elements of the same kind form strong forces of attraction.
C. A non-metallic element like fluorine is attracted to a metallic element like sodium.
D. A metallic element like sodium transfers an electron to a non-metallic element like fluorine.

26. Which of the following organic compounds is NOT volatile?

A. kerosene B. acetone C. oil D. all of the above

27. Which of the following statements BEST describe organic compounds?

A. Organic compounds are compounds that contain carbon and oxygen only
B. Organic compounds are compounds that contain carbon atoms only
C. Organic compounds are composed mainly of carbon and hydrogen
D. Organic compounds are compounds that are produced by living things

28. Which of the following describe the physical property of matter whether it is solid, liquid or gas?

A. Flammability C. Phase
B. Viscosity D. Volatility

29. Which of the following terms refers to the measure of fluid's resistance to flow?

A. Phase C. Volatility
B. Viscosity D. Flammability

30. Which are TRUE about the use of ethyl alcohol?

I. Food
II. Disinfectant
III. Fuel
IV. Fertilizer

A. I & II Only C. II & III Only

B. III Only D. I, II & III

APPENDIX D

RESPONDENT

CONTROL GROUP (GRADE 9 ST. MATTHEW)

	Boys
1	Accangan,Jhenray Jim Binwag
2	Bercilla, John Michael Rivera
3	Custodio, Jazs Jury Borja
4	Garcia, Jeric Gelera
5	Gojit, Arcadio III Guijo
6	Homeres, Raymond Martin de Guzman
7	Macalinao, William Trinidad
8	Mendoza, Russel Camama
9	Molina, King Ashley Jerome Cantoria
10	Natividad, Jake Aidren Marquez
11	Nocon, Robbie Abutin

	Girls
1	Abilong, Jaylyn Francisco
2	Balmes, Trixie Anne
3	Bautista, Mae Ashley Barce
4	Campuspos, Jen Carmeelane Gallega
5	Corsena, Jamilah Triveles
6	Dayrit, jane Irish Ojas
7	Dimapilis, Romelyn Manimtim
8	Dominos, Christine Joy Valenzuela
9	Ebuenga, Angelica Felisilda
10	Gargar, Mary Rose Ventura
11	Ibasan, Glena Pandagdagan
12	Lapitan, Geann Shane Donor
13	Latade, Kathley Harvey Montero
14	Marciano, Raezell dela Cruz
15	Mercado, Irish Alde
16	Morales, Rochelle Comintan
17	Sajol, Joci Gawat
18	Sipat. Ericka Jen Merlan
19	Sison, Hazel Anne

EXPERIMENTAL / TREATMENT GROUP (GRADE 9 ST. ANTHONY)

Boys
Barredo, Edmhar
Cajegas, Jasper Raven Maglian
Cayarian, Charles Andrei Mejia
Convento, Nash David Batula
Duro, Melvin Jay Espino
Ibañez, Jericho Asahan
Napari, Jayson Leyson
Nonay, Alejandro III Sinugbuhan
Onava, Paul Vincent Luis
Pagad, Aljon Butaslac
Sorne, Marc Adrian
Turalde, Jaylance Buenviaje

	Girls
1	Aquino, Shella Mae Dematillo
2	Bautista, Karen Jade Alip
3	Bermudo, Nikka Mae Ebordo
4	Buhain, Rose Allaine
5	Cama, Rezell Ann Mendoza
6	Corpuz, Francine Nicole Echague
7	Dayrit, Isabela Mae Cawayan
8	Dimaliwat, Arlyn D.
9	Gonzales, Sophia Denise Sortonio
10	Leonizo, Kim Rosalyn Sanneco
11	Libed, Janalyn Ligencio
12	Mañabo, Alexandra Shyne
13	Marapoc, Jenny Fe Reontoy
14	Paulite, Kryzly Melendres
15	Pregoner, Stella Mariz
16	Prias, Krizalyn Gonzales
17	Reñono, Sofia Heaven Sanchez
18	Sanchez, Ellaine Camposanto