

Grade 7 to 10 Lesson Exemplars for Rabies Education



Lesson Exemplars for Rabies Education – Grade 7 to 10
First Edition, 2019

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Grade 7 to 10

(Mathematics)

Lesson Exemplars for Rabies Education

This instructional material was collaboratively developed and reviewed by educators from public schools with technical guidance from the National Rabies Prevention and Control Committee. We encourage teachers and other education stakeholders to email their feedback, comments, and recommendations to the Department of Education at action@deped.gov.ph.

We value your feedback and recommendations.

INTRODUCTION

Rabies is a highly fatal viral disease that usually affects dogs and can be transmitted to humans. It is estimated that every 10 minutes, one person die of rabies in the world. Every year, 59,000 people die of the disease wherein 40% are children less than 15 years of age. In the Philippines, an average of 200 to 250 Filipinos die of rabies annually, 30% of which are children. Animal bite incidence is also rapidly increasing with 699,705 animal bite victims in 2015 to 1, 130,873 in 2017 wherein almost half of the bites reported are in children.

The National Rabies Prevention and Control Committee (NRPCC) provide direction regarding the implementation of the National Rabies Prevention and Control Program as mandated by the Anti-Rabies Act of 2007 (Republic Act 9485). The inter-agency, intersectoral committee is led by the Department of Agriculture (DA) in collaboration with the Department of Health (DOH), Department of Education (DepEd), Department of Interior and Local Government (DILG), Department of Environment and Natural Resources (DENR), professional organizations (Philippine Veterinary Medical Association), and non-government organizations such as the Global Alliance for Rabies Control (GARC).

Under the Anti-Rabies Act, DepEd was given the mandate to strengthen the national rabies education program through the school health curriculum. In support to this, DepEd has been coordinating with GARC and other member agencies/organizations of NRPCC to integrate rabies education in the delivery curriculum since December 2016 in terms of development of lesson exemplars.

These lesson exemplars will provide an effective delivery on rabies education for teachers. It enables learners engage in relevant, meaningful experiences and activities that can be connected to real life situations.

This national rabies education integration initiative is expected to benefit an estimated 21 million Kinder to Grade10 learners in more than 46,000 schools including teachers, school health personnel and parents as well as the community as a whole. Key messages incorporated in the 78 lesson exemplars developed include the following: rabies as a disease; animal bite prevention; animal bite management; dog vaccination; animal welfare and responsible pet ownership.

ACKNOWLEDGEMENT

We would like to extend our greatest appreciation to the following government agencies and non-government organizations:

A. Development of Lesson Exemplars

- Department of Education
 - Bureau of Learner Support Services
 - Bureau of Curriculum Development
 - Bureau of Learning Delivery
 - Bureau of Learning Resources
 - External Partnership Services
- Department of Health
 - Disease Prevention and Control Bureau
 - Health Promotions and Communication Service
 - Research Institute for Tropical Medicine
- Department of Agriculture
 - Bureau of Animal Industry
- Global Alliance for Rabies Control
- Philippine Veterinary Medical Association
 - Provincial, City, Municipal Veterinarians' League of the Philippines
 - Philippine Animal Hospital Association

B. Fund Support

- UBS Optimus Foundation
- FOUR PAWS International

C. Front Cover Illustrations

- Ms. Ramona T. Consunji, Animal Welfare Coalition

D. Printing of Lesson Exemplars

- Japan One Health Rabies Project (JAPOHR) /Japan International Cooperation Agency
- Japan International Cooperation Agency
- Oita University

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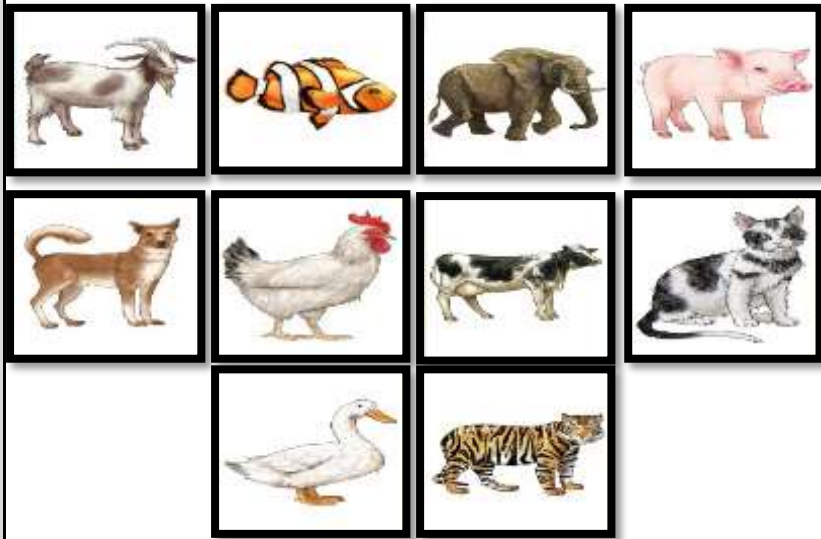
MATHEMATICS 7 (m7ns-la-1)

I. OBJECTIVES	
<i>A. Content Standards</i>	The learner demonstrates understanding of key concepts of sets and the real number system.
<i>B. Performance Standards</i>	The learner is able to formulate challenging situations involving sets and real numbers and solve these in a variety of strategies.
<i>C. Learning Competencies/ Objectives</i> <i>Write the LC code for each</i>	The learner describes well-defined sets, subsets, universal sets, and the null set and cardinality of sets. (M7NS-la-1)
II. CONTENT	<ul style="list-style-type: none"> Sets (Well-defined sets, cardinality of sets, null sets, universal sets, subsets) Integration of Rabies Education: Five Freedoms of Animals
III. LEARNING RESOURCES	
<i>A. References</i>	
<i>1. Teacher's Guide pages</i>	Grade 7 Mathematics, pp. 1-5
<i>2. Learner's Materials pages</i>	Grade 7 Mathematics, pp. 1-4
<i>3. Textbook pages</i>	
<i>4. Additional Materials from Learning Resource (LR) portal</i>	
<i>B. Other Learning Resources</i>	Rabies Educator Certificate – Module 3: “Caring for Animals” by Global Alliance for Rabies Control (GARC)
IV. PROCEDURES	
<i>A. Reviewing previous lesson or presenting the new lesson</i>	

B. Establishing a purpose for the lesson

(see Appendix A)

Activity 1: "We Belong Together"



Directions:

1. Divide the class into groups of 5 to 7 members.
2. Post the pictures on the board (see Appendix A).
Pictures must be printed big enough for the learners to see clearly. (LCD projector may be used if available)
3. Distribute the activity sheets to each group. (see Appendix B)
4. Read the directions of the activity aloud.
5. Give the learners 10 minutes to finish the activity.

Guide Questions:

1. How many groups of animals were you able to form?
2. Are there animals that belong to more than one group?
What are they?
3. Which of these animals could possibly be grouped as animals that could transmit rabies? *goat, elephant, pig, dog, cow, cat and tiger*

Emphasize: "Only mammals could be infected and could transmit rabies."

Trivia: "Do you know that rabies can be prevented from infecting humans through animals (pets)?"

	<p>Here are the tips on how to take care of animals to protect them from rabies and other diseases:</p> <ol style="list-style-type: none"> 1. Give animals food and water to keep them healthy. 2. Avoid exposing them from the heat of the sun, rain, and extreme cold. Give them a comfortable resting place. 3. Take animals to the veterinarian for treatment if they are ill or if they are injured. Pets should be vaccinated against rabies at the age of 3 months, and taken for vaccinations every year. 4. Animals must have the opportunity to walk, run and play, and should not be kept tied up for long periods of time. 5. Animals should not be threatened or hurt, whether it is intentional or unintentional. (see Appendix C) <p><i>Source: Rabies Educator Certificate – Module 3: “Caring for Animals” by Global Alliance for Rabies Control (GARC)</i></p>
C. Presenting examples/ instances of the new lesson	<p>Say: “Forming groups of animals, people or things according to a particular characteristic or quality is the same as forming sets. A set is a collection of objects called elements. A set is often defined by a capital letter.”</p>
D. Discussing new concepts and practicing new skills #1	<p>Activity 2: “Give me a List”</p> <p>Directions:</p> <ol style="list-style-type: none"> 1. Use the same groupings as in Activity 1. 2. Refer to the pictures used in the same activity. 3. Distribute the activity sheets to each group. (see Appendix D) 4. Read the directions of the activity aloud. 5. Guide the students how to write a set. <p>Say: “You may use any capital letters to name your set. A brace, { }, is used to enclose the elements of a set which are separated by commas. Elements may be written in any order and repetition of elements is immaterial.”</p> <p><i>Example: The set of animals that lay eggs.</i></p> $A = \{\text{duck, chicken, fish}\}$ <ol style="list-style-type: none"> 6. Give the learners 5 minutes to finish the activity. Refer to the answers key provided. (see Appendix E)

	<p>Guide Questions:</p> <ol style="list-style-type: none"> 1. What are the elements in item numbers 1 and 2? 2. Between item 1 and item 3, which set have element(s) you found difficult to determine? Why? <i>1 since its characteristic may be based on personal opinion</i> 3. Does item 2 have characteristics that are clearly described? Why? <i>No, its characteristics may be based on personal opinion</i> <p>Say: "Sometimes there are sets wherein elements are difficult to determine because its properties may be based on personal judgement or opinion. These are called not well-defined sets. Examples of these sets are items 1 and 2. On the other hand, items 3 and 4 are called well-defined sets because we can easily determine its elements whose characteristics are clearly described or its definition assigns it a unique interpretation or value."</p> <ol style="list-style-type: none"> 4. Which of the two sets below is a well-defined set? <p>Explain.</p> <ol style="list-style-type: none"> A. The set of happy people. B. The set of students who are born on April. <i>B, since the characteristics of its elements are clearly described or its definition assigns it a unique interpretation</i> <ol style="list-style-type: none"> 5. Try more examples. Determine whether the given set is a well-defined set or not. Justify your answer. <ol style="list-style-type: none"> a) The set of good singers. <i>not well-defined; because "good" is based on personal opinion</i> b) The set of whole numbers less than 20. <i>well-defined; elements are clearly described</i> c) The set of intelligent students. <i>not well-defined; because "intelligent" is based on personal opinion</i> d) The set of numbers divisible by 5. <i>well-defined; elements are clearly described</i> e) The set of fruits weighing exactly 7 kilograms. <i>well-defined; elements are clearly described</i> <p>Say: "We will learn more concepts about sets as we go on with our discussion tomorrow."</p>
<p>E. Discussing new concepts and practicing new skills #2</p>	<p><u>Session 2</u></p> <p>Recall sets.</p> <p>Ask: 1. What is a set?</p>

	<p>2. When can you say that a particular object or element belongs to a particular set?</p> <p>3. How can you make a given set well-defined?</p> <p>Activity 3: "Make It Count"</p> <p>Directions:</p> <ol style="list-style-type: none"> 1. Divide the class into groups of 5 to 7 members. See to it that students do not belong to the same groupings as in Activity 1 2. Post the pictures on the board (see Appendix A). Pictures must be printed big enough for the learners to see clearly. (LCD projector may be used if available) 3. Distribute the activity sheets to each group. (see Appendix F) 4. Read the directions of the activity aloud. 5. Give the learners 10 minutes to finish the activity. Refer to the answers key provided. (see Appendix G) <p>Guide Questions:</p> <ol style="list-style-type: none"> 1. How many elements does Set A contain? Set B? Set C? Set D? <i>Set A has 3 elements, Set B has 9 elements, Set C has 1 element, Set D has no element.</i> <p>Say: "The number of elements in a given set is called cardinality, denoted by $n(A)$ or A, and read as the cardinality of A."</p> <p>Ask: What is the cardinality of set $A = \{\text{chicken, duck, fish}\}$? <i>Set A has 3 elements in it, so its cardinality is 3, denoted by $n(A) = 3$.</i></p>										
<p><i>F. Discussing new concepts and practicing new skills #3</i></p>	<p>Say: "Given set U as "The set of Colors in a Rainbow," study the table below." (This may be written on board.)</p> <table border="1" data-bbox="577 1637 1375 2031"> <thead> <tr> <th>Sets</th><th>Description</th></tr> </thead> <tbody> <tr> <td>$U = \{\text{red, orange, yellow, green, blue, indigo, violet}\}$</td><td>Is a universal set.</td></tr> <tr> <td>$X = \{\text{orange}\}$</td><td>Is a unit set</td></tr> <tr> <td>$T = \{ \}$</td><td>Is an empty or null set.</td></tr> <tr> <td>$A = \{\text{yellow}\},$ $B = \{\text{green}\},$ $D = \{\text{blue, indigo}\},$ $U = \{\text{red, orange, yellow, green, blue, indigo, violet}\},$</td><td>Are some of the subsets of the given universal set.</td></tr> </tbody> </table>	Sets	Description	$U = \{\text{red, orange, yellow, green, blue, indigo, violet}\}$	Is a universal set.	$X = \{\text{orange}\}$	Is a unit set	$T = \{ \}$	Is an empty or null set.	$A = \{\text{yellow}\},$ $B = \{\text{green}\},$ $D = \{\text{blue, indigo}\},$ $U = \{\text{red, orange, yellow, green, blue, indigo, violet}\},$	Are some of the subsets of the given universal set.
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	$Y = \{ \}$, $F = \{\text{red, yellow, violet}\}$
	<p>Guide Questions:</p> <ol style="list-style-type: none"> 1. How will you describe the universal set based on the given example? 2. Is $D = \{\text{blue, indigo}\}$ a unit set? Why or why not? 3. How do you describe an empty set? 4. How do you describe the elements of sets A, B, D, U and F in relation to the universal set? <p>Say: "Given two sets A and B, A is a subset of B, denoted by $A \subseteq B$, if and only if all the elements of A are also elements of B. Moreover, a set is a subset of itself and an empty set is a subset of any set. Using the expression 2^n, where 2 is a constant and n is the cardinality of a set, we can determine the total number of subsets a particular set has."</p> <ol style="list-style-type: none"> 5. How many total subsets thus the given universal set above have? $2^n = 2^7 = 128$ subsets
G. <i>Developing mastery (leads to Formative Assessment 3)</i>	<p>Exercise: Give what is asked for each item.</p> <p>Given: "The set of major island groups in the Philippines"</p> <ol style="list-style-type: none"> 1. Write the universal set. $U = \{\text{Luzon, Visayas, Mindanao}\}$ 2. What is the cardinality of the universal set? $n(U) = 3$ 3. Is $A = \{\text{Luzon, Visayas}\}$ a subset of the given Universal set? Why? Yes, because all its elements are also elements of U 4. How many total subsets thus the universal set have? $2^n = 2^3 = 8$ 5. Give all the possible subsets of the universal set. $\{\text{Luzon}\}$, $\{\text{Visayas}\}$, $\{\text{Mindanao}\}$, $\{\text{Luzon, Visayas}\}$, $\{\text{Luzon, Mindanao}\}$, $\{\text{Visayas, Mindanao}\}$, $\{\text{Luzon, Visayas, Mindanao}\}$, $\{ \}$
H. <i>Finding practical applications of concepts and skills in daily living</i>	
I. <i>Making generalizations and abstractions</i>	<p>Ask:</p> <ol style="list-style-type: none"> 1. What is a set? 2. When can you say that a set is well-defined or not?

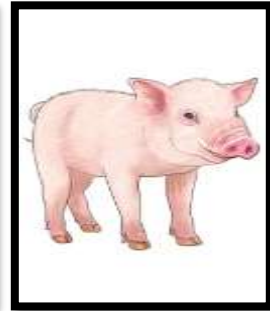
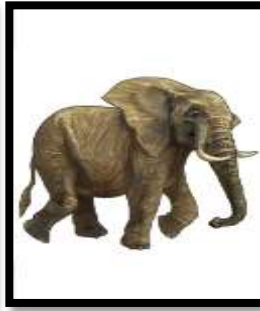
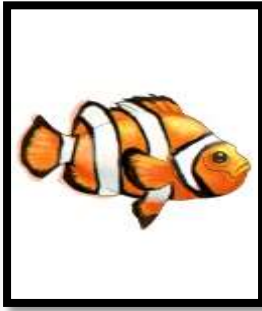
<p><i>about the lesson</i></p>	<p>3. What is cardinality of a set?</p> <p>4. What is the difference between universal set and subsets?</p> <p>Let the learners provide their generalizations. A set is a collection of objects called elements. Set is often defined by a capital letter.</p> <p>Well-defined sets are sets wherein elements can easily be determined since its characteristics are clearly described or its definition assigns it a unique interpretation or value. Otherwise, it is not well-defined.</p> <p>Cardinality of a set is the number of elements in a given set.</p> <p>Unit set is a set with only one element.</p> <p>Null set or Empty set is a set that contains no element. It is denoted by the symbol $\{ \}$ or the Danish letter \emptyset.</p> <p>Universal Set denoted by U contains all the elements being considered in a given situation.</p> <p>Subset: Set A is a subset of B, denoted by "$A \subseteq B$", if and only if every element of A is also an element of B. A set is also a subset of itself. An empty set is a subset of all sets. The number of subsets in a given universal set can be easily determined using the formula: 2^n, where 2 is a constant and n is the number of elements in the given set.</p>
<p>J. <i>Evaluating learning</i></p>	
<p>K. <i>Additional activities for application or remediation</i></p>	<p><u>Remediation (Optional)</u></p> <p>Exercise: Give what is asked in each item.</p> <p>Given: $S = \{\text{rectangle, square, rhombus}\}$</p> <ol style="list-style-type: none"> 1. Describe set S. <i>the set of quadrilaterals</i> 2. Determine the cardinality of set S. $n(S) = 3$ 3. List all the possible subsets of set S. $\{\text{rectangle}\}, \{\text{square}\}, \{\text{rhombus}\}, \{\text{rectangle, square}\}, \{\text{rectangle, rhombus}\}, \{\text{square, triangle}\}, \{\text{rectangle, square, rhombus}\}, \{\}$ <p><u>Enrichment (Optional)</u></p> <p>Exercise: Give what is asked in each item.</p> <p>Given: $W = \{0, 1, 2, 3, \dots, 7\}$</p> <ol style="list-style-type: none"> 1. Describe set W. <i>the set of whole numbers less than 8 or the set of whole numbers less than or equal to 7</i> 2. Determine the cardinality of set W. $n(W) = 8$ 3. How many possible subsets does set W have? 256

	4. List all the possible subsets of set T, where set T is the set of all the elements in set W that are divisible by 3. {3}, {6}, {3, 6}, {}
V. REMARKS	
VI. REFLECTION	
A. No. of learners who earned 80% in the evaluation	
B. No. of learners who require additional activities for remediation	
C. Did the remedial lessons work? No. of learners who have caught up with the lesson	
D. No. of learners who continue to require remediation	
E. Which of my teaching strategies worked well? Why did these work?	
F. What difficulties did I encounter which my principal or supervisor can help me solve?	
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?	

APPENDIX A

Activity 1

“WE BELONG TOGETHER”



APPENDIX B
Activity 1
“WE BELONG TOGETHER”

Name of Members: _____

Directions:

1. Sort the pictures into different groups. Form groups as many as you can. (Example: Grouped according to habitat, number of legs, types of skin covering, etc.)
2. Write your groups in columns with a short description on top of each column. (Example: Two-Legged Animals, Animals that live on land, Animals that eat plants, etc.).
3. Write your answers on the space below.
4. After 10 minutes, you will present your output in class.

APPENDIX C

Module 3: **Caring for Animals**

When everyone understands how to treat animals properly, pets and humans will be safer from rabies.

Since dogs are involved in transmitting rabies more than any other animals, they are most often involved with spreading the disease to other mammals.

Like humans, animals have their own needs. We can only protect them from rabies and other diseases if we pay attention to these needs.

The **Five Freedoms** to ensure the well-being of animals:

1. Freedom from hunger and thirst

Animal owners should give their animals food and water to keep them healthy.

2. Freedom from discomfort

Animals need to have ways of avoiding the hot sun, rain, and extreme cold. They need a comfortable resting place.

3. Freedom from pain, injury and disease

Owners should take their animals to the veterinarian for treatment if they are ill or if they are injured. Pets should be vaccinated against rabies at the age of 3 months, and taken for **vaccinations every year**. This is to protect them to make sure that they do not infect other animals or people with rabies.

4. Freedom to express normal behavior

Animals must have the opportunity to walk, run, and play. This will keep them alert and active and make sure they are not bored. Animals should not be kept tied up for long periods of time.

5. Freedom from fear and distress

Animals should not be threatened or hurt, whether it is intentional or unintentional. Do not confine them for long periods of time alone, as this will cause them distress.

Source: Rabies Educator Certificate – Module 3: “Caring for Animals” by Global Alliance for Rabies Control (GARC)

APPENDIX D

Activity 2 “Give Me a List

Name of Members: _____

Directions:

1. Perform the activity with the same groupmates.
2. Refer to the same set of animals posted on the board.
3. Using the blank sheet provided by the teacher, list down the animals (elements) being described by the following sets below:

1. The set of heavy animals.
2. The set of small animals.
3. The set of animals that live in the seas.
4. The set of animals that live on land.

APPENDIX E

Answers Key for Activity 2:

1. The set of heavy animals. *{elephant, tiger, goat, cow, pig}; (answers may vary depending on learners' judgement or opinion)*
2. The set of small animals. *{fish, chicken, cat, duck}; (answers may vary depending on learners' judgement or opinion)*
3. The set of animals that live in the seas. *{fish}*
4. The set of animals that live on land.
{dog, cat, cow, elephant, goat, cat, chicken, duck, tiger, pig}

APPENDIX F

Activity 3 “MAKE IT COUNT”

Name of Members: _____

Directions:

1. Refer to the pictures of animals posted on the board.
2. Complete the table below.

Sets	Elements	Number of Elements
A = {animals that lay eggs}		
B = {animals that are not extinct}		
C = {animals that live in the seas}		
D = {animals that live on trees}		

3. After 10 minutes, present your output in class.






APPENDIX G

Answers Key for Activity 3:

Sets	Elements	Number of Elements
A = {animals that lay eggs}	<i>{chicken, duck, fish}</i>	3
B = {animals that are not extinct}	<i>{dog, cow, pig, chicken, elephant, fish, duck, cat, tiger, goat}</i>	10
C = {animals that live in the seas}	<i>{fish}</i>	1
D = {animals that live on trees}	<i>None or { }</i>	0

MATHEMATICS 7 (m7ns-la-2)

I. OBJECTIVES	
B. Content Standards	The learner demonstrates understanding of key concepts of sets and the real number system.
C. Performance Standards	The learner is able to formulate challenging situations involving sets and real numbers and solve these in a variety of strategies.
D. Learning Competencies/ Objectives Write the LC code for each	The learner illustrates the union and intersection of sets and the difference of two sets. (M7NS-la-2)
II. CONTENT	<ul style="list-style-type: none"> Set Operations (Union, Intersection and Set Difference) Integration of Rabies Education: Managing Bite Incidence
LEARNING RESOURCES	
B. References	
1. Teacher's Guide pages	Grade 7 Mathematics, pp. 6-11
2. Learner's Materials pages	Grade 7 Mathematics, pp. 5-9
3. Textbook pages	
4. Additional Materials from Learning Resource (LR) portal	
C. Other Learning Resources	Register and Have Your Dogs and Cats Vaccinated Against Rabies for Rabies Free-Philippines Brochure by Global Alliance for Rabies Control (GARC) and Department of Agriculture – Bureau of Animal Industry (DA-BAI)

III. PROCEDURES	
B. Reviewing previous lesson or presenting the new lesson	<p>Ask:</p> <ol style="list-style-type: none"> 1. State the universal set, if the elements of the set are the learners in your class. 2. Determine its cardinality. 3. What are its possible subsets?
B. Establishing a purpose for the lesson	<p>Activity 1: "Which is Which" (see Appendix A)</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 2px; width: 60px; margin: 5px auto;">DOG</div> </div> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 2px; width: 60px; margin: 5px auto;">CAT</div> </div> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 2px; width: 60px; margin: 5px auto;">FISH</div> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 2px; width: 60px; margin: 5px auto;">BAT</div> </div> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 2px; width: 60px; margin: 5px auto;">GOAT</div> </div> </div> <p>Directions:</p> <ol style="list-style-type: none"> 1. Divide the class into groups of 5 to 7 members. 2. Post the pictures on the board (see Appendix A). Pictures must be printed big enough for the learners to see clearly. (LCD projector may be used if available.) <p>Ask: Which of these animals are mammals?</p> <p>Say: <i>"Animals that are mammals could be infected and could transmit rabies to humans. In case you are bitten by a dog or other animals, here are the tips in managing bite incidence:"</i></p> <ol style="list-style-type: none"> 1. Wash the wound with soap or detergent under running water preferably for 10 minutes. 2. Disinfect wound with alcohol or tincture of iodine.

	<p>3. Consult a doctor immediately or seek the nearest Animal Bite Treatment Center (ABTC) in your locality or community. (see Appendix B)</p> <p>3. Distribute the activity sheets to each group. (see Appendix C)</p> <p>4. Read the directions of the activity aloud.</p> <p>5. Give the learners 10 minutes to finish the activity.</p> <p>Guide Questions:</p> <p>a. What are the elements of Set A? Set B? Set C? Set D? (Note: elements of a set may be written in any order.) $A = \{dog, cat, fish\};$ $B = \{dog, cat, bat, goat\};$ $C = \{cat, dog, fish, bat, goat\};$ $D = \{dog, cat\};$</p> <p>b. How do you describe the elements in Set C in relation to Sets A and B? <i>the elements in set C are the <u>combination</u> of all the elements of sets A and B</i></p> <p>c. How do you describe the elements in Set D in relation to Sets A and B? <i>the elements in set D are the elements <u>common</u> to both sets A and B</i></p>
C. Presenting examples/ instances of the new lesson	<p>Say: “Sets can be combined in a number of different ways to produce another set. This process is called set operations. Each set operation has its own properties.”</p> <p>Present the example below to illustrate the union and intersection of sets by posting the boxed items on the board. Let the learners discuss their observation about the given example:</p>

	<p>Given: $A = \{\text{dog, cat, fish}\}$ $B = \{\text{dog, cat, bat, goat}\}$</p> <p>Find: 1. The intersection of A and B or $A \cap B$. 2. The union of A and B or $A \cup B$.</p> <p>Answers: 1. $A \cap B = \{\text{dog, cat}\}$ 2. $A \cup B = \{\text{dog, cat, fish, bat, goat}\}$</p> <p>Guide Questions:</p> <ol style="list-style-type: none"> 1. In $A \cap B$, what can you say about its elements in relation to sets A and B? 2. Based on the example given, how will you describe the intersection of sets? 3. In $A \cup B$, what comprises its elements in relation to sets A and B? 4. How do you describe the union of two sets? <p>Answers key to the guide questions:</p> <ol style="list-style-type: none"> 1. In $A \cap B$, what can you say about its elements in relation to sets A and B? <i>The elements of $A \cap B$ are the elements that can be found from both A and B.</i> 2. Based on the example given, how will you describe the intersection of sets? <i>The intersection of two sets comprises the common elements of the given sets.</i> 3. In $A \cup B$, what comprises its elements in relation to sets A and B? <i>The elements of $A \cup B$ are the elements that can be found from A, B, or both A and B.</i> 4. How do you describe the union of two sets? <i>The union of two sets contains the combination of all the elements of the given sets.</i> <p>Say: “The intersection of the sets A and B, denoted by $A \cap B$, is the set containing those elements that belong to both A and B. Sets whose intersection is an empty set are called disjoint sets. The union of the sets A and B, denoted by $A \cup B$, is the set that contains those elements that belong to A, B, or to both.”</p> <p>Note: Assist the learners in answering the questions.</p>
D. Discussing new concepts and practicing new skills #1	<p>Present another exercise.</p> <p>Given: $P = \{2, 3, 5, 7, 9\}$ $O = \{1, 3, 5\}$</p>

	<p> $W = \{0, 1, 2, 3, 4\}$ Find: 1. $P \cap W = \{2, 3\}$ 2. $O \cup W = \{0, 1, 2, 3, 4, 5\}$ 3. $W \cap P = \{2, 3\}$ 4. $O \cup P = \{1, 2, 3, 5, 7, 9\}$ </p> <p>Say: <i>"We will learn more concepts about set operations as we go on with our discussion tomorrow."</i></p>
<p>E. Discussing new concepts and practicing new skills #2</p>	<p><u>Session 2</u></p> <p>Recall set operations.</p> <p>Ask: What is the difference between the union of sets and intersection of sets?</p> <p>Activity 2: "See the Difference?" (see Appendix D)</p> <p>Directions:</p> <ol style="list-style-type: none"> 1. Let the learners work in pair. 2. Distribute the activity sheets to each pair. (See Appendix D) 4. Read the directions of the activity aloud. 5. Give the learners 10 minutes to finish the activity. <p><i>Note: List of names of the Presidents of the Philippines may be provided by the teacher during the activity.</i></p> <p>Guide Questions:</p> <ol style="list-style-type: none"> 1. What are the elements of Set A? Set B? Set C? <p> $A = \{\text{Aguinaldo, Quezon, Laurel, Osmeña, Roxas, Quirino, Magsaysay, Garcia, Macapagal, Marcos, Aquino, Ramos, Estrada, Arroyo, Aquino III, Duterte}\}$ </p> <p> $B = \{\text{Aguinaldo, Osmeña, Aquino, Estrada, Arroyo, Aquino III}\}$ </p> <p> $C = \{\text{Quezon, Laurel, Osmeña, Roxas, Quirino, Magsaysay, Garcia, Macapagal, Marcos, Ramos, Duterte}\}$ </p> 2. Compare with other peers the elements that you have written in each set. Did you arrive with the same answer? 3. Are all the elements of Set C contained in Set A and Set B? <i>Yes, all the elements of set C are in set A but not in set B.</i> 4. How would you describe the elements of Set C in relation to the elements of Sets A and B? <i>The elements of Set C are the elements of Set A which are not in Set B.</i> <p>Say: <i>"The Difference of Two Sets (or Set Difference) is another type of Set Operation. In our previous activity:"</i></p>

	<p> $A = \{\text{Aguinaldo, Quezon, Laurel, Osmeña, Roxas, Quirino, Magsaysay, Garcia, Macapagal, Marcos, Aquino, Ramos, Estrada, Arroyo, Aquino III, Duterte}\}$ </p> <p>and</p> <p> $B = \{\text{Aguinaldo, Osmeña, Aquino, Estrada, Arroyo, Aquino III}\}$ </p> <p>so,</p> <p> $A - B = \{\text{Quezon, Laurel, Osmeña, Roxas, Quirino, Magsaysay, Garcia, Macapagal, Marcos, Ramos, Duterte}\}.$ </p> <p>Guide Questions:</p> <ol style="list-style-type: none"> 1. Do sets A and B have common elements? What are those elements? <i>Sets A and B have common elements: Aguinaldo, Osmeña, Aquino, Estrada, Arroyo, Aquino III.</i> 2. In $A - B$, are all of its elements found in set A? How about in set B? <i>Yes, all elements in $A - B$ are found in set A. On the other hand, no elements in $A - B$ can be found in set B.</i> 3. Suppose you will remove the elements of set A that are already in set B, what would set $A - B$ represents? <i>Set $A - B$ represents the difference between sets A and B.</i> <p>Say: "If we let A and B be sets, the difference of two sets, written as $A - B$ is the set of all elements of A that are not elements of B. In our previous activity we removed the elements of set A that are also present in set B. The remaining set of elements is the difference between sets A and B."</p>
F. Developing mastery (leads to Formative Assessment 3)	<p>Present another exercise.</p> <p>Given: $O = \{\text{ribosomes, cell wall, lysosomes, plastids, mitochondria, Golgi body}\}$</p> <p>$P = \{\text{cell wall, plastids, central vacuole}\}$</p> <p>$A = \{\text{ribosomes, lysosomes, Golgi body, mitochondria, flagella}\}$</p> <p>Find:</p> <ol style="list-style-type: none"> 1. $O - P = \{\text{ribosomes, lysosomes, mitochondria, Golgi body}\}$ 2. $P - A = \{\text{cell wall, plastids, central vacuole}\}$ 3. $A - O = \{\text{flagella}\}$
G. Finding practical applications of concepts and skills in daily living	

H. Making generalizations and abstractions about the lesson	<p>Ask:</p> <p>5. What is set operation?</p> <p>6. What are the properties of each set operation?</p> <p>Let the learners provide their generalizations.</p> <p>Set operation is a process of combining sets in a number of different ways to produce another set. Each set operation has its own properties:</p> <p>Intersection of Sets. Let A and B be sets. The intersection of the sets A and B, denoted by $A \cap B$, is the set containing those elements that belong to both A and B. Sets whose intersection is an empty set are called <i>disjoint sets</i></p> <p>Union of Sets. Let A and B be sets. The union of the sets A and B, denoted by $A \cup B$, is the set that contains those elements that belong to A, B, or to both.</p> <p>Difference of Two Sets- If we let A and B be sets, the difference of two sets, written as $A - B$ is the set of all elements of A that are not elements of B.</p>										
I. Evaluating learning	<p>Exercise: Give what is asked for each item.</p> <p>Refer to the boxes below.</p> <table><tr><td><table><tr><td>Set A Students who play Badminton</td></tr><tr><td>Ronald Larry Samantha Mariel Malaya Andrew Isabella</td></tr></table></td><td><table><tr><td>Set B Students who play Basketball</td></tr><tr><td>Isabella Christine Ryan Larry Joyce Andrew Clark</td></tr></table></td></tr><tr><td colspan="2"><table><tr><td>Set C Students who play Volleyball</td></tr><tr><td>Samantha Larry Geric Rued Mariel Malaya Christine</td></tr></table></td></tr></table>	<table><tr><td>Set A Students who play Badminton</td></tr><tr><td>Ronald Larry Samantha Mariel Malaya Andrew Isabella</td></tr></table>	Set A Students who play Badminton	Ronald Larry Samantha Mariel Malaya Andrew Isabella	<table><tr><td>Set B Students who play Basketball</td></tr><tr><td>Isabella Christine Ryan Larry Joyce Andrew Clark</td></tr></table>	Set B Students who play Basketball	Isabella Christine Ryan Larry Joyce Andrew Clark	<table><tr><td>Set C Students who play Volleyball</td></tr><tr><td>Samantha Larry Geric Rued Mariel Malaya Christine</td></tr></table>		Set C Students who play Volleyball	Samantha Larry Geric Rued Mariel Malaya Christine
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Set C Students who play Volleyball											
Samantha Larry Geric Rued Mariel Malaya Christine											

	<p>Find:</p> <ol style="list-style-type: none"> $A \cup C = \{\text{Ronald, Larry, Samantha, Mariel, Malaya, Andrew, Isabella, Geric, Rued, Christine}\}$ $A \cap B = \{\text{Larry, Andrew, Isabella}\}$ $C - B = \{\text{Samantha, Geric, Rued, Mariel, Malaya}\}$ $B \cap C = \{\text{Larry}\}$ $B - A = \{\text{Isabella, Ryan, Joyce, Andrew, Clark}\}$
J. Additional activities for application or remediation	<p><u>Remediation (Optional)</u></p> <p>Exercise: Give what is asked in each item.</p> <p>Given: $A = \{1, 2, 3, 4, 5, 6, 7\}$ $B = \{1, 3, 5, 7\}$ $C = \{3, 4, 5, 6, 7\}$</p> <p>Perform the following set operations:</p> <ol style="list-style-type: none"> $A \cap C = \{3, 4, 5, 6, 7\}$ $B \cup C = \{1, 3, 4, 5, 6, 7\}$ $A - C = \{1, 2\}$ $B \cap C = \{3, 5, 7\}$ $A \cup C = \{1, 2, 3, 4, 5, 6, 7\}$ <p><u>Enrichment (Optional)</u></p> <p>Exercise: Give what is asked in each item.</p> <p>Given: $A = \{a, e, i, o, u\}$ $B = \{a, b, c, d, e, f\}$ $C = \{a, b, d, e, g, h\}$</p> <p>Perform the following set operations:</p> <ol style="list-style-type: none"> $(A \cap C) \cup B = \{a, b, c, d, e, f\}$ $A - (B \cup C) = \{i, o, u\}$ $(A \cap B \cap C) = \{a, e\}$ $(A \cup B \cup C) = \{a, e, i, o, u, b, c, d, f, g, h\}$ $(C - A) \cap B = \{b, d\}$
IV. REMARKS	
V. REFLECTION	
A. No. of learners who earned 80% in the evaluation	
B. No. of learners who require additional activities for remediation	

C. Did the remedial lessons work? No. of learners who have caught up with the lesson	
D. No. of learners who continue to require remediation	
E. Which of my teaching strategies worked well? Why did these work?	
F. What difficulties did I encounter which my principal or supervisor can help me solve?	
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?	

APPENDIX A

Activity 1
“WHICH IS WHICH”



DOG



CAT



FISH



BAT



GOAT

RABIES IS...

Fatal...

Rabies is a highly fatal disease killing 300-600 Filipinos per year. Most affected are children between 5-14 years old.

Contagious...

Rabies can spread from animals to humans. The disease is transmitted when the virus, which is present in the saliva of an infected animal, penetrates the skin usually through a bite. It can also be acquired if a scratch, wound, and/or body openings such as mucous membrane of the eyes, nose or mouth are exposed to contaminated saliva.

Incurable...

In animals, the first sign of rabies is a change in behavior. Rabid animals usually stop eating and drinking, and may appear to want to be left alone. The animal is then likely to become vicious or begin to show signs of paralysis. Some rabid animals bite at the slightest provocation while others become depressed and are difficult to arouse. Once the animal shows signs of paralysis, the disease progresses very quickly and the animal dies.

MANAGING BITE INCIDENCE

What to do when bitten by a dog or other animal?

1. Wash the wound with soap or detergent under running water.



2. Disinfect wound with alcohol or tincture of iodine.



3. Immediately consult a doctor or seek the nearest Animal Bite Treatment Center (ABTC) in your locality.



What to do to the biting dog?

1. Leash or confine the dog in a cage and observe for 14 days.



2. Do not kill the dog.
3. If the dog dies within 14 days, seek the assistance of a veterinarian for proper submission of specimen for diagnosis.
4. Bring the specimen to the nearest animal rabies diagnostic laboratory in your area.

Regional Animal Diagnostic Laboratory
Department of Agriculture in the Region

Rabies Diagnostic Laboratory
Philippine Animal Health Center
Bureau of Animal Industry
Visayas Avenue, Diliman, Quezon City

Research Institute for Tropical Medicine
Department of Health
Alabang, Metro Manila

5. Consult a veterinarian to clarify other information on animal rabies.

APPENDIX C

Activity 1 “WHICH IS WHICH”

Name of Members: _____

Directions:

1. Look at the pictures of animals that will be posted by the teacher on the board.
3. Classify the animals into two sets by listing its elements: Set A = {animals that are considered pets} and Set B = {animals that can transmit rabies}.
4. List the elements of Set C = {animals that belong to A or B or both} and Set D = {animals that are both considered pets and can transmit rabies}.
5. Write your answers on the blank sheet provided by the teacher.
6. After 10 minutes, you will present your output in class.

APPENDIX D

Activity 2 “SEE THE DIFFERENCE”

Name of Members: _____

Directions:

1. Work in a pair.
2. Write your answer on the space provided below.
3. Supply the elements in the following set:

A = {last names of the presidents of the Philippines}

B = {last names of the presidents of the Philippines that start with a vowel}

C = {last names of the presidents of the Philippines that start with a
consonant}

- d. Compare and discuss your answers with other pairs.

MATHEMATICS 7 (m7ns-lb-2)

I. OBJECTIVES	
<i>A. Content Standards</i>	The learner demonstrates understanding of key concepts of sets and the real number system.
<i>B. Performance Standards</i>	The learner is able to formulate the challenging situations involving sets and real numbers and solve these in a variety of strategies.
<i>C. Learning Competencies/ Objectives</i> <i>Write the LC code for each</i>	The learner solves problems involving sets. (M7NS-lb-2)
II. CONTENT	Solving Word Problems Involving Sets Integration of Rabies Education
III. LEARNING RESOURCES	
<i>A. References</i>	
<i>1. Teacher's Guide pages</i>	Grade 7 Mathematics, pp. 19-25
<i>2. Learner's Materials pages</i>	Grade 7 Mathematics, pp. 14-18
<i>3. Textbook pages</i>	
<i>4. Additional Materials from Learning Resource (LR) portal</i>	
<i>A. Other Learning Resources</i>	<ul style="list-style-type: none"> • Global Alliance for Rabies Control • http://rubistar.4teachers.org/index.php • Lopez, Emelinda L. "Rabies in Animals". Rabies Education Development of Lesson Exemplars and Module Writing. Sta. Rosa City, Laguna, Philippines, 2017.

IV. PROCEDURES

A. *Reviewing previous lesson or presenting the new lesson*

What to do:

1. Conduct a classroom survey to find out which pets are more preferred by learners. Make sure to write the tally on the board using the table below:

<i>Likes both Dogs and Cats as pets</i>	<i>Like Dogs only as pets</i>	<i>Like Cats only as pets</i>	<i>Don't like any of the two animals as pets</i>

2. Ask the following questions:

- 2.1 Who among you likes both dogs and cats as pets?
- 2.2 Who among you likes dogs only as a pet?
- 2.3 Who among you likes cats only as a pet?
- 2.4 Who among you don't like any of the two animals mentioned as pets?

3. Group the learners with 6 – 8 members per group and ask the learners to do activity no. 1 (see enclosure 1)

4. Say: "Your task is to construct and complete a Venn diagram that represents your consolidated answers in the previous survey."

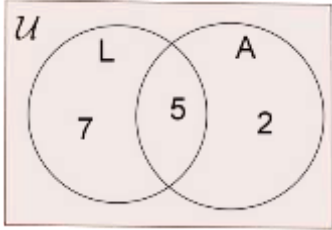
Let the groups answer the following guide questions:

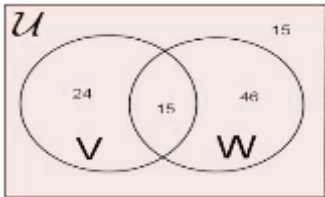
- a. How many circles did you form for the Venn diagram?
- b. What do these circles represent?
- c. Are the circles overlapping or disjoint? Why?
- d. What does the intersection of the circle represent?

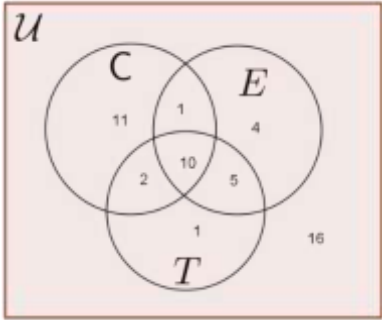
5. Let the learners post and compare their outputs in front of the class.

Note: the teacher may reproduce enclosure 1 in manila paper so that during group presentation, the class can see clearly each groups' output.

<p><i>B. Establishing a purpose for the lesson</i></p>	<p>What to do:</p> <ol style="list-style-type: none"> 1. Say: "Our choice of pets are diverse but our love and care for them unites us all." 2. Post a picture of an animal bite incident in front of the class (see enclosure 2.) 3. Ask: Are you familiar with the term RABIES? What do you know about rabies? 4. Explain formally what rabies is and some bite management incidence tips. (see enclosure 3.) <p><i>Rabies virus is transmitted through the saliva of an infected animal. Saliva becomes infectious a few days prior to the onset of clinical signs. Infection occurs via bite wounds or infected saliva entering an open cut or wound or mucous membrane, such as those in the mouth, nasal cavity or eyes.</i></p>
<p><i>C. Presenting examples/instances of the new lesson</i></p>	<p>What to do:</p> <ol style="list-style-type: none"> 1. After showing the rabies transmission information to students, present the problem that follows and discuss thoroughly the solution to the problem with the students. 2. Say: The first problem that we need to solve for today is related to rabies awareness. (Post the problem on the board) <p>Problem: <i>In a remote barangay, a survey was conducted to 14 people bitten by dogs; all of them were selected randomly. It was found out that 12 people were bitten in the legs and 7 of them were bitten in their arms. How many of them were bitten both in the legs and arms? How many were bitten in legs only? How many were bitten in arms only?</i></p> <ol style="list-style-type: none"> 3. Use the following guide questions to discuss the given problem: <ol style="list-style-type: none"> 3.1. What can we use to analyze this problem? Answer: Venn Diagram <p>Note: Construct a Venn Diagram on the board.</p> <ol style="list-style-type: none"> 3.2. How many were bitten in both legs and arms? Answer: Let U be the set of people surveyed. Let L be the set of people bitten by dogs. Let A be the set of people bitten by dogs in their arms.

	$n(L) - n(A) = n(L \cap A)$ $12 - 7 = n(L \cap A)$ $5 = n(L \cap A)$ <p>3.3 How many were bitten in legs only? Answer: $12 - 5 = 7$</p> <p>3.4. How many were bitten in arms only? Answer: $7 - 5 = 2$</p> <p>3.5. Who would like to complete our Venn Diagram? Answer: </p>
<p>D. Discussing new concepts and practicing new skills #1</p>	<p>What to do:</p> <ol style="list-style-type: none"> 1. Present another problem to the class. <p><i>According to the Global Alliance for Rabies Control (2017), rabies can be prevented by having our pet dogs and cats vaccinated as rabies kills. In a group of 100 pet owners, 39 pets were vaccinated for free by the Bureau of Animal Industry (BAI), 61 pets were given vaccine from private veterinary clinics (PVC) and 15 pets were vaccinated both for free by BAI and from private veterinary clinics. How many pets were not vaccinated at all?</i></p> 2. Recall to the class the steps on how to solve word problems according to Polya. <p style="text-align: center;"> Step 1. Understand the problem. Step 2. Make a plan. Step 3. Carry out the plan. Step 4. Look back and check your answer. </p> 3. Use the following guide questions to discuss the given problem: <ol style="list-style-type: none"> 3.1. What can we use to analyze this problem? Answer: Venn Diagram Note: Construct a Venn Diagram on the board.

	<p>Let U be the set of pets vaccinated. Let V be the set of pets vaccinated by BAI. Let W be the set of pets vaccinated by PVC.</p> <p>3.2 How many were vaccinated in both BAI and PVC? Answer: 15 (given)</p> <p>3.3 How many were vaccinated by BAI only? Answer: $39 - 15 = 24$</p> <p>3.4 How many were vaccinated by PVC only? Answer: $61 - 15 = 46$</p> <p>3.5 How many were vaccinated in BAI or PVC? Answer: $39 + 61 - 15 = 85$ or $15 + 24 + 46 = 85$</p> <p>3.6 Who would like to complete our Venn Diagram? Answer:  </p> <p>3.7 How many pets were not vaccinated at all? Answer: $100 - 85 = 15$ There are 15 pets that were not vaccinated at all.</p>
<p><i>E. Discussing new concepts and practicing new skills #2</i></p>	<p>Note: For advanced class, the teacher may use the following procedure for deeper understanding.</p> <p>What to do:</p> <p>1. Post a problem to the class. Group them into pairs to work collaboratively in answering the problem.</p> <p><i>A group of 50 students went in a tour in Palawan Province. Out of the 50 students, 24 joined a trip to Coron; 18 went to Tubbataha Reef; 20 visited El Nido; 12 made a trip to Coron and Tubbataha Reef; 15 visited Tubbataha Reef and El Nido; 11 made a trip to Coron and El Nido and 10 visited the three tourist spots.</i></p>

	<p>2. Use the following guide questions to discuss the given problem:</p> <ol style="list-style-type: none"> How many students went to Coron only? How many students went to Tubbataha Reef only? How many students joined the El Nido trip only? How many did not go to any of the tourist spots? <p>Note: If time permits, Let them work by groups. Assign the groups to discuss their solution in a creative way such as in the form of a play, song, dance, etc. Give them 5-10 minutes to do the activity.</p> <p>Below is the solution to the problem. At the end of the group output presentations, be sure to explain the numbers in each set in the Venn diagram. You may use notations to translate the sentences.</p>  <p>fig.4: Venn diagram showing students going in a tour in Palawan</p> <p>Answers to the questions above:</p> <ol style="list-style-type: none"> There are 11 students who went to Coron only. Notation: $n(C - (E \cup T)) = 11$ There is one student who went to Tubbataha Reef only. Notation: $n(T - (E \cup C)) = 1$ There are 4 students who joined the El Nido trip only. Notation: $n(E - (T \cup C)) = 4$ There are 16 students who did not go to any of the tourist spots. Notation: $n(E \cup T \cup C)^c = 16$
<p><i>F. Developing mastery (leads to Formative Assessment 3)</i></p>	<p>What to do:</p> <p>Group Activity: Use Venn diagram to solve the problems. (This could also be given as an evaluation. Use Rubrics to check the solution of the learners- See enclosure 4)</p>

From a survey involving 100 Santiago Delmo Memorial High School students, the Mathematics department found that 75 students owned cell phones, 45 owned tablets and 35 students owned both cell phones and tablets.

- How many students owned either a cell phone or a tablet?
- How many students didn't own either a cell phone or a tablet?
- How many students owned a cell phone but not a tablet?
- How many students did not own both a cell phone and a tablet?

Answer key

Solution:

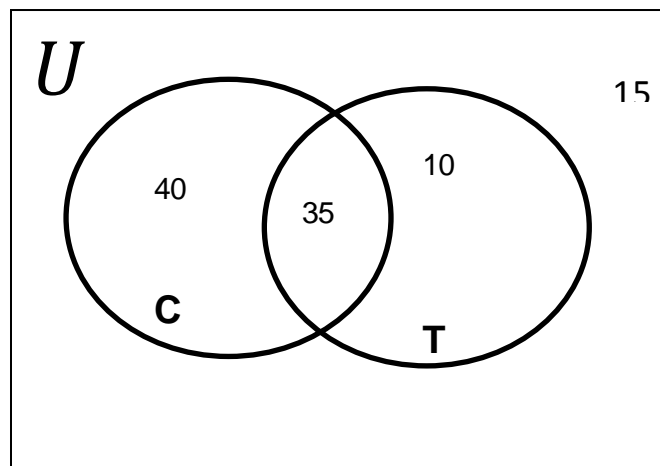


Fig. 5 Venn diagram on Santiago Delmo Memorial High School students owning cell phones and tablets

Let U be the universal set. Let C be the set of students who owned cellphones and T , a set of students who owned tablets.

Then,

$$n(U) = 100$$

$$n(C) = 75$$

$$n(T) = 45$$

$$n(C \cap T) = 35$$

	<p>a. How many students owned either a cell phone or a tablet?</p> <p>Answer: $n(C \cup T) = 85$</p> <p>b. How many students did not own either a cell phone or a tablet?</p> <p>Answer: $n(C \cup T)^c = 15$</p> <p>c. How many students owned a cell phone but not a tablet?</p> <p>Answer: $n(C - T) = 40$</p> <p>d. How many students did not own both a cell phone and a tablet?</p> <p>Answer: $n(C \cap T)^c = 65$</p>
<i>G. Finding practical applications of concepts and skills in daily living</i>	
<i>H. Making generalizations and abstractions about the lesson</i>	<p>What to do:</p> <p>Ask the following questions:</p> <ol style="list-style-type: none"> 1. How does the use of a Venn diagram help in solving problems involving sets? Answer: It makes the problem solving process easier as numerical figures in the Venn diagram represent a specific cardinality. 2. What are the steps in solving word problems? Answer: <ol style="list-style-type: none"> 1. Understand the problem 2. Make a plan 3. Carry out the plan 4. Look back and check your answer
<i>I. Evaluating learning</i>	
<i>J. Additional activities for application or remediation</i>	<p>Remediation: Modify the given information used in the problem found in part F. Assign as homework to be submitted the next meeting.</p>

V. REMARKS		
VI. REFLECTION		
A. No. of learners who earned 80% in the evaluation		
B. No. of learners who require additional activities for remediation		
C. Did the remedial lessons work? No. of learners who have caught up with the lesson		
D. No. of learners who continue to require remediation		
E. Which of my teaching strategies worked well? Why did these work?		
F. What difficulties did I encounter which my principal or supervisor can help me solve?		
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?		

Activity Sheet

Enclosure 1

ACTIVITY SHEET NO. 1

Member: _____

Group No.: _____

Gr. and Section: _____

Directions: Construct and complete a Venn diagram that represents the consolidated answers of the class in the previous survey. Use the box below as your universal set.



Guide Questions:

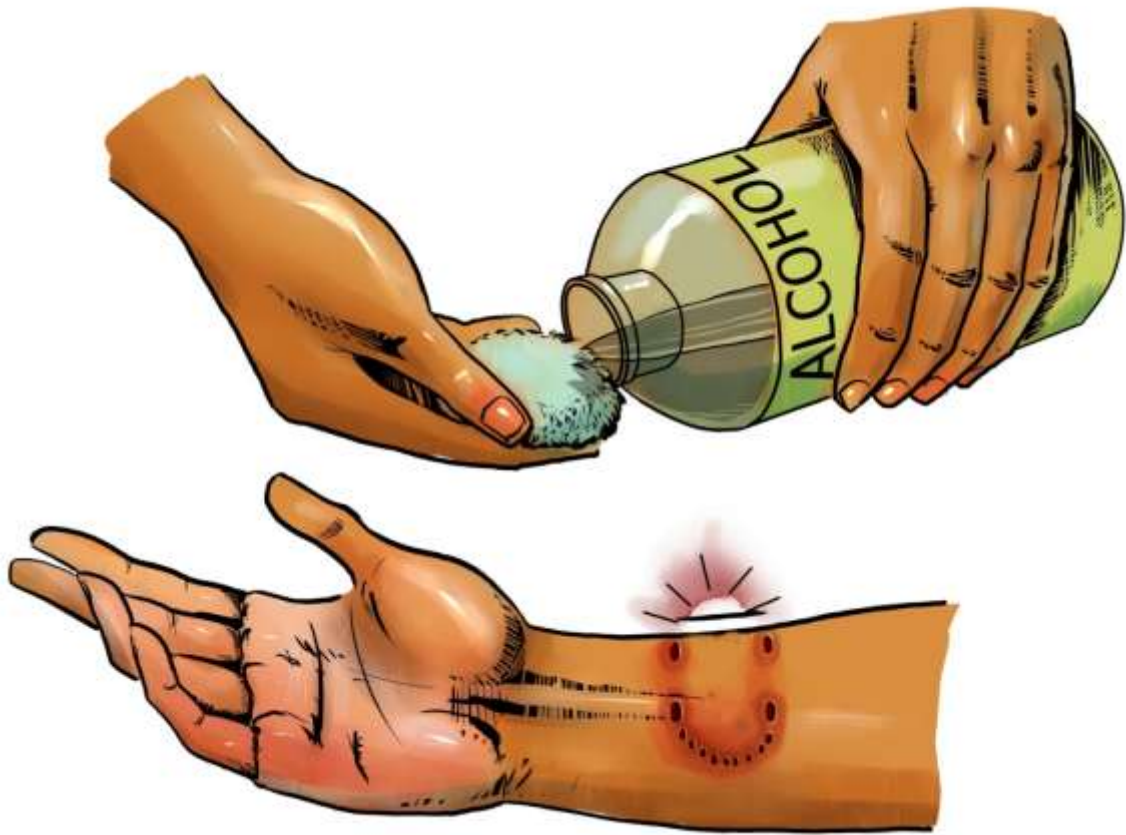
1. How many circles did you form for the Venn diagram?

2. What do these circles represent?

3. Are the circles overlapping or disjoint? Why?

4. What does the intersection of the circle represents?

Enclosure 2



Help Prevent Rabies...

Be a responsible pet owner

Have your dogs and cats vaccinated against rabies at 3 months of age and every year thereafter.



Provide your pet with proper nutrition, enough care, and attention.



Be sure to keep their cage clean and comfortable.



Keep your dog on a leash and do not let them roam freely in the streets.



Or suffer the consequences...

Republic Act 9482
(Anti-Rabies Act of 2007)

Pet Owners Penalties

Pet owners who fail or refuse to have their dog registered and immunized against rabies shall be punished by a fine of Two Thousand Pesos (P2,000.00).

Pet owners who refuse to have their dog vaccinated against rabies shall be liable to pay for the vaccination of both the dog and the individual bitten by their dog.

Pet owners who refuse to have their dog put under observation after said dog has bitten an individual shall be meted a fine of Ten Thousand Pesos (P10,000.00).

Pet owners who refuse to have their dog put under observation and do not shoulder the medical expenses of the person bitten by their dog shall be meted a fine of Twenty Five Thousand Pesos (P25,000.00).

Pet owners who refuse to put a leash on their dogs while they are brought outside the house shall be meted a fine of Five Hundred Pesos (P500.00) for each incident.

For more information, contact your Provincial or City Veterinary Office

BAI RABIES HOTLINE
(02) 928-2743 / (02) 928-2836

Register and Have Your Dogs and Cats Vaccinated Against RABIES

for



Rabies-Free Philippines



OIE
EUROPEAN UNION

GLOBAL ALLIANCE FOR RABIES CONTROL

DEPARTMENT OF AGRICULTURE

RABIES IS...

Fatal...

Rabies is a highly fatal disease killing 300-600 Filipinos per year. Most affected are children between 5-14 years old.

Contagious...

Rabies can spread from animals to humans. The disease is transmitted when the virus, which is present in the saliva of an infected animal, penetrates the skin usually through a bite. It can also be acquired if a scratch, wound, and/or body openings such as mucous membrane of the eyes, nose or mouth are exposed to contaminated saliva.

Incurable...

In animals, the first sign of rabies is a change in behavior. Rabid animals usually stop eating and drinking, and may appear to want to be left alone. The animal is then likely to become vicious or begin to show signs of paralysis. Some rabid animals bite at the slightest provocation while others become depressed and are difficult to arouse. Once the animal shows signs of paralysis, the disease progresses very quickly and the animal dies.

MANAGING BITE INCIDENCE

What to do when bitten by a dog or other animal?

1. Wash the wound with soap or detergent under running water.



2. Disinfect wound with alcohol or tincture of iodine.



3. Immediately consult a doctor or seek the nearest Animal Bite Treatment Center (ABTC) in your locality.



What to do to the biting dog?

1. Leash or confine the dog in a cage and observe for 14 days.



2. Do not kill the dog.
3. If the dog dies within 14 days, seek the assistance of a veterinarian for proper submission of specimen for diagnosis.
4. Bring the specimen to the nearest animal rabies diagnostic laboratory in your area.

Regional Animal Diagnostic Laboratory
Department of Agriculture in the Region

Rabies Diagnostic Laboratory
Philippine Animal Health Center
Bureau of Animal Industry
Visayas Avenue, Diliman, Quezon City

Research Institute for Tropical Medicine
Department of Health
Alabang, Metro Manila

5. Consult a veterinarian to clarify other information on animal rabies.

ASSESSMENT TOOL

Rubrics for Assessing Problem Solving

POINTS	4	3	2	1
Neatness and Organization	The work is presented in a neat, clear, and organized fashion that is easy to read.	The work is presented in a neat and organized fashion that is usually easy to read.	The work is presented in an organized fashion but may be hard to read at times.	The work appears sloppy and unorganized. It is hard to know what information goes together.
Explanation	Explanation is detailed and clear.	Explanation is clear.	Explanation is a little difficult to understand, but includes critical components.	Explanation is difficult to understand and is missing several components or was not included.
Mathematical Errors	90-100% of the steps and solutions have no mathematical errors.	Almost all (85-89%) of the steps and solutions have no mathematical errors.	Most (75-84%) of the steps and solutions have no mathematical errors.	More than 75% of the steps and solutions have mathematical errors.

Source: <http://rubistar.4teachers.org/index.php>

MATHEMATICS 7 (m7sp-ivd-e-1)

I. OBJECTIVES	
<i>A. Content Standards</i>	The learner demonstrates understanding of key concepts, uses and importance of Statistics, data collection/gathering and the different forms of data representation, measures of central tendency, measures of variability, and probability.
<i>B. Performance Standards</i>	The learner is able to collect and organize data systematically and compute accurately measures of central tendency and variability and apply these appropriately in data analysis and interpretation in different fields.
<i>C. Learning Competencies/ Objectives</i> <i>Write the LC code for each</i>	Uses appropriate graphs to represent organized data: pie chart, bar graph, line graph, histogram, and or give. (M7SP-IVd-e-1)
	<ul style="list-style-type: none"> • Organize data using a bar graph. • Construct a bar graph. • Identify the essential parts of the bar graph.
II. CONTENT	Presenting Data Using Bar Graph
III. LEARNING RESOURCES	
<i>A. References</i>	
<i>1. Teacher's Guide pages</i>	Grade 7 Mathematics, pp. 294 - 302
<i>2. Learner's Materials pages</i>	Grade 7 Mathematics, pp. 239 - 244
<i>3. Textbook pages</i>	
<i>4. Additional Materials from Learning Resource (LR) portal</i>	
<i>A. Other Learning Resources</i>	Data and figures from:

	<ul style="list-style-type: none">• Department of Health (DOH)• Animal Disease Diagnosis and Reference Laboratory – Bureau of Animal Industry (ADDRL-BAI)• Regional Animal Disease Diagnostic Laboratory (RADDLs)• Research Institute for Tropical Medicine – Department of Health (RITM-DOH)• Provincial Animal Disease Diagnostic Laboratory (PADDLs)															
IV. PROCEDURES																
A. Reviewing previous lesson or presenting the new lesson	<p>Do this:</p> <ol style="list-style-type: none">1. Ask the learners about their pets (animal) at home.2. Let the learners raise their hands if they have pets at home such as cats, dogs, chickens, and pigs.3. Collect and consolidate the data of the entire class using a simple frequency distribution table form (use the template below). <table><tr><th>Pet (Animal)</th><th>Tally</th><th>Frequency</th></tr><tr><td>Cat</td><td></td><td></td></tr><tr><td>Dog</td><td></td><td></td></tr><tr><td>Chicken</td><td></td><td></td></tr><tr><td>Pig</td><td></td><td></td></tr></table> <ol style="list-style-type: none">4. Ask: Which among the pets has the highest count or frequency? Which among the pets has the lowest count or frequency? <i>Answer:</i> <i>- the answer depends on the number of each pet in the class.</i>	Pet (Animal)	Tally	Frequency	Cat			Dog			Chicken			Pig		
Pet (Animal)	Tally	Frequency														
Cat																
Dog																
Chicken																
Pig																
B. Establishing a purpose for the lesson	<p>Ask:</p> <p>“If you are going to present the data collected about the different pets of the students at home, how will you present the data aside from the table - tabular form given above?”</p> <p><i>Possible Answer:</i></p> <p><i>- pictograph, bar graph, line graph, circle graph (pie chart)</i></p>															
C. Presenting examples/insta	<p>What to do:</p> <ol style="list-style-type: none">1. Organize the data obtained from class (animal) pet using bar graph.															

nces of the new lesson

2. Prepare and use an enlarged blank graphing template in a Manila paper like the one shown on the next page:

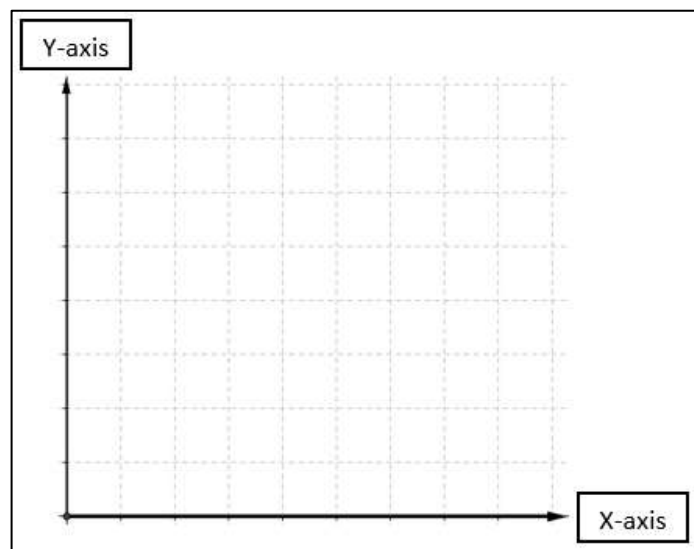


3. Say:

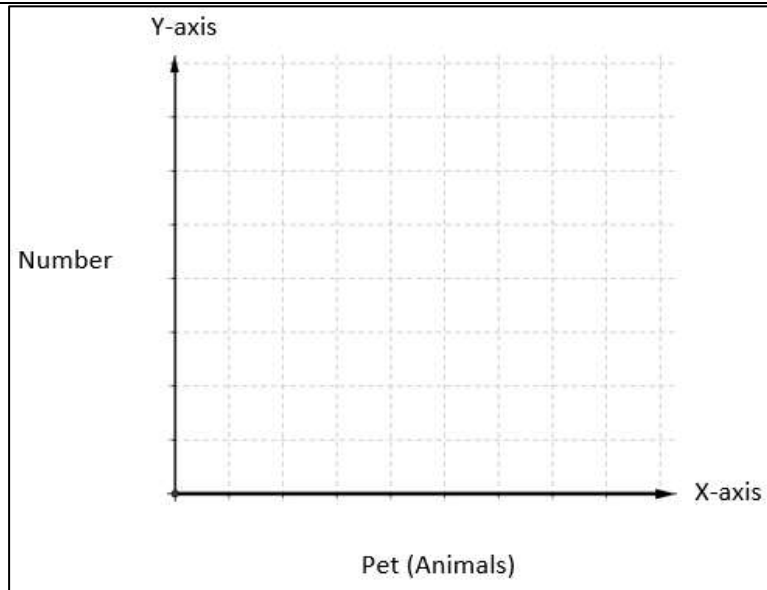
“Let us present your data about your class pets by using a bar graph. Let me discuss with you the procedure on how to construct a bar graph.”

4. Illustrate the process on how to organize data using a bar graph. This includes:

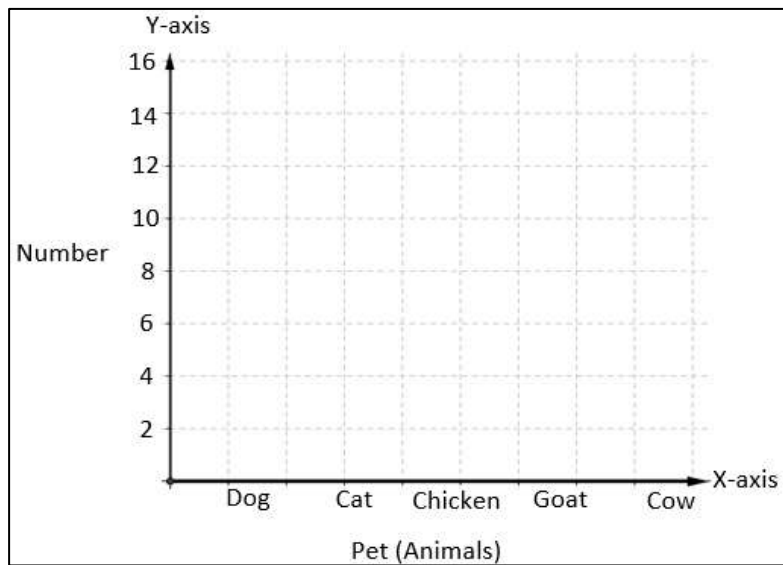
- a. Make the x and y axes.



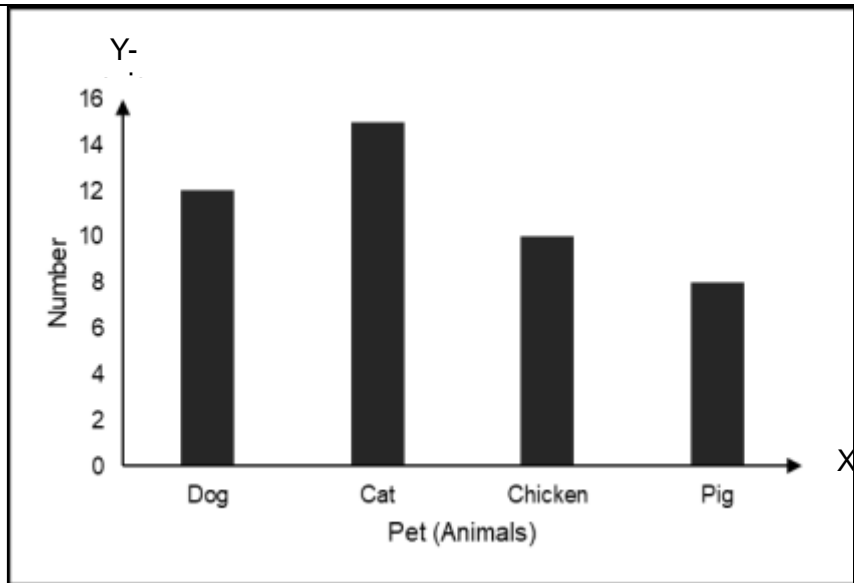
- b. Label the x-axis and y-axis



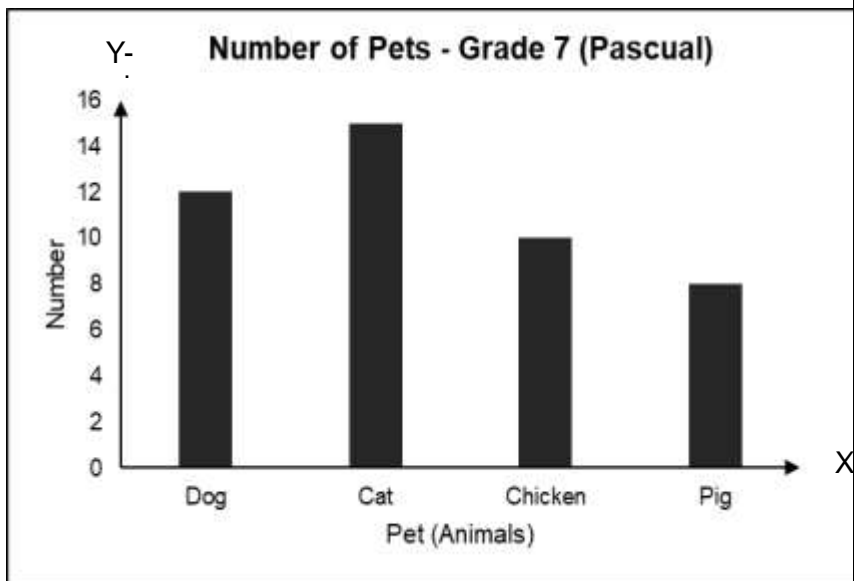
c. Mark the scale in both x and y axes



d. Build up the data bars.

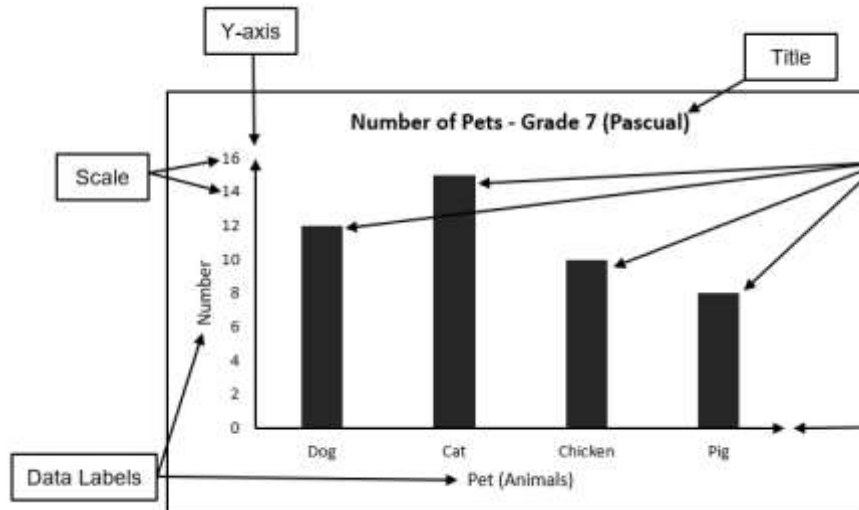


e. Make title of the graph.



f. Emphasize the parts of the bar graph. Use the guide below to highlight the parts of the bar graph.

Parts of the Bar Graph



Note: When two or more data are plotted in a bar graph, a LEGEND is provided to label the different bars that appear in different colors. LEGENDS are provided to distinguish one data from the other

g. Say: "Look at the data about your class pets presented in the bar graph and compare it with the data of your class pets presented in the table. Which one looks more attractive? Which one is a better way of presenting the data about class pets?"

Answer:

- data about class pets presented in bar graph

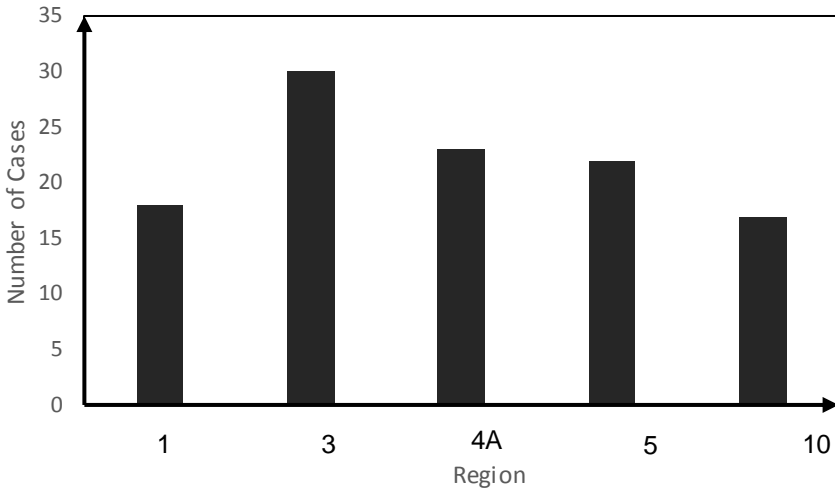
D. Discussing new concepts and practicing new skills #1

What to do:

1. Students will be divided into smaller groups with 5 members each.
2. Each group will organize a given tabular data, shown below, in a bar graph. (Copy or post this on the board.)
3. The groups' output will be assessed using the *attached rubrics* on organizing data using bar graph (See Appendix 1).

Regions with the Highest Cases of Human Rabies

Region	Cases of Human Rabies
1	18
3	30
4A	23
5	22
10	17

	<p style="text-align: center;"><u>Source: Department of Health, 2016</u></p> <p style="text-align: center;">Highest Cases of Human Rabies</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Data for Highest Cases of Human Rabies</caption> <thead> <tr> <th>Region</th> <th>Number of Cases</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>18</td> </tr> <tr> <td>3</td> <td>30</td> </tr> <tr> <td>4A</td> <td>23</td> </tr> <tr> <td>5</td> <td>22</td> </tr> <tr> <td>10</td> <td>17</td> </tr> </tbody> </table> <p>4. Ask the learners the following questions:</p> <p>a. What is the title of the graph? <i>Answer: - Cases of Human Rabies (By Region)</i></p> <p>b. What is the label of the x-axis? y-axis? <i>Answer:</i> - x-axis: Regions - y-axis: number of cases of human rabies</p> <p>c. Which region registers the highest cases of human rabies? <i>Answer: - Region 3</i></p>	Region	Number of Cases	1	18	3	30	4A	23	5	22	10	17
Region	Number of Cases												
1	18												
3	30												
4A	23												
5	22												
10	17												
<p>E. Discussing new concepts and practicing new skills #2</p>													
<p>F. Developing mastery (leads to Formative Assessment 3)</p>	<p>What to do:</p> <p>1. Using the same groupings as in the previous activity, ask the learners to make a bar graph presentation from a given fact sheet provided taken from the Department of Health.</p>												

2. The groups' output will be assessed using the *attached rubrics* in organizing data using bar graph (See Appendix 1).

Fact Sheet: Rabies Situation in the Philippines

Fact Sheet:

Rabies Situation in the Philippines

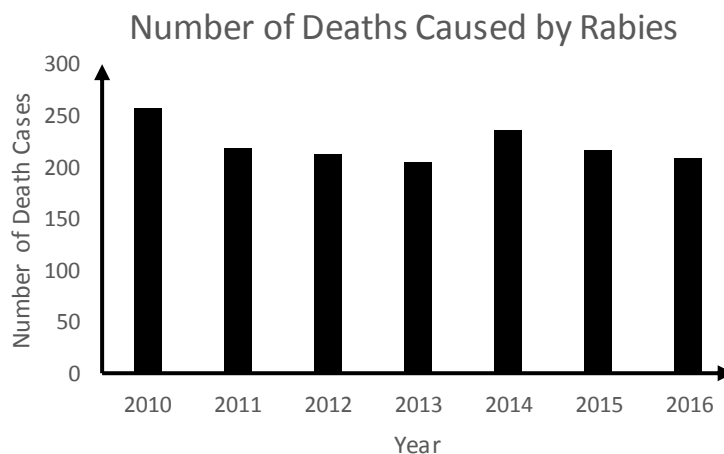
- Rabies continues to be a public health problem in the Philippines.
- Responsible for the death of 208 Filipinos in 2016.

Year	Number of Deaths
2010	257
2011	219
2012	213
2013	205
2014	236
2015	217
2016	208

- Dogs are responsible for most of the rabies cases.

Source: Department of Health, 2017

Expected Output:



3. Ask the learners the following questions:

a. What is the title of the graph?

Answer:- Number of Deaths Caused by Rabies

b. What is the label of the x-axis? y-axis?

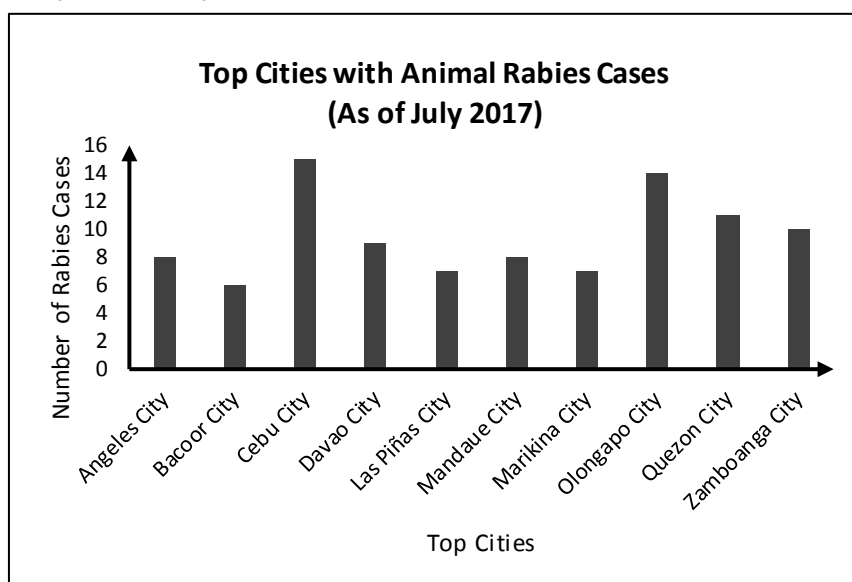
Answer: - Years; Number of Deaths

	<p>c. What year has the lowest number of deaths caused by rabies? <i>Answer: - 2013</i></p> <p>d. What year has the highest number of deaths caused by rabies? <i>Answer: - 2010</i></p>						
G. Finding practical applications of concepts and skills in daily living							
H. Making generalizations and abstractions about the lesson	<ul style="list-style-type: none"> Ask the learners the following questions: <ol style="list-style-type: none"> What are the parts of a bar graph? <i>Answer: - Title, X-axis, Y-axis, Data Labels, Scale, Data Bars</i> How do you organize data in a bar graph? <i>Answer: - Make the X and Y axes, Label both axes, Mark the scale in both axes, Build up the data bars, Indicate the graph title.</i> Why is there a need to organize data in a bar graph? <i>Answer:- Data presented in a chart or graphical form is more attractive than data in textual and even better than data in tabular form.</i> 						
I. Evaluating learning							
J. Additional activities for application or remediation	<p>(OPTIONAL: If the previous activities are NOT enough to show that learning took place.)</p> <p>A. Remedial Activity</p> <p>What to do:</p> <ol style="list-style-type: none"> Given the data in the table on the next page, let the learner organize the data in bar graph. <p>Top Cities with Animal Rabies Cases (As of July 2017)</p> <table border="1"> <thead> <tr> <th>Cities</th><th>Rabies Cases</th></tr> </thead> <tbody> <tr> <td>Angeles City</td><td>8</td></tr> <tr> <td>Bacoar City</td><td>6</td></tr> </tbody> </table>	Cities	Rabies Cases	Angeles City	8	Bacoar City	6
Cities	Rabies Cases						
Angeles City	8						
Bacoar City	6						

Cebu City	15
Davao City	9
Las Piñas City	7
Mandaue City	8
Marikina City	7
Olongapo City	14
Quezon City	11
Zamboanga City	10

Source: Department of Agriculture – Bureau of Animal Industry, 2017

Expected Output:



2. Ask the following questions:

a. What is the title of the graph?

Answer: - Top Cities with Animal Rabies Cases

b. What is the label of the x-axis? y- axis?

Answer: - Cities; Rabies Cases

c. What city has the highest rabies cases as of July 2017? Lowest?

Answer: - Cebu City; Bacoor City

d. Why do you think Cebu City registered the highest rabies cases on July 2017?

Answer: - Possible answers might include lack of the Cebuanos to know the following:

10 KAALAMAN UPANG MAIWASAN ANG RABIES



Papabakunahan ang inyong mga alagang aso at pusa laban sa rabies taun-taon.



Huwag hayaan na gumala ang inyong alagang aso at pusa sa kalsada.

Huwag saktan ang inyong alagang aso at pusa. Huwag silang alalin, bafutin, o hilahin ang anumang parte ng kanilang katawan.



Alagaan ng mabuti ang inyong aso at pusa na may maayos na tirahan. Bigyan sila ng sapat at malinis na pagkain at tubig.

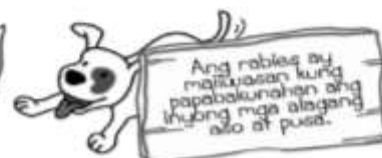


Huwag lumapit sa mga aso at pusa na gumagala sa kalye. Huwag din gambelin ang inyong mga alagang aso at pusa kapag sila ay natutulog, kumakain, o nagpapadeda ng kanilang mga anak.

Hugasan agad ang sukat mula sa kagat ng aso o pusa ng sabon sa dumadaloy na tubig.



Ipaalam agad sa mga nakatatanda kapag nakagat ng hayop at magpatingin sa Health Center o Animal Bite Treatment Center (ABTC).



B. Enrichment Activity

What to do:

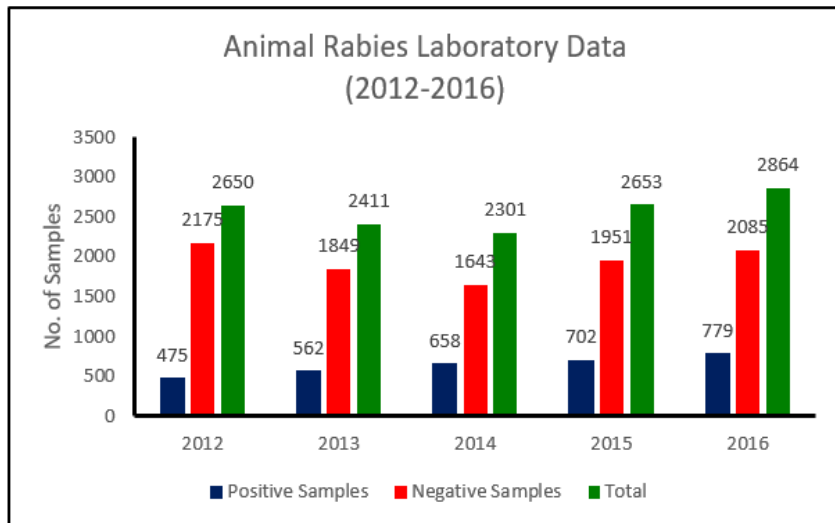
1. Ask the learners to organize the given on the next page below using a bar graph.

Animal Rabies Laboratory Data (2012 - 2016)

Year	Total No. of Samples Submitted for Laboratory	Number of Positive Samples	Number of Negative Samples
2012	2,650	475	2,175
2013	2,411	562	1,849
2014	2,301	658	1,643
2015	2,653	702	1,951
2016	2,864	779	2,085

Source: Department of Agriculture - Bureau of Animal Industry, 2017

Expected Output:



2. Ask the following questions:

a. What is the title of the graph?

Answer:- Animal Rabies Laboratory Data

b. What is the label of the x-axis? y-axis?

Answer: - Years; Number of Samples

c. What year has the lowest positive samples? highest?

Answer: - 475; 779

d. What year has the highest negative samples? lowest?

Answer: - 2,175; 1,643

e. What do you think is the reason why the number of samples (positive samples, negative samples and total samples) increased in 2014?

Answer: - Possible answers might include lack of the Filipino people to do the following:

	<h3 style="text-align: center;">10 KAALAMAN UPANG MAIWASAN ANG RABIES</h3> <p>Panel 1: Papabakunahan ang inyong mga alagang aso at pusa lisan sa rabies taun-taon.</p> <p>Panel 2: Huwag hayasan na gumala ang inyong alagang aso at pusa sa kalsada.</p> <p>Panel 3: Huwag sakitan ang inyong alagang aso at pusa. Huwag silang alapin, batiin, o hilahin ang anumang parte ng kanilang katawan.</p> <p>Panel 4: Alagaan ng mabuti ang inyong aso at pusa na may masugat na tirahan. Bigyan sila ng sapat at malinis na pagkain at tubig.</p> <p>Panel 5: Huwag lumapit sa mga aso at pusa na gumagala sa kalye. Huwag din garibalain ang inyong mga alagang aso at pusa kapag sila ay natutulog, kumakain, o nagpapadeda ng kanilang mga anak.</p> <p>Panel 6: Hugasan agad ang sugat mula sa kagat ng aso o pusa ng sabon sa dumadaloy na tubig.</p> <p>Panel 7: Ipasali agad sa mga nakatatanda kapag nakagat ng hayop at magpatingin sa Health Center o Animal Bite Treatment Center (ABTC).</p> <p>Panel 8: Tandaan na puwedeng makuha ang rabies sa lahat ng aso at pusa.</p> <p>Panel 9: Nakamamatay ang rabies.</p> <p>Panel 10: Ang rabies ay maituwason kung papabakunahan ang inyong mga alagang aso at pusa.</p>
V. REMARKS	
VI. REFLECTION	
A. No. of learners who earned 80% in the evaluation	
B. No. of learners who require additional activities for remediation	
C. Did the remedial lessons work? No. of learners who have caught up with the lesson	
D. No. of learners who continue to require remediation	
E. Which of my teaching strategies worked well? Why did these work?	
F. What difficulties did I encounter which my principal or supervisor can help me solve?	
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?	

Activity Sheet

	4	3	2	1
Title	Title is creative and clearly relates to the problem being graphed (includes dependent and independent variables). It is printed at the top of the graph.	Title clearly relates to the problem being graphed (includes dependent and independent variables) and is printed at the top of the graph.	A title is present at the top of the graph.	A title is not present
Labeling of X-axis	The X-axis has a clear, neat label that describes the units used for the independent variable (e.g. days, months, participants' names).	The X-axis has a clear label that describes the units used for the independent variable.	The X-axis has a label.	The X-axis is not labeled.
Labeling of Y-axis	The Y-axis has a clear, neat label that describes the units used for the dependent variable (e.g. % of dog food eaten, degree of satisfaction).	The Y-axis has a clear label that describes the units used for the dependent variable.	The Y-axis has a label.	The Y-axis is not labeled.
Accuracy of Plot	All points are plotted correctly and are easy to see. A ruler is used to neatly connect the points or make the bars.	All points are plotted correctly and are easy to see.	All points are plotted correctly.	Points are not plotted correctly OR extra point were included.
Neatness and Attractiveness	Exceptionally well designed, neat, and attractive. Colors that go well together are used to make the graph more readable. A ruler and graph paper are used.	Neat and relatively attractive. A ruler and graph paper are used to make the graph more readable.	Lines are neatly drawn but the graph appears quite plain.	Appears messy and drawn in a hurry. Lines are visibly crooked.

MATHEMATICS 7 (m7sp-ivj-2)

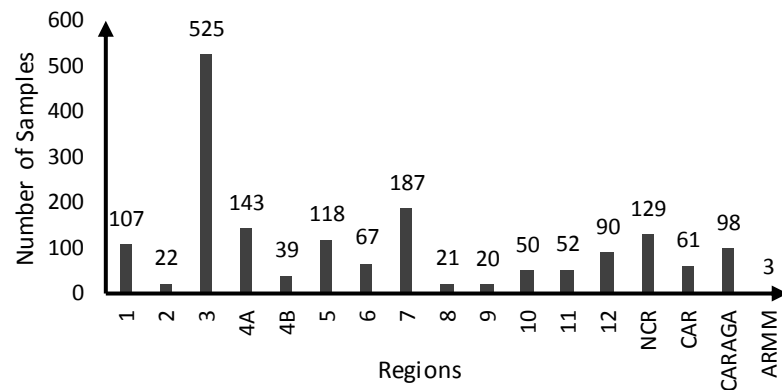
I. OBJECTIVES	
<i>A. Content Standards</i>	The learner demonstrates understanding of key concepts, uses and importance of Statistics, data collection/gathering and the different forms of data representation, measures of central tendency, measures of variability, and probability.
<i>B. Performance Standards</i>	The learner is able to collect and organize data systematically and compute accurately measures of central tendency and variability and apply these appropriately in data analysis and interpretation in different fields.
<i>C. Learning Competencies / Objectives</i> <i>Write the LC code for each</i>	Draws conclusions from graphic and tabular data and measures of central tendency and variability. (M7SP-IVj-2)
	<ul style="list-style-type: none"> • Analyze the data presented in graphical form. • State the observation from a data in graphical form. • Interpret a data given in graphical representation.
II. CONTENT	Drawing conclusions from a set of graphical data
III. LEARNING RESOURCES	
<i>A. References</i>	
1. Teacher's Guide pages	Grade 7 Mathematics, pp. 313 - 318
2. Learner's Materials pages	Grade 7 Mathematics, pp. 252 - 256
3. Textbook pages	
4. Additional Materials from Learning Resource (LR) portal	

B. Other Learning Resources	<p>Data and figures from:</p> <ul style="list-style-type: none"> • Department of Health (DOH) • Animal Disease Diagnosis and Reference Laboratory – Bureau of Animal Industry (ADDRL-BAI) • Regional Animal Disease Diagnostic Laboratory (RADDLs) • Research Institute for Tropical Medicine – Department of Health (RITM-DOH) • Provincial Animal Disease Diagnostic Laboratory (PADDLs)
IV. PROCEDURES	
A. Reviewing previous lesson or presenting the new lesson	<p>Before proceeding to Activity 1, unlock the following terminologies by posting (if printed materials are available) or writing the operational definition on the board.</p> <ul style="list-style-type: none"> ▪ <i>positive cases</i> - rabies cases found to be “with rabies” after conducting a laboratory test to the sample. ▪ <i>negative cases</i> - rabies cases found to be “with no rabies” after conducting a laboratory test to the sample. <p>ACTIVITY 1</p> <p>Use attached Activity Sheet No. 1 - “Info-Graphics” (See Appendix 1).</p> <ul style="list-style-type: none"> ▪ Objective: <ol style="list-style-type: none"> 1. Present the given data in a bar graph, line graph, and pie chart. ▪ Materials: <ul style="list-style-type: none"> ▪ data of rabies cases (from Department of Agriculture - Bureau of Animal Industry, 2017) to be provided by the teacher, manila paper, pentel pen, crayons ▪ Directions: <ol style="list-style-type: none"> 1. Divide the class into 6 groups. 2. Give/distribute copy of table in Appendix 1. 3. Read instructions aloud. 4. Allow each group to work on the activity for five minutes. 5. Have their work posted on a specified area. 6. Process group’s output

Expected Output:

Groups 1 and 4:

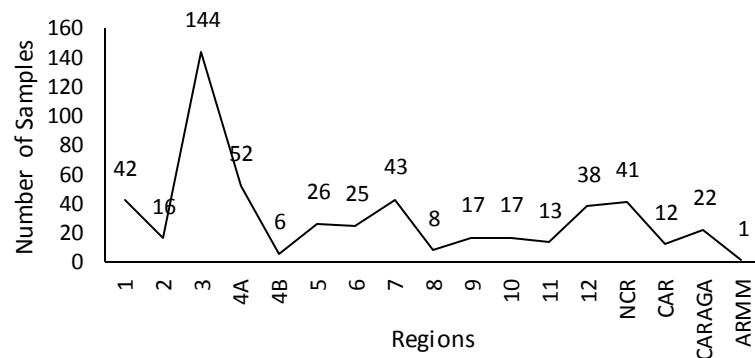
Total Samples of Animals' Rabies Cases By Region
(As of July 2017)



Source: Department of Agriculture - Bureau of Animal Industry, 2017

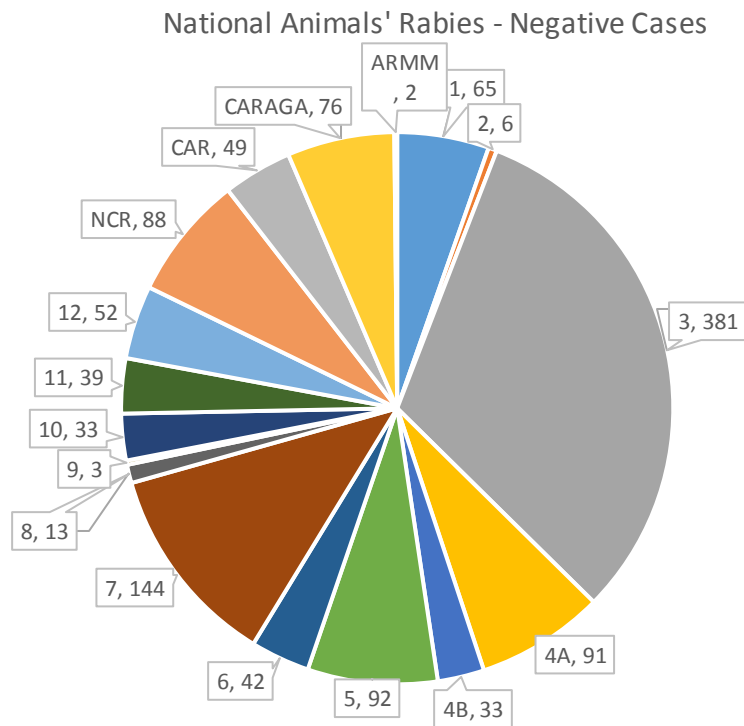
Groups 2 and 5:

Positive Samples of Animals' Rabies Cases By
Region
(As of July 2017)



Source: Department of Agriculture - Bureau of Animal Industry, 2017

Groups 3 and 6:



Source: Department of Agriculture - Bureau of Animal Industry, 2017

Guide Questions:

1. (Groups 1 and 4) In the bar graph, what region has the highest and lowest cases of animal rabies sample?

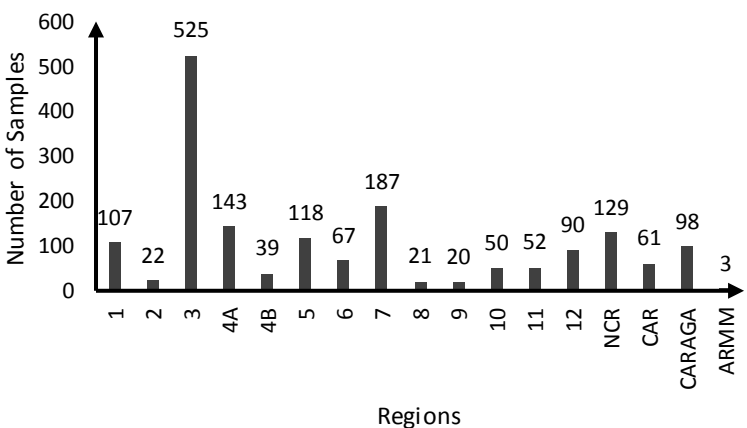
Answer: - Region 3; ARMM

2. (Group 2 and 5) In the line graph, what region has the most and least number of positive cases of animal rabies sample?

Answer: - Region 3; ARMM

3. (Group 3 and 6) In the pie chart, what region has the most and least number of negative cases of animal rabies sample?

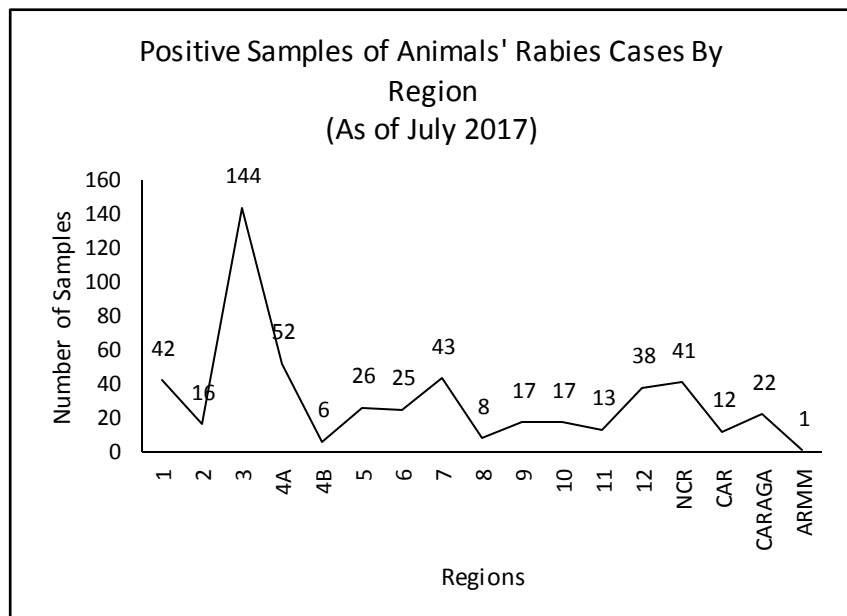
Answer: - Region 3; ARMM

<p>B. Establishing a purpose for the lesson</p>	<ul style="list-style-type: none"> Say: "From the presentation of data you made in Activity No. 1, what information can we get from the graph or chart?" <i>Possible Answers:</i> <ul style="list-style-type: none"> - We can determine/identify what the graph is all about through its title and axes labels. - We can easily identify the highest and lowest data or entry. - We can identify if the trend is increasing or decreasing and make predictions out from the trend; and others. Say: "By analyzing the data presented in either form - bar graph, line graph or pie chart, we would be able to derive useful and important information that will help us arrive at a well-justified answer or conclusion. 																																				
<p>C. Presenting examples/instances of the new lesson</p>	<ul style="list-style-type: none"> Use the result of the previous activity - Activity No. 1. A. Start with the bar graph. <p style="text-align: center;">Total Samples of Animals' Rabies Cases By Region (As of July 2017)</p>  <table border="1"> <thead> <tr> <th>Region</th> <th>Number of Samples</th> </tr> </thead> <tbody> <tr><td>1</td><td>107</td></tr> <tr><td>2</td><td>22</td></tr> <tr><td>3</td><td>525</td></tr> <tr><td>4A</td><td>143</td></tr> <tr><td>4B</td><td>39</td></tr> <tr><td>5</td><td>118</td></tr> <tr><td>6</td><td>67</td></tr> <tr><td>7</td><td>187</td></tr> <tr><td>8</td><td>21</td></tr> <tr><td>9</td><td>20</td></tr> <tr><td>10</td><td>50</td></tr> <tr><td>11</td><td>52</td></tr> <tr><td>12</td><td>90</td></tr> <tr><td>NCR</td><td>129</td></tr> <tr><td>CAR</td><td>61</td></tr> <tr><td>CARAGA</td><td>98</td></tr> <tr><td>ARMM</td><td>3</td></tr> </tbody> </table> <p style="text-align: center;">Regions</p> <p><i>Source: Department of Agriculture - Bureau of Animal Industry, 2017</i></p> <ul style="list-style-type: none"> Say: "Looking at the bar graph (total number of samples) of Activity No. 1, what information can we get from it?" 	Region	Number of Samples	1	107	2	22	3	525	4A	143	4B	39	5	118	6	67	7	187	8	21	9	20	10	50	11	52	12	90	NCR	129	CAR	61	CARAGA	98	ARMM	3
Region	Number of Samples																																				
1	107																																				
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12	90																																				
NCR	129																																				
CAR	61																																				
CARAGA	98																																				
ARMM	3																																				

Possible Answers:

- The graph reflects the total samples of animal rabies cases per region.
- The x-axis represents the regions while the y-axis represents the number of samples.
- The total number of samples of animal rabies cases per region differs from one region to another.
- Region 3 has the highest number of samples of animal rabies cases, which means that:
 - * There were a lot of reported animal bites cases in Region 3.
 - * There were more samples submitted for laboratory test.
 - * Many victims of animal bites did not take appropriate action nor report to any Health Center or Animal Bite Treatment Center for proper treatment.
- The lowest number of samples of animal rabies cases is from ARMM.

B. For line graph.



Source: Department of Agriculture - Bureau of Animal Industry, 2017

- Say: "What information can we get from the line graph?"

Possible Answers:

- The graph reflects the number of positive samples of animal rabies cases per region.
- The x-axis represents the regions while the y-axis represents the number of samples.
- The number of positive samples of animal rabies cases per region differs from one region to another.
- Region 3 has the highest number of positive samples of animal rabies cases, which means that:

* There are a lot of animal bite cases in Region 3.

* There are many dogs and other animals which were not vaccinated with anti-rabies vaccines.

- The lowest is from ARMM.

- Ask: "What other information can we get from the graph?"

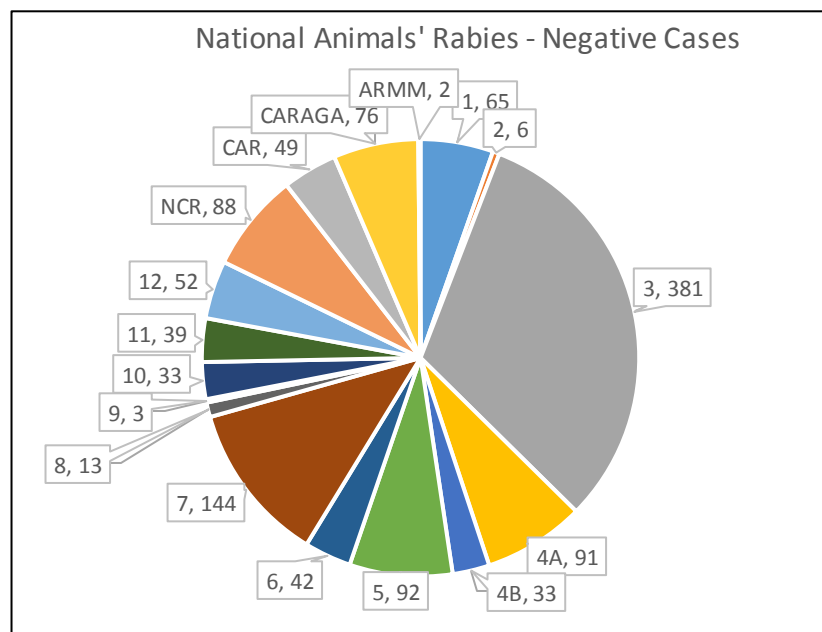
Possible Answer: - The graph does not start from 0.

- Say: "Yes, line graphs do not and should not connect or start from 0."

-

C. In pie chart.

- Say: "Looking at the pie chart (negative cases) in Activity #1, what information can we get from the pie chart?"



Source: Department of Agriculture - Bureau of Animal Industry, 2017

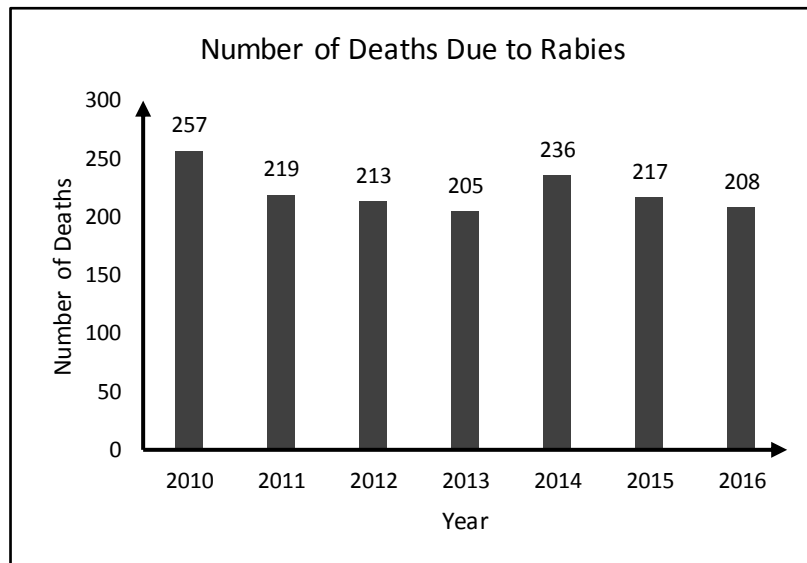
	<p><i>Possible Answers:</i></p> <ul style="list-style-type: none"> - <i>The graph reflects the number of negative samples of animal rabies cases per region.</i> - <i>The number of negative samples of animal rabies cases per region differs from one region to another.</i> - <i>The highest number of negative samples of animal rabies cases is Region 3.</i> - <i>The lowest are ARMM, Regions 2 and 9.</i> <ul style="list-style-type: none"> • Say: <p>“Looking at the three graphical representations, what conclusion can you draw from the data on Animal Rabies Cases in the Region as of July 2017?”</p> <p><i>Possible Answer:</i></p> <ul style="list-style-type: none"> - <i>The total number of cases as well as the number of positive and negative cases differ from one region to another.</i> - <i>Most regions reflected more negative cases than positive cases, except Regions 2 and 9.</i> - <i>The region that has the highest total number of rabies cases reported has also registered the highest positive cases and negative cases of animal rabies.</i> - <i>The region that posted the least total number of rabies cases also reported the lowest positive cases and negative cases of animal rabies.</i>
<p>D. Discussing new concepts and practicing new skills #1</p>	<p>ACTIVITY 2</p> <p>Use attached Activity Sheet No. 2 - “Info-Graphics”. (See Appendix 2).</p> <ul style="list-style-type: none"> ▪ Objective: <ul style="list-style-type: none"> ▪ Identify the different information (title and the elements or variables) from the graph. ▪ Interpret the data presented in graph. ▪ Materials: <ul style="list-style-type: none"> ▪ data and figures (from Department of Health, 2017 and Department of Agriculture - Bureau of Animal Industry, 2017) in graphs and charts, manila paper, pentel pen, crayons ▪ Directions: <ol style="list-style-type: none"> 1. Using the same group as in Activity 1. 2. Give/distribute copy of graph in Appendix 2. 3. Read instructions aloud.

4. Allow each group to work on the activity for ten minutes.
5. Have their work posted on a specified area.
6. Process group's output

Expected Output: Groups 1 and 4:

1. Graph A: Rabies Situation in the Philippines (As of July 2017)

A. Rabies Situation in the Philippines (As of July 2017)



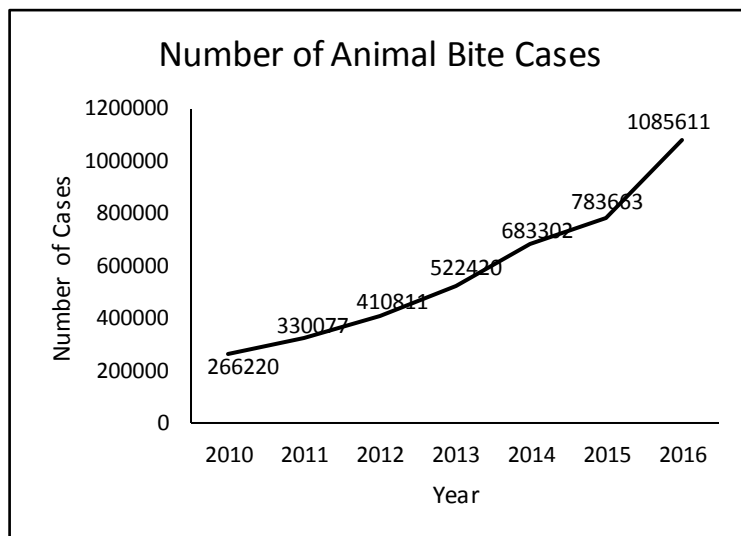
Source: Department of Health, 2017

Observations and analysis include but not limited to:

- The graph reflects the number of people who died from 2010 to 2016 due to rabies.
- The x-axis represents the year while the y-axis represents the number of deaths.
- The number of people who died due to rabies vary every year.
- From year 2010 to 2013, the death cases decreased, same with the year 2014 to 2016.
- The highest cases were in 2010 while the lowest case was in 2013.

2. Graph B: Animal Bite Cases in the Philippines (As of July 2017)

B. Animal Bite Cases in the Philippines (As of July 2017):



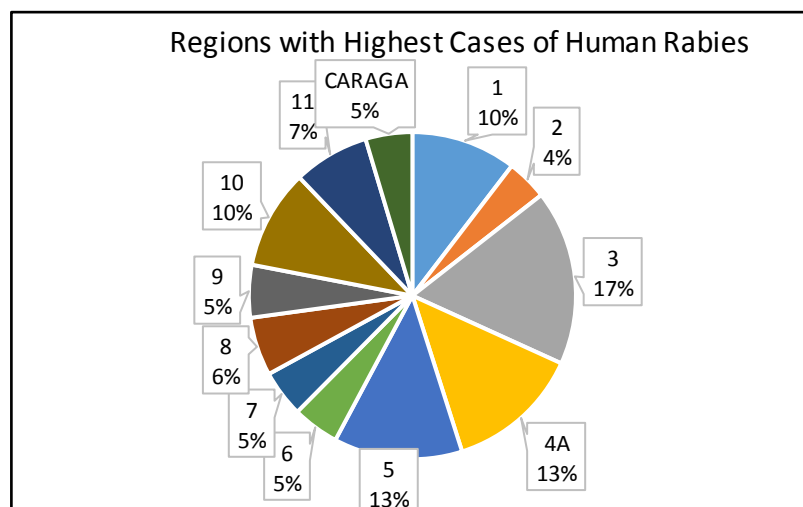
Source: Department of Agriculture - Bureau of Animal Industry, 2017

Observations and analysis will include but not limited to:

- The graph reflects the number of animal bite cases in the Philippines from 2010 to 2016.
- The x-axis represents the year while the y-axis represents the number of cases.
- The number of animal bite cases vary every year.
- The number of animal bite cases increases every year.

3. Graph C: Regions with Highest Cases of Human Rabies (2016)

C. Regions with the Highest Cases of Human Rabies (2016):



Source: Department of Health, 2017

Observations and analysis will include but not limited to:

- *The graph reflects the regions with highest cases of human rabies.*
- *The number of human rabies cases differs from one region to another.*
- *The top three (3) regions are regions 3, 4A and 4B; all in Luzon.*

Guide Questions:

1. In graph A, what year has the highest and lowest number of death cases due to rabies?
2. Describe the trend of number of death cases due to rabies in graph A?
3. In graph B, what year registered the lowest and highest number of animal bite cases?
4. Describe the trend of the number of animal bite cases in graph B?
5. In graph C, what region registered most and least number of cases of human rabies?
6. Describe the trend of the number of human rabies cases among the regions in graph C?

Answer to the Guide Questions:

1. 2010; 2013
2. *decreasing from 2010 to 2013 and rises in 2014 but decreases from 2014 to 2016.*
3. 2010; 2016
4. *increasing each year*
5. *Region 3; Region 10*
6. *very minimal cases of human rabies*

- Say:

“What conclusions can be made from graphs A and B?”

Possible Answers:

For Graph A:

- *The number of death cases caused by rabies decreases in a 4-year trend (2010 to 2013 and 2014 to 2016).*

For Graph B:

- *The number of animal bite cases consistently increases from 2010 to 2016.*

	<p>- Thus, by 2017, the number of animal bite cases is higher than the year 2016 (if not dealt accordingly).</p>								
E. Discussing new concepts and practicing new skills #2									
F. Developing mastery (leads to Formative Assessment 3)									
G. Finding practical applications of concepts and skills in daily living	<p>▪ Say:</p> <p>“Examine the pie chart on Primary Causes of Animal Bites and Rabies from Department of Agriculture below, what important information can we get from the chart? What possible conclusions can be made from the observation?”</p> <p>Primary Cause of Animal Bites and Rabies (DOH)</p> <div data-bbox="550 990 1370 1568" data-label="Figure"> <p style="text-align: center;">Principal Cause of Animal Bites and Rabies</p> <table border="1"> <thead> <tr> <th>Animal</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Dogs</td> <td>72%</td> </tr> <tr> <td>Cats</td> <td>19%</td> </tr> <tr> <td>Others</td> <td>9%</td> </tr> </tbody> </table> </div> <p>Source: Department of Agriculture - Bureau of Animal Industry, 2017</p> <p>Possible Answer:</p> <ul style="list-style-type: none"> - The graph reflects the primary cause of animal bites and rabies. - The primary cause of animal bites and rabies are dogs, cats and other animals. - The 9% others are mammals (bat, goat, pig, etc.) - NOT ALL bites are rabid. 	Animal	Percentage	Dogs	72%	Cats	19%	Others	9%
Animal	Percentage								
Dogs	72%								
Cats	19%								
Others	9%								

	<ul style="list-style-type: none"> Say: “Upon knowing that dogs caused majority of the bites and rabies cases, how can we contribute in educating people on managing rabies?” <p><i>Possible Answer:</i></p> <ul style="list-style-type: none"> - <i>The best way to fight against rabies may include but not limited to:</i> 1. <i>Be a responsible pet owner.</i> 2. <i>VACCINATE THE DOG WITH ANTI-RABIES VACCINE.</i> 												
H. Making generalizations and abstractions about the lesson	<ul style="list-style-type: none"> Say: “By carefully analyzing data from graphs, charts and tables, you could derive important information that lead to well-justified answers or conclusions. Therefore, it is very important to note down important features of the graphs, charts or tables; give special attention to the extreme values - highest and lowest values - in the set of data; and determine the trend and characteristics of the graphs because these will aid us in drawing valid, sound and well-justified conclusions.” 												
I. Evaluating learning	<ul style="list-style-type: none"> Draw conclusion from the given data about positive samples of animal rabies from Department of Agriculture - Bureau of Animal Industry (2017) below: <div data-bbox="549 1270 1370 1881" data-label="Figure"> <p style="text-align: center;">Animal Rabies Laboratory Data (Positive Samples)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Number of Cases</th> </tr> </thead> <tbody> <tr> <td>2012</td> <td>475</td> </tr> <tr> <td>2013</td> <td>562</td> </tr> <tr> <td>2014</td> <td>658</td> </tr> <tr> <td>2015</td> <td>702</td> </tr> <tr> <td>2016</td> <td>779</td> </tr> </tbody> </table> </div> <p><i>Source: Department of Agriculture - Bureau of Animal Industry, 2017</i></p>	Year	Number of Cases	2012	475	2013	562	2014	658	2015	702	2016	779
Year	Number of Cases												
2012	475												
2013	562												
2014	658												
2015	702												
2016	779												

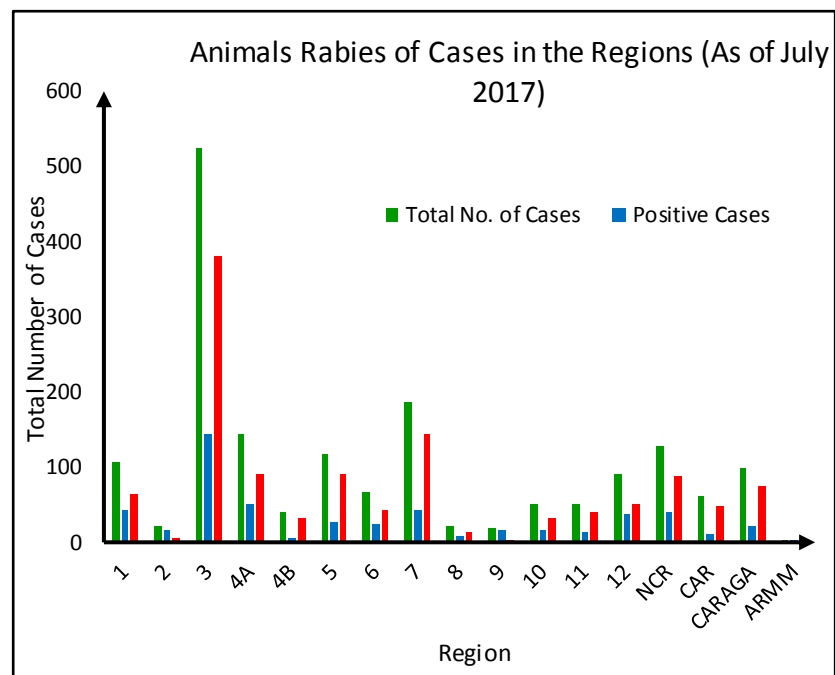
	<ul style="list-style-type: none"> • Possible conclusions may include: <ul style="list-style-type: none"> - For the past 5 years, the number of cases of positive samples of animal rabies keep on increasing. - In the year 2017, the number of cases of positive samples of animal rabies will continue to increase (if not dealt accordingly). 														
J. Additional activities for application or remediation	<p>(OPTIONAL: If the previous activities are NOT enough to show that learning took place.)</p> <p><u>Remedial Activity</u></p> <ul style="list-style-type: none"> ▪ Using the data on the Top Cities with Highest Percentage of Cases of Animal Rabies below, draw a conclusion. <p style="text-align: center;">Top Cities with Highest Percentage of Cases on Animal Rabies Cases (2016)</p> <div data-bbox="549 1218 1399 1877" data-label="Figure"> <p style="text-align: center;">Top Cities with Highest Animal Rabies Cases (by Percent) (2016)</p> <table border="1"> <thead> <tr> <th>City</th> <th>Percentage of Positivity</th> </tr> </thead> <tbody> <tr> <td>Imus City</td> <td>55</td> </tr> <tr> <td>Lapu-lapu City</td> <td>65</td> </tr> <tr> <td>Lingayen City</td> <td>57</td> </tr> <tr> <td>Olongapo City</td> <td>75</td> </tr> <tr> <td>Santiago City</td> <td>80</td> </tr> <tr> <td>Zamboanga City</td> <td>72</td> </tr> </tbody> </table> </div> <p>Source: Department of Agriculture - Bureau of Animal Industry, 2017</p> <ul style="list-style-type: none"> ▪ Possible conclusions might include: 	City	Percentage of Positivity	Imus City	55	Lapu-lapu City	65	Lingayen City	57	Olongapo City	75	Santiago City	80	Zamboanga City	72
City	Percentage of Positivity														
Imus City	55														
Lapu-lapu City	65														
Lingayen City	57														
Olongapo City	75														
Santiago City	80														
Zamboanga City	72														

- The cities in the graph posted more than 50% positive cases of animal rabies cases.
- Majority of the top cities are from Luzon, thus major precautions and rabies awareness campaign and rabies education should be made to these cities and other cities in Luzon to reduce the positive cases of rabies.

Enrichment Activity

- Examine the data on the Animal Rabies Cases in the Philippines by Region as of July 2017 in the next page. Draw a conclusion.

Animal Rabies Cases per Region (As of July 2017)



Source: Department of Agriculture - Bureau of Animal Industry, 2017

- Possible conclusions may include:
 - The cities in the graph posted more than 50% positive cases of animal rabies cases.
 - Majority of the top cities are from Luzon, thus major precautions and rabies awareness campaign and rabies education should be made to these cities and other cities in Luzon to reduce the positive cases of rabies.

IV. REMARKS	
V. REFLECTION	
A. No. of learners who earned 80% in the evaluation	
B. No. of learners who require additional activities for remediation	
C. Did the remedial lessons work? No. of learners who have caught up with the lesson	
D. No. of learners who continue to require remediation	
E. Which of my teaching strategies worked well? Why did these work?	
F. What difficulties did I encounter which my principal or supervisor can help me solve?	
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?	

Appendix 1
Activity No. 1 - “Info-Graphics”

Instructions:

1. Given the data on Regional Cases of Animal Rabies in the Philippines (as of July 2017) below, present a graphical representation of the data as indicated:

Groups 1 & 4 - Construct a bar graph on the total number of samples for each region.

Groups 2 & 5 - Construct a line graph on the positive samples for each region.

Groups 3 & 6 - Construct a pie chart on the negative samples for each region.

Animals Rabies Cases in the Regions (As of July 2017)

Regions	Total No. of Cases	Positive Cases	Negative Cases
1	107	42	65
2	22	16	6
3	525	144	381
4A	143	52	91
4B	39	6	33
5	118	26	92
6	67	25	42
7	187	43	144
8	21	8	13
9	20	17	3
10	50	17	33
11	52	13	39
12	90	38	52
NCR	129	41	88
CAR	61	12	49
CARAGA	98	22	76
ARMM	3	1	2

Source: Department of Agriculture - Bureau of Animal Industry, 2017

2. Draw your graph or chart in a manila paper.

Appendix 2

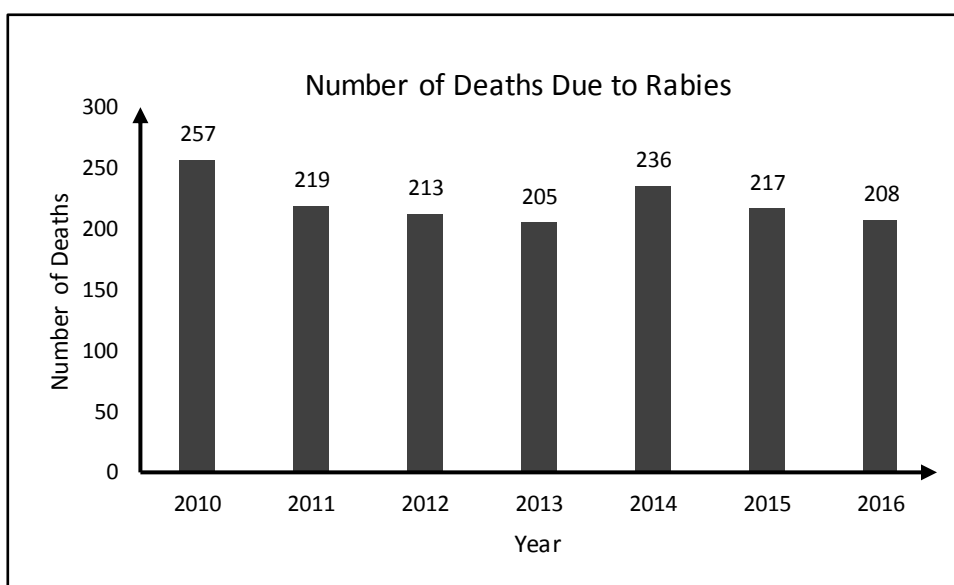
Activity Sheet No. 2 - "What's in the Graph?"

Instructions:

1. Given the graphs and charts below, what information, observations, and conclusion can you get from it?
2. Graph assignment:
 - Groups 1 & 4 - Graph A.
 - Groups 2 & 5 - Graph B.
 - Groups 3 & 6 - Graph C.

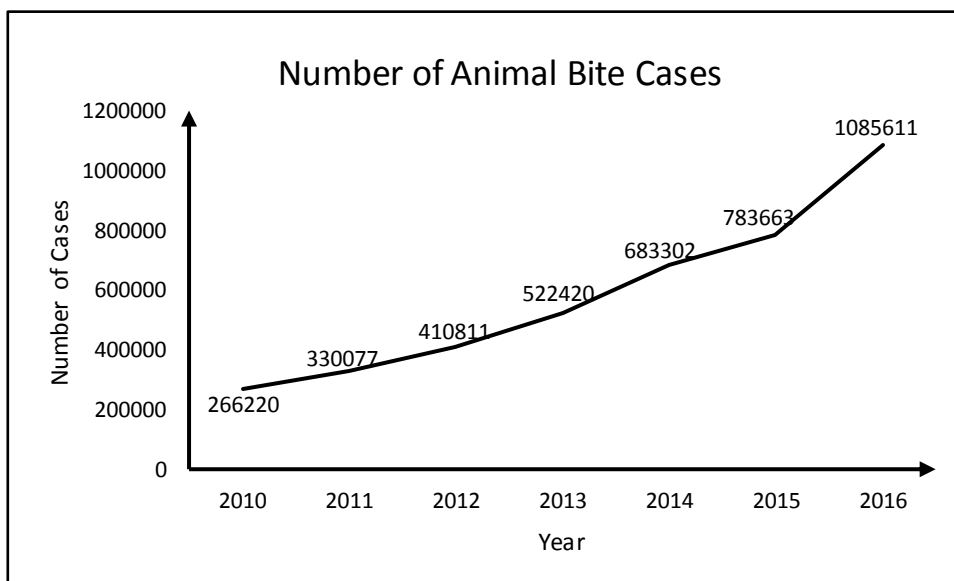
Graph A

A. Rabies Situation in the Philippines (As of July 2017)



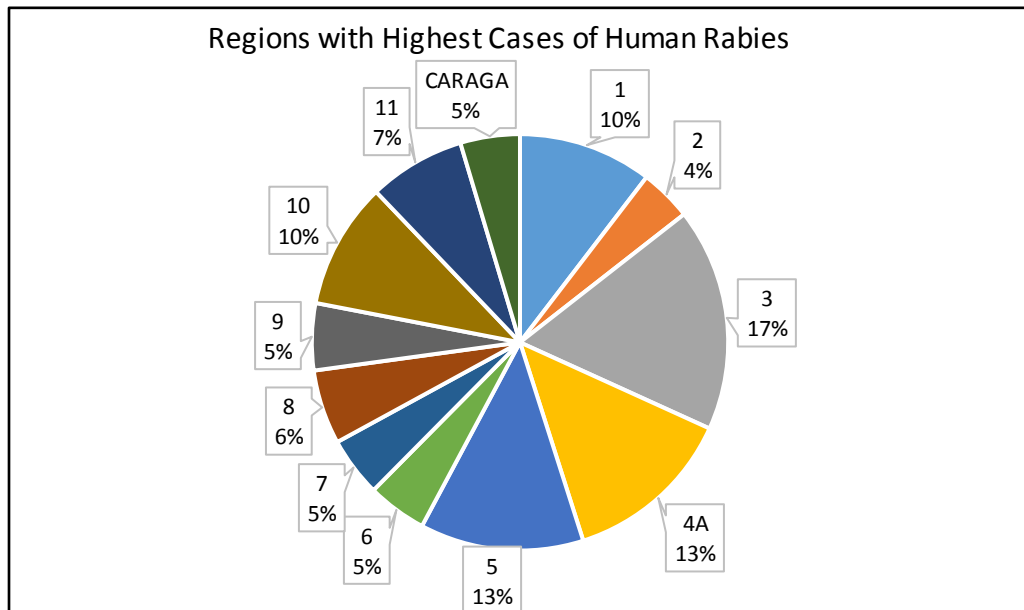
Graph B

B. Animal Bites Cases in the Philippines (As of July 2017)



Graph C

C. Regions with the Highest Cases of Human Rabies (2016)



Source: Department of Agriculture - Bureau of Animal Industry, 2017

3. Write your observation(s) and conclusion in the Manila paper in terms of the following:

- Title of the graph.
- Data used in x and y axes (for Graph A and B).
- Data used in Graph C.
- Trend or characteristic of the graph, does it vary? increasing? decreasing? steady? or fluctuating?

4. Post your answer/output in designated area.

MATHEMATICS 7 (m7sp-ivf-g-1)

I. OBJECTIVES	
<i>A. Content Standards</i>	The learner demonstrates understanding of key concepts, uses and importance of Statistics, data collection/gathering and the different forms of data representation, measures of central tendency, measures of variability, and probability.
<i>B. Performance Standards</i>	The learner is able to collect and organize data systematically and compute accurately measures of central tendency and variability and apply these appropriately in data analysis and interpretation in different fields.
<i>C. Learning Competencies/ Objectives</i>	Calculates the measures of central tendency of ungrouped and grouped data (M7SP-IVf-g-1)
<i>a. Write the LC code for each</i>	<ul style="list-style-type: none"> • Solve the mean, median, and mode of ungrouped data. • State how to determine the mean, median, and mode of ungrouped data. • Describe when an ungrouped data has no mode, 1 mode, 2 or more modes.
II. CONTENT	Finding Mean, Median and Mode of Ungrouped Data (Integration of Statistical Data on Rabies Cases)
III. LEARNING RESOURCES	
<i>A. References</i>	
<i>1. Teacher's Guide pages</i>	Grade 7 Mathematics, pp. 308 - 312
<i>2. Learner's Materials pages</i>	Grade 7 Mathematics, pp. 249 - 251
<i>3. Textbook pages</i>	Jose-Dilao, Orines and Bernabe. <i>Advanced Algebra, Trigonometry and Statistics IV</i> . 2009. pp. 258-269
<i>4. Additional Materials from Learning Resource (LR) portal</i>	

B. Other Learning Resources	<ul style="list-style-type: none"> Data on Rabies Cases from the Department of Health, 2016. 												
III. PROCEDURES													
A. Reviewing previous lesson or presenting the new lesson	<p>What to do:</p> <p>Before proceeding to the lesson proper, the following terminologies shall be unlocked by posting (if printed materials are available) or writing the operational definition on the board.</p> <p>a. average - the quotient of the sum of all the data/entries and the total number of data/entries.</p> <p>b. ungrouped data - data given as individual data points, and has not been subdivided into groups; raw data, unprocessed data.</p>												
B. Establishing a purpose for the lesson	<p>Note: Students will be working by pair.</p> <p>What to say:</p> <p>1. "The famous One Direction boy band has the following names and ages."</p> <table border="1"> <thead> <tr> <th>Name</th><th>Ages (in years)</th></tr> </thead> <tbody> <tr> <td>Harry Styles</td><td>24</td></tr> <tr> <td>Zayn Malik</td><td>25</td></tr> <tr> <td>Liam Payne</td><td>25</td></tr> <tr> <td>Niall Horan</td><td>25</td></tr> <tr> <td>Louis Tomlinson</td><td>26</td></tr> </tbody> </table> <p>2. "Who is the youngest among the members of the One Direction band? Eldest?"</p> <p>Answer:</p> <p>Youngest - Harry Styles (24 years old).</p> <p>Eldest - Louis Tomlinson (26 years old)</p>	Name	Ages (in years)	Harry Styles	24	Zayn Malik	25	Liam Payne	25	Niall Horan	25	Louis Tomlinson	26
Name	Ages (in years)												
Harry Styles	24												
Zayn Malik	25												
Liam Payne	25												
Niall Horan	25												
Louis Tomlinson	26												
C. Presenting examples/instances of the new lesson	<p>What to say:</p> <p>1. "In the previous activity, what is the most common age among the members of One Direction band?"</p> <p>Answer: 25</p> <p>2. "What age is found at the middle or center of all the ages of One Direction band?"</p> <p>Answer: 25</p>												

3. "What is the average age of all the members of the One Direction band?"

Answer: 25

4. Say:

a. "The value or quantity that is most common in the set of data is called the mode of the set of data. The set of data could have no mode - if there is no common score; one mode; two modes - if two values tied up in terms of common entries; or more than 2 modes as the case maybe"

b. "The value or quantity at the center or middle in the set of data after the set of data has been arranged (either from lowest to highest or highest to lowest) is called the median of the set of data. If the number of data or entries is odd, then the value at the center is the median, but if the number is even the median is halfway between the two center values or quantities."

c. "The average (sum of the data or entries divided by the number of data or entries) of a set of data is called the mean."

5. Say:

"The mean, median and mode are the three measures of central tendency of a set of data."

6. Say:

"The data we have dealt with in the preceding activity are ungrouped data (raw or unprocessed data)."

7. Say:

"Consider the following set of data below. Find the mean, median and mode."

1.) 5, 7, 12, 12, 18

2.) 12, 10, 8, 16, 20, 14

3.) 32, 45, 64, 28, 54, 32, 28

Answer:

	Mean	Median	Mode
1.) 5, 7, 12, 12, 18	10.8	12	12
2.) 12, 10, 8, 16, 20, 14	13.33	13	no mode
3.) 32, 45, 64, 28, 54, 32, 28	40.43	32	28 and 32

	<p>8. Ask: “How did you get the value of the a. Mean; b. Median; c. Mode?”</p> <p>Answer:</p> <p>a. Mean - To get the mean, add all the values in the set and divide it by the number of cases.</p> <p>b. Median - To get the median, arrange all the values either from lowest to highest or highest to lowest, then identify the center value.</p> <p>c. Mode - To get the mode, identify the value that occurred most often or frequent.</p> <p>9. Ask: “What are your observations about the mode?”</p> <p>Answer:</p> <p>a. For number 1, there is only one mode because only the number 12 is common among all the scores.</p> <p>b. For number 2, there is no mode because none among the scores are common.</p> <p>c. For number 3, there are two modes because both numbers 28 and 32 appeared twice.</p>																
<p>D. Discussing new concepts and practicing new skills #1</p>	<p>What to do:</p> <p>A. Say:</p> <ol style="list-style-type: none"> 1. “Do the next activity with a partner. You have 5 minutes to work and discuss about your answer.” 2. “Consider the data on Death Cases Caused by Rabies from 2010 to 2016 below: <p>Death Cases Caused by Rabies from 2010-2016</p> <table border="1" data-bbox="639 1536 1193 1984"> <thead> <tr> <th>Year</th><th>Number of Deaths</th></tr> </thead> <tbody> <tr> <td>2010</td><td>257</td></tr> <tr> <td>2011</td><td>219</td></tr> <tr> <td>2012</td><td>213</td></tr> <tr> <td>2013</td><td>205</td></tr> <tr> <td>2014</td><td>236</td></tr> <tr> <td>2015</td><td>217</td></tr> <tr> <td>2016</td><td>208</td></tr> </tbody> </table> <p>Source: Department of Health, 2016</p>	Year	Number of Deaths	2010	257	2011	219	2012	213	2013	205	2014	236	2015	217	2016	208
Year	Number of Deaths																
2010	257																
2011	219																
2012	213																
2013	205																
2014	236																
2015	217																
2016	208																

	<p>Find the mean, median and mode of the data.” Answer: Mean = 222; Median = 217; Mode = no mode</p> <p>3. How did you get the value of the a. Mean; b. Median; c. Mode?</p> <p>Answer: a. Mean - To get the mean, add all the values on the number of death cases and divide it by 7 (number of death cases). b. Median - To get the median, arrange all the values on the number of death cases from lowest to highest or highest to lowest, then identify the center value of the number of death cases. c. Mode - There was no mode because none among the number of death cases appeared more than once.</p>
E. Discussing new concepts and practicing new skills #2	
F. Developing mastery (leads to Formative Assessment 3)	
G. Finding practical applications of concepts and skills in daily living	<p>What to do:</p> <ol style="list-style-type: none"> 1. Divide the class into 5 groups, preferably with 8 members per group. 2. Let each group record the number of family members or size of the family in each member of the group. 3. Have them determine the mean, median and mode of the gathered data. 4. See to it that all groups must be able to present their outputs. 5. Ask: <ol style="list-style-type: none"> a. “How did you get the value of the Mean?” Answer: - add all the values of the family sizes of all the members in the group and divide it by number of members in the group.

	<p>b. "What is the meaning of computed mean value?" Answer: - it means that each member will have that values as size of their family; or it represents the general size of family in a group.</p> <p>c. "How did you get the value of the Median? and the Mode?" Answer: Median - To get the median, arrange all the values of the size of family of all members in the group from lowest to highest or highest to lowest, then identify the center value. Mode - To get the mode, identify the value of the size of the family that occurred most often or frequent.</p>				
H. Making generalizations and abstractions about the lesson	<p>What to do: A. Ask the students, the following questions: 1. "What is Mean? Median? Mode?"</p> <p>Answer: - Mean is the average of a set of data. Median is the center value or quantity when the data is arranged from lowest to highest or from highest to lowest. Mode is the value or quantity that appeared most often or most frequent.</p> <p>2. "When is it possible for a given ungrouped data contain no mode?"</p> <p>Answer: - It is only possible when all the scores have equal frequencies.</p>				
I. Evaluating learning	<p>What to do: A. Say: 1. "Given the data on the Regions with the Highest Number of Human Rabies Cases in 2016 below, identify the mean, median, and mode of the data."</p> <p>Regions with the Highest Number of Human Rabies Cases, 2016</p> <table border="1"> <thead> <tr> <th>Region</th><th>No. of Human Rabies</th></tr> </thead> <tbody> <tr> <td>1</td><td>18</td></tr> </tbody> </table>	Region	No. of Human Rabies	1	18
Region	No. of Human Rabies				
1	18				

2	7
3	30
4A	30
5	22
6	8
7	8
8	10
9	9
10	17
11	13

Source: Department of Health, 2016

Answer:

Mean = 15.64; Median = 13; Mode = 30.

2. "How did you get the value of the a. Mean; b. Median; c. Mode?"

Answer:

a. Mean

- To get the mean, add all the values of the number of human rabies cases and divide it by 11 - the number regions in the table.

b. Median

- To get the median, arrange all the values of the number of human rabies cases from lowest to highest or highest to lowest, then identify the center value.

c. Mode

- To get the mode, identify the values of the number of human rabies cases that occurred most often or frequent.

J. Additional activities for application or remediation

(OPTIONAL: If the previous activities are NOT enough to show that learning took place.)

A. Remedial Activity.

What to do:

1. Using the table showing the Number of Households with Pet Dogs/Cats in Town below, compare the mean, median, and mode of the number of households with dogs and those with cats.

Households with Dogs/Cats as Pets in Malamya

Barangay	No. of Households with Dogs	No. of Households with Cats
A	27	26
B	16	9
C	13	8
D	21	22
E	15	11
F	38	40
G	47	39
H	22	26
I	27	30
J	53	51

	<i>Households with Dogs</i>	<i>Households with Cats</i>
<i>Mean</i>	27.9	26.2
<i>Median</i>	24.5	26
<i>Mode</i>	27	26

Answer:

- The households with pet dogs have greater mean and mode compared to the households with pet cats.
- The households with pet cats have higher median than households with pet dogs.

2. How did you get the value of the a. Mean; b. Median; and Mode of the number of households with dogs and households with cats?

Answer:

a. Mean

- To get the mean in each column, add all the values of the number of households in each column and divide it by 10 - the number barangays in the table.

b. Median

- To get the median in each column, arrange all the values of the number of households in each column from lowest to highest or highest to lowest, then identify the center value in each column.

c. Mode

- To get the mode in each column, identify the values of the number of households in each column that occurred most often or frequent.

B. Enrichment.

A. Consider the given data below:

Regions with the Highest Number of Human Rabies Cases, 2016

Region	No. of Human Rabies
1	18
2	7
3	30
4A	30
5	22
6	8
7	8
8	10
9	9
10	17
11	13

Source: Department of Health, 2016

a. If the number of cases of human rabies in each region will be doubled by 2017 (based from 2016 data), what will be its mean?

Answer: - 31.27

b. Did the mean of 2017 data (based from question a.) doubled the mean of the 2016 data?

Answer:- Yes, the mean of 2017 doubled the mean in 2016.

c. How about the median and mode? Do they stay the same?

Answer: - No, the median and mode will also be doubled.

d. Why do you think the value of the mean, median, and mode were doubled?

Answer:

- By 2017, we multiply the number of rabies cases in 2016 by 2.
- The second column will now have entries: 36, 14, 60, 60, 44, 16, 16, 20, 18, 34, 26.
- So, to obtain the mean, median, and mode, we have:

	<p>Mean</p> <ul style="list-style-type: none"> - To get the mean, add all the values of the number of rabies cases in 2017 and divide it by 11 - the number regions in the table. - Obviously, the obtained mean value is twice than the mean value in 2016. <p>Median</p> <ul style="list-style-type: none"> - To get the median, arrange all the values of the number of rabies cases in 2017 from lowest to highest or highest to lowest, then identify the center value. - The derived center value in the number of rabies cases in 2017 is twice than that of 2016. <p>Mode</p> <ul style="list-style-type: none"> - To get the mode, identify the values of the number of rabies cases in 2017 that occurred most often or frequent. - The value of the number of rabies cases in 2017 that occurred most often is twice than that of 2016.
V. REMARKS	
VI. REFLECTION	
A. No. of learners who earned 80% in the evaluation	
B. No. of learners who require additional activities for remediation	
C. Did the remedial lessons work? No. of learners who have caught up with the lesson	
D. No. of learners who continue to require remediation	
E. Which of my teaching strategies worked well? Why did these work?	
F. What difficulties did I encounter which my principal or supervisor can help me solve?	
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?	

MATHEMATICS 8 (M8GE-IIF-1)

I. OBJECTIVES	
A. <i>Content Standards</i>	The learner demonstrates understanding of key concepts of logic and reasoning.
B. <i>Performance Standards</i>	The learner is able to communicate mathematical thinking with coherence and clarity in formulating and analyzing arguments.
C. <i>Learning Competencies/ Objectives</i> <i>Write the LC code for each</i>	The learner determines the relationship between the hypothesis and the conclusion of an if-then statement. (M8GE-IIf-1)
II. CONTENT	Conditional Statements (Integration of Rabies Education: Rabies Awareness and Bite Incidence Management)
III. LEARNING RESOURCES	
A. References	
1. Teacher's Guide pages	pp. 350-357
2. Learner's Materials pages	pp. 293-301
3. Textbook pages	
4. Additional Materials from Learning Resource (LR) portal	
B. Other Learning Resources	Register and Have Your Dogs and Cats Vaccinated Against Rabies for Rabies Free-Philippines Brochure by Global Alliance for Rabies Control (GARC) and Department of Agriculture – Bureau of Animal Industry (DA-BAI)
IV. PROCEDURES	
A. Reviewing previous lesson or presenting the new lesson	Note: Read in advance the brochure on “ <i>Register and Have Your Dogs and Cats Vaccinated Against Rabies for Rabies Free-Philippines Brochure by GARC and DA-BAI</i> ” (See Enclosure 1)

	<p>What to do:</p> <ol style="list-style-type: none"> 1. Post the statement on the board and ask some students to give their response. 2. Say: "Good day, class let us try to complete this statement: "If you were bitten by a dog or cat, then..."" 3. Call some students to give their response. <p>Note: <i>The teacher may use the illustrations in the brochure: "Register and Have Your Dogs and Cats Vaccinated Against Rabies for Rabies Free-Philippines Brochure by GARC and DA-BAI" to guide their responses. (See Enclosure 2)</i></p> <p>Possible responses:</p> <ol style="list-style-type: none"> a. <i>"If you were bitten by a dog or cat, then you should go to the nearest TANDOK."</i> b. <i>"If you were bitten by a dog or cat, then you would immediately call the attention of your parent."</i> c. <i>"If you were bitten by a dog or cat, then you should clean the wound with vinegar."</i> d. <i>"If you were bitten by a dog or cat, then you should wash your wound with soap under running water for 15 minutes"</i> e. <i>"If you were bitten by a dog or cat, then you should immediately consult a doctor from the nearest hospital or Animal Bite Treatment Center."</i> <ol style="list-style-type: none"> 4. Say: Now let us analyze your answers. 5. Ask: Which statement(s) is/ are true? Why do you say so? 6. Let the learners justify their answers. <p>Note:</p> <ol style="list-style-type: none"> 1. <i>As much as possible the learners shall cover all the basic first aid tips when bitten by a rabid animal.</i> 2. <i>You may use illustrations from brochure to give clues for possible responses.</i> 3. <i>They may be grouped during this activity. (3-5 members only)</i>
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	<p>Note: <i>Emphasize the following ideas in integrating rabies education:</i></p> <ol style="list-style-type: none"> 1. <i>Why do dogs or cats bite?</i> 2. <i>Are all bites rabid?</i> <p>7. Lead the discussion on importance of logical reasoning.</p>
B. Establishing a purpose for the lesson	<p>What to do:</p> <ol style="list-style-type: none"> 1. Ask: Is logical reasoning important? Why? 2. Give emphasis on the importance of valid and logical reasoning. <p>Note: Some importance of valid and logical reasoning</p> <ul style="list-style-type: none"> • It helps to bridge connections with different ideas. • It aids to gain deeper understanding of different concepts. • It validates the existence of correct ideas or concepts. <ol style="list-style-type: none"> 3. Say: Logical reasoning is very important, especially in mathematical proofs. It helps us to bridge connections with different ideas, deepen our understanding of different math concepts, and validate other theorems and postulates. 4. Lead the discussion to the concept of conditional statements. 5. Say: Today we will understand how logical reasoning relates to conditional statements and determine the relationship between the hypothesis and the conclusion of an if-then statement.
C. Presenting examples/instances of the new lesson	<p>What to do:</p> <ol style="list-style-type: none"> 1. Post this statement on the chalkboard: "Rabies is 100% fatal." 2. Ask: <ol style="list-style-type: none"> 2.1. What do you know about rabies? 2.2. What do we mean when we say "FATAL"?

	<p>2.3. Rabies is 100% fatal but 100% preventable, what are the precautionary measures when bitten by a dog or cat?</p> <p>3. Emphasize the following ideas in integrating rabies education.</p> <p>3.1. When bitten by dogs or cats, don't panic.</p> <p>3.2. Administer first aids as soon as possible.</p> <p>3.3. Inform your parents/ guardian if bitten by dogs or cats.</p> <p>3.4. Go to the nearest animal bite treatment center in your locality or community.</p> <p>3.5. Yearly vaccination of anti-rabies for your pets is a must.</p> <p>4. After discussing bite management incidence, let the learners analyze and identify the subject and predicate of the given sentence.</p> <p>5. Ask: What is the main idea or the subject of the sentence?</p> <p>6. Say: "Underline the subject of the sentence."Call a student to answer the question. (Answer: S: Rabies)</p> <p>7. Say: "This time, what is the predicate of the sentence?"</p> <p>Call a student to answer the question.(Answer: P: 100% fatal) (fatal – deadly)</p> <p>8. Say: The posted statement is an example of a conditional statement; the subject is the hypothesis of the conditional statement while the predicate is the conclusion of the conditional statement.</p> <p>9. Group the class. (3-5 members per group)</p> <p>10. Say: Now let us try to analyze other examples of conditional statement.</p> <p>11. Post the following statements</p> <p>Directions: Read and analyze the given statements. Underline the subject and encircle the predicate. Then identify the hypothesis and conclusion for each given statement.</p> <p>11.1. "Garbage recycling helps save the environment."</p> <p>(Answer: S: Garbage recycling ,P: Helps save the environment)</p>
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	<p>11.2. “An obtuse triangle has exactly one obtuse angle.”</p> <p>(Answer: S: An obtuse triangle, P: has exactly one obtuse angle)</p>
D. Discussing new concepts and practicing new skills #1	<p>What to do:</p> <p>1. Say: Some conditional statements are written in declarative form while others are written in an <i>if-then</i> statement. It is composed of two clauses: the if- clause and the then- clause.</p> <p>We can denote a letter for each clause, <i>p</i> for the if clause (subject) and <i>q</i> for the then clause (predicate).</p> <p>The statement is in the form If <i>p</i> then <i>q</i>.</p> <p>Conditional statements are formed by joining two statements <i>p</i> and <i>q</i> using the words if and then.</p> <p>The <i>p</i> statement is called the hypothesis and the <i>q</i> statement is the conclusion.</p> <p>2. Say: Let us try to use the previous examples and express them into an if- then form.</p> <p>Statement: “Rabies is 100% fatal.”</p> <p>H: Rabies C: 100% fatal (fatal – deadly) If – then: If a person is rabid, then he/ she will expire (die)</p> <p>Statement: “Garbage recycling helps save the environment.”</p> <p>H: Garbage recycling C: Helps save the environment If – then: If you practice garbage recycling, then you help save the environment.</p> <p>Statement: “An obtuse triangle has exactly one obtuse angle.”</p> <p>H: An obtuse triangle C: has exactly one obtuse angle If –then: If a triangle is obtuse, then it has exactly one obtuse angle.</p> <p>3. Ask the following guide questions:</p> <p>3.1. How do we determine the hypothesis of a given conditional statement in declarative form? (Answer: Determine the subject of the sentence)</p>

	<p>3.2. How do we determine the hypothesis of a given conditional statement in if – then form? (Answer: The if – clause is the hypothesis)</p> <p>3.3. How do we determine the conclusion of a given conditional statement in declarative form? (Answer: Determine the predicate of the sentence)</p> <p>3.4. How do we determine the conclusion of a given conditional statement in if – then form? (Answer: The then – clause is the conclusion)</p> <p>3.5. What is the relationship of hypothesis to the subject of the conditional statement? (Answer: the hypothesis of a given conditional statement is the subject of the sentence)</p> <p>3.6. How about the relationship of the conclusion to the predicate of the conditional statement? (Answer: the conclusion of a given conditional statement is the predicate of the sentence)</p>
<p>E. Discussing new concepts and practicing new skills #2</p>	<p>What to do:</p> <p>Allow the learners to transform the following declarative statements into if-then form.</p> <p>Note: <i>This may be done by group of 3-5 members or in pair.</i></p> <p>Directions: Identify the hypothesis and conclusion for each given statement and transform it into an if – then statement.</p> <p>1. Once bitten by an animal, disinfect the wound with 70% alcohol. (Answer) H: Once bitten by an animal C: Disinfect the wound with 70% alcohol If – then: If you were bitten by an animal, then disinfect the wound with 70% alcohol.</p> <p>2. All equiangular triangles are also equilateral. (Answer) H: All equiangular triangles C: Equilateral If – then: If a triangle is equiangular then it is equilateral</p>

<p>F. Developing mastery (leads to Formative Assessment 3)</p>	<p>What to do:</p> <p>1. Let the learners do Activity No. 1 (see enclosure 1)</p> <p>ANSWER KEY: Activity No. 1</p> <p>II. BUILDING COMPREHENSION:</p> <p>1. A responsible pet owner provides proper nutrition, enough care and attention to his/her pet and gives yearly anti-rabies vaccination.</p> <p>Hypothesis: A responsible pet owner Conclusion: Provides proper nutrition, enough care, and attention to his/her pet and gives yearly anti-rabies vaccination.</p> <p>If-then form: If a person is a responsible pet owner, then he/ she provides proper nutrition, loving care, and attention to his/her pet and gives yearly anti-rabies vaccination.</p> <p>2. All vertical angles are congruent.</p> <p>Hypothesis: All vertical angles Conclusion; Congruent If-then form: If two angles are vertical, then the angles are congruent.</p> <p>3. A line segment has exactly one midpoint.</p> <p>Hypothesis: Line segment Conclusion: One midpoint If-then form: If a subset of line is line segment exists, then it has only one midpoint.</p> <p>III. ANALYSIS:</p> <p>How do you distinguish the hypothesis from the conclusion when the statement is not in the if-then form? (Answers may vary)</p> <p>An <i>if-then</i> statement is composed of two clauses: the if-clause and the then- clause. We can denote a letter for each clause, p for the if clause (subject) and q for the then clause (predicate).</p> <p>The statement is in the form "If p then q. Conditional statements are formed by joining two statements p and q using the words if and then. The p statement is called the hypothesis and the q statement is the conclusion.</p>
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G. Finding practical applications of concepts and skills in daily living	
H. Making generalizations and abstractions about the lesson	<p>What to do:</p> <p>1. Ask: “How did you identify the hypothesis and conclusion of an if-then statement?”</p> <p>“What if the given statement is written in declarative form, how will you transform it into an if-then statement?”</p> <p>“What is the relationship of hypothesis and conclusion?”</p> <ul style="list-style-type: none"> • An <i>if-then</i> statement is composed of two clauses: the if- clause and the then- clause. We can denote a letter for each clause, <i>p</i> for the if clause (subject) and <i>q</i> for the then clause (predicate). • The statement is in the form” If <i>p</i> then <i>q</i>. Conditional statements are formed by joining two statements <i>p</i> and <i>q</i> using the words if and then. The <i>p</i> statement is called the hypothesis and the <i>q</i> statement is the conclusion.
I. Evaluating learning	
J. Additional activities for application or remediation	<p>What to do:</p> <p>1. Let the learners who need remediation do Activity No. 2.a (see enclosure 2)</p> <p>ANSWER KEY: Activity No. 2.a</p> <p>II. BUILDING COMPREHENSION:</p> <p>1. If you exercise daily, then you will be healthy.</p> <p>Hypothesis: You exercise daily Conclusion: You will be healthy</p> <p>2. If you were bitten by a dog or cat, then you need to immediately consult the nearest animal bite treatment center in your locality or community.</p> <p>Hypothesis: You were bitten by a dog or cat Conclusion: You need to immediately consult the nearest animal bite treatment center in your locality.</p>

3. If $x = 2$, then $x+5$ equals 7.

Hypothesis: $x = 2$

Conclusion: $x+5$ equals 7

4. If $a + b = c$, then $c = a + b$.

Hypothesis: $a + b = c$

Conclusion: $c = a + b$

5. If an angle measures 39° , then it is an acute angle.

Hypothesis: An angle measures 39°

Conclusion: It is an acute angle

III. ANALYSIS:

How do you distinguish the hypothesis from the conclusion given a statement?

(Answers may vary)

An *if-then* statement is composed of two clauses: the if-clause and the then-clause. We can denote a letter for each clause, **p** for the if clause (subject) and **q** for the then clause (predicate).

2. Let the advanced learners do **Activity No. 2.b**

ANSWER KEY: Activity No. 2.b

II. BUILDING COMPREHENSION:

1. When bitten by a dog or cat, you need to immediately consult the nearest animal bite treatment center in your locality and wash your wound with running water and disinfecting it with 70% alcohol.

Hypothesis: You were bitten by a dog or cat,

Conclusion: You need to immediately consult the nearest animal bite treatment center in your locality and wash your wound with running water and disinfect it with 70% alcohol.

If-then form: If you were bitten by a dog or cat, then you need to immediately consult the nearest animal bite treatment center in your locality and wash your wound with running water and disinfect it with 70% alcohol. Validity: True

2. Given $x = -3$ and $y = 2$, the expression $2x^2 - 5y$ equals 8

Hypothesis: $x = -3$ and $y = 2$

Conclusion: $2x^2 - 5y$ equals 8

If-then form: If $x = -3$ and $y = 2$, then $2x^2 - 5y$ equals 8
Validity: True

	<p>3. Two adjacent angles form a linear pair.</p> <p>Hypothesis: Two adjacent angles Conclusion: linear pair If-then form: If two angles are adjacent, then a linear pair is formed. Validity: False (If two angles are adjacent but not supplementary, then it will not form a linear pair)</p> <p>III. ANALYSIS:</p> <p>1. How do you distinguish the hypothesis from the conclusion when the statement is not in the if-then form?</p> <p>An <i>if-then</i> statement is composed of two clauses: the if-clause and the then- clause. We can denote a letter for each clause, p for the if clause (subject) and q for the then clause (predicate).</p> <p>2. How do you determine if an if-then statement is false? By counter example, a statement can be proven false.</p>
V. REMARKS	Further discussion and summative assessment using math theorems, postulate and statement will be done on the second day.
VI. REFLECTION	
A. No. of learners who earned 80% in the evaluation	
B. No. of learners who require additional activities for remediation	
C. Did the remedial lessons work? No. of learners who have caught up with the lesson	
D. No. of learners who continue to require remediation	
E. Which of my teaching strategies worked well? Why did these work?	
F. What difficulties did I encounter which my principal or supervisor can help me solve?	
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?	

Activity Sheet

ACTIVITY SHEET NO. 1

Name: _____ Date: _____

Grade and Section: _____

I. OBJECTIVE/S:

Identify the hypothesis and conclusions of the following statements.

Formulate an if- then statement.

II. BUILDING COMPREHENSION:

Direction: Read each statement carefully and identify the hypothesis and conclusion to form an if-then statement. Write your answers on the space provided in each item

1. A responsible pet owner provides proper nutrition, loving care and attention to his/her pet and gives yearly anti-rabies vaccination.

Hypothesis _____

Conclusion _____

If-then form _____

2. All vertical angles are congruent..

Hypothesis _____

Conclusion _____

If-then form _____

3. A segment has exactly one midpoint.

Hypothesis _____

Conclusion _____

If-then form _____

III. ANALYSIS:

Direction: Answer briefly the question below. Write your answer on the space provided

How do you distinguish the hypothesis from the conclusion when the statement is not in the if-then form?

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the entire width of the page. There are no margins, text, or other markings present.

ACTIVITY SHEET NO. 2.a

Name: _____ **Date:** _____

Grade and Section: _____

I. OBJECTIVE/S:

Identify the hypothesis and conclusions of the following statements.

II. BUILDING COMPREHENSION:

Direction: Read each statement carefully and identify the hypothesis and conclusion. Write your answers on the space provided in each item.

1. If you exercise daily, then you will be healthy.

Hypothesis _____

Conclusion _____

2. If you were bitten by a dog or cat, then you need to immediately consult the nearest animal bite treatment center in your locality or community.

Hypothesis _____

Conclusion _____

3. If $x = 2$, then $x+5$ equals 7.

Hypothesis _____

Conclusion _____

4. If $a + b = c$, then $c = a + b$.

Hypothesis _____

Conclusion _____

5. If an angle measures 39° , then it is an acute angle.

Hypothesis _____

Conclusion _____

III. ANALYSIS:

Direction: Answer briefly the question below. Write your answer on the space provided.

How do you distinguish the hypothesis from the conclusion given a statement?

[illegible]

ACTIVITY SHEET NO. 2.b

Name: _____ Date: _____

Grade and Section: _____

I. OBJECTIVE/S:

Identify the hypothesis and conclusions of the following statements.

Formulate an if- then statement.

Invalidate an if-then statement using counter example.

II. BUILDING COMPREHENSION:

Direction: Read each statement carefully and identify the hypothesis and conclusion to form an if-then statement. Identify if the if – then statement is TRUE or FALSE. Write your answers on the space provided in each item.

1. When bitten by a dog or cat, you need to immediately consult the nearest animal bite treatment center in your locality and wash your wound with running water and disinfect it with 70% alcohol.

Hypothesis: _____

Conclusion: _____

If-then form: _____

Validity: _____

2. Given $x = -3$ and $y = 2$, the expression $2x^2 - 5y$ equals 8

Hypothesis: _____

Conclusion: _____

If-then form: _____

Validity: _____

3. Two adjacent angles form a linear pair.

Hypothesis: _____

Conclusion: _____

If-then form: _____

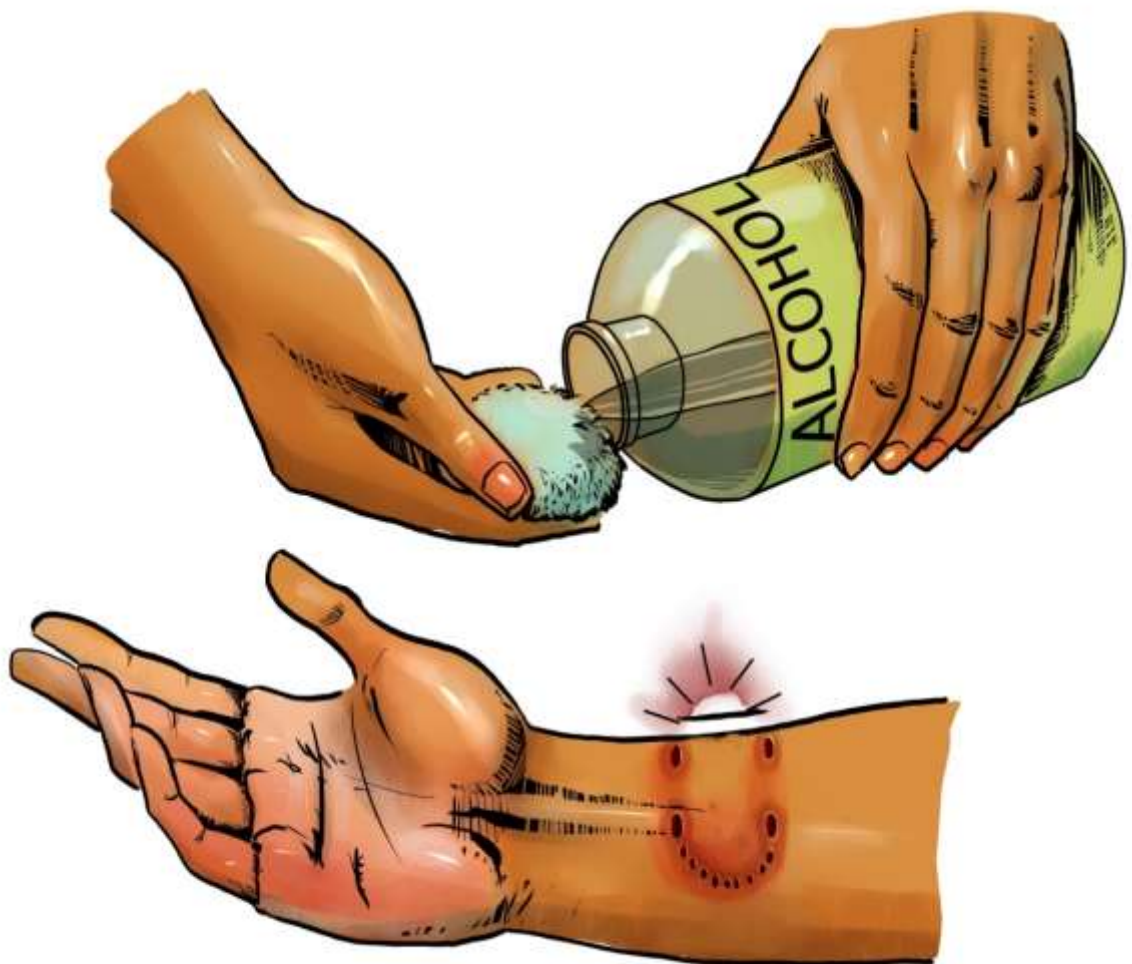
Validity: _____

III. ANALYSIS:

Direction: Answer briefly the question below. Write your answer on the space provided.

1. How do you distinguish the hypothesis from the conclusion when the statement is not in the if-then form?

2. How do you determine if an if-then statement is false?







Help Prevent Rabies...

Be a responsible pet owner

Have your dogs and cats vaccinated against rabies at 3 months of age and every year thereafter.



Provide your pet with proper nutrition, enough care, and attention.



Be sure to keep their cage clean and comfortable.



Keep your dog on a leash and do not let them roam freely in the streets.



Or suffer the consequences...

**Republic Act 9482
(Anti-Rabies Act of 2007)**

Pet Owners Penalties

Pet owners who fail or refuse to have their dog registered and immunized against rabies shall be punished by a fine of Two Thousand Pesos (P2,000.00).

Pet owners who refuse to have their dog vaccinated against rabies shall be liable to pay for the vaccination of both the dog and the individual bitten by their dog.

Pet owners who refuse to have their dog put under observation after said dog has bitten an individual shall be meted a fine of Ten Thousand Pesos (P10,000.00).

Pet owners who refuse to have their dog put under observation and do not shoulder the medical expenses of the person bitten by their dog shall be meted a fine of Twenty Five Thousand Pesos (P25,000.00).

Pet owners who refuse to put a leash on their dogs while they are brought outside the house shall be meted a fine of Five Hundred Pesos (P500.00) for each incident.

For more information, contact your Provincial or City Veterinary Office

BAI RABIES HOTLINE
(02) 928-2743 / (02) 928-2836

Register and Have Your Dogs and Cats Vaccinated Against

RABIES

for



Rabies-Free Philippines






RABIES IS...

Fatal...

Rabies is a highly fatal disease killing 300-600 Filipinos per year. Most affected are children between 5-14 years old.

Contagious...

Rabies can spread from animals to humans. The disease is transmitted when the virus, which is present in the saliva of an infected animal, penetrates the skin usually through a bite. It can also be acquired if a scratch, wound, and/or body openings such as mucous membrane of the eyes, nose or mouth are exposed to contaminated saliva.

Incurable...

In animals, the first sign of rabies is a change in behavior. Rabid animals usually stop eating and drinking, and may appear to want to be left alone. The animal is then likely to become vicious or begin to show signs of paralysis. Some rabid animals bite at the slightest provocation while others become depressed and are difficult to arouse. Once the animal shows signs of paralysis, the disease progresses very quickly and the animal dies.

MANAGING BITE INCIDENT

What to do when bitten by a dog or other animal?

1. Wash the wound with soap or detergent under running water.



2. Disinfect wound with alcohol or tincture of iodine.



3. Immediately consult a doctor or seek the nearest Animal Bite Treatment Center (ABTC) in your locality.



What to do to the biting dog?

1. Leash or confine the dog in a cage and observe for 14 days.



2. Do not kill the dog.
3. If the dog dies within 14 days, seek the assistance of a veterinarian for proper submission of specimen for diagnosis.
4. Bring the specimen to the nearest animal rabies diagnostic laboratory in your area.

Regional Animal Diagnostic Laboratory
Department of Agriculture in the Region

Rabies Diagnostic Laboratory
Philippine Animal Health Center
Bureau of Animal Industry
Visayas Avenue, Diliman, Quezon City

Research Institute for Tropical Medicine
Department of Health
Alabang, Metro Manila

5. Consult a veterinarian to clarify other information on animal rabies.

MATHEMATICS 8 (m8ge-iig-1)

I. OBJECTIVES	
A. <i>Content Standards</i>	The learner demonstrates understanding of key concepts of logic and reasoning
B. <i>Performance Standards</i>	The learner is able to communicate mathematical thinking with coherence and clarity in formulating and analyzing arguments.
C. <i>Learning Competencies/ Objectives</i> a. <i>Write the LC code for each</i>	The learner determines the inverse, converse, and contrapositive of an if-then statement. (M8GE-IIg-1)
II. CONTENT	Conditional Statements (Inverse, Converse, And Contrapositive) (Integration of Rabies Education: Rabies Awareness and Bite Incidence Management)
III. LEARNING RESOURCES	
A. <i>References</i>	
1. <i>Teacher's Guide pages</i>	pp. 355-357
2. <i>Learner's Materials pages</i>	pp. 298-301
3. <i>Textbook pages</i>	
4. <i>Additional Materials from Learning Resource (LR) portal</i>	
B. <i>Other Learning Resources</i>	Register and Have Your Dogs and Cats Vaccinated Against Rabies for Rabies Free-Philippines Brochure by Global Alliance for Rabies Control (GARC) and Department of Agriculture – Bureau of Animal Industry (DA-BAI)
IV. PROCEDURES	
A. <i>Reviewing previous lesson or presenting the new lesson</i>	What to do: 1. Post the statement in front of the class:

	<p>"If you were bitten by a dog or cat, then you should wash your wound with soap under running water for 15 minutes."</p> <p>2. Ask the following questions</p> <p>2.1. What is the hypothesis in the given conditional statement?</p> <p>Answer: You were bitten by a dog or cat</p> <p>2.2. How were you able to determine the hypothesis?</p> <p>Answer: Hypothesis is found in the if – clause of the conditional statement.</p> <p>3. What is the conclusion in the given conditional statement?</p> <p>Answer: You should wash your wound with soap under running water for 15 minutes.</p> <p>4. How were you able to determine the conclusion?</p> <p>Answer: Conclusion is found in the then – clause of the conditional statement.</p>
<i>B. Establishing a purpose for the lesson</i>	
<i>C. Presenting examples/instances of the new lesson</i>	<p>What to do:</p> <p>A. . Use the previous example, and ask the learners to do the next activity. This activity may be done by groups of 3-5 members.</p> <p>a.1 Form an if – then statement by Interchanging the hypothesis (p) and conclusion (q) [if (q) then (p)]</p> <p>a.2 Form an if – then statement by negating both the hypothesis (p) and conclusion (q) [if not (p) then not (q)]</p> <p>a.3 Form an if – then statement by Interchanging and negating both the hypothesis (p) and conclusion (q) [if not (q) then not (p)]</p> <p>Note: In each response, ask them if the statement is TRUE or FALSE</p> <p>Answer to the activity:</p> <p>1. Interchange the hypothesis (p) and conclusion (q)</p> <p>If you wash your wound with soap under running water for 15 minutes, then you were bitten by a dog or cat.</p> <p>FALSE – you should always wash your wound even if it is not caused by a bite from a dog or cat.</p>

	<p>2. Negate both the hypothesis (p) and conclusion (q)</p> <p>If you were not bitten by a dog or cat, then you should not wash your wound with soap under running water for 15 minutes.</p> <p>FALSE – you should always wash your wound even if it is not caused by a bite from a dog or cat.</p> <p>3. Interchange and negate both the hypothesis (p) and conclusion (q)</p> <p>If you don't wash your wound with soap under running water for 15 minutes, then you were not bitten by a dog or cat.</p> <p>FALSE – you should always wash your wound even if it is not caused by a bite from a dog or cat.</p> <p>B. Say: Item no. 1 is an example of Converse Statement. Item no. 2 is an example of Inverse Statement. Item no. 3 is an example of Contrapositive Statement.</p> <p><i>Note: Guide them by highlighting the use of identifying the subject and the predicate of a statement.</i></p> <p>C. Ask the following questions:</p> <p>C.1. Based on the activity how do we determine the converse of a given conditional statement? Answer: The <u>converse</u> of a conditional statement is found by interchanging the hypothesis and the conclusion. (Item 1)</p> <p>C.2. How do we determine the Inverse statement of a given conditional statement? Answer: The <u>inverse</u> of a conditional statement is found by negating both the hypothesis and the conclusion of the statement. (Item 2)</p> <p>C.3. How do we determine the Contrapositive statement of a given conditional statement? Answer: The <u>contrapositive</u> of a conditional statement is found by negating both the hypothesis and conclusion of the converse. (Item 3)</p> <p><i>Note: Each of these statements may be true or false. One <u>counter example</u> is sufficient to show that a statement is false.</i></p>
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D. Discussing new concepts and practicing new skills #1

What to do:

1. Group the students into pairs. Then, post the conditional statement in front of the class:

All even numbers end with either 0,2,4,6 or 8

2. Ask the students to answer the following questions.

2.1. What is the hypothesis in the given statement?

Answer: Hypothesis (p): All even numbers

2.2. How did you determine the hypothesis of the given statement?

Answer: Hypothesis is the subject of the statement.

2.3. What is the conclusion in the given statement?

Answer: Conclusion (q): Ends either with 0,2,4,6 or 8

2.4. How did you determine the conclusion of the given statement?

Answer: Conclusion is the predicate of the statement.

2.5. What is the if – then form of the given conditional statement? Is it true?

Answer: if-then: If a number is even, then it ends with 0,2,4,6 or 8 – TRUE

2.6. How did you determine the if – then form given a conditional statement?

Answer: If- clause is composed of the hypothesis and the then- clause is composed of the conclusion.

2.7. What is the converse statement of the given conditional statement? Is it true?

Answer: Converse: if a number ends with 0,2,4,6 or 8, then it is an even number. - TRUE

2.8. How did you determine the converse statement given a conditional statement?

Answer: *The **converse** of a conditional statement is found by interchanging the hypothesis and the conclusion.*

	<p>2.9. What is the inverse statement of the given conditional statement? Is it true? Answer: Inverse: If a number is not even, then it does not end with 0,2,4,6 or 8 - TRUE</p> <p>2.10. How did you determine the inverse statement given a conditional statement? Answer: <i>The inverse of a conditional statement is found by negating both the hypothesis and the conclusion of the statement.</i></p> <p>2.11. What is the contrapositive statement of the given conditional statement? Is it true? Answer: Contrapositive: if a number does not end with 0,2,4,6 or 8, then it is not an even number. - TRUE</p> <p>2.12. How did you determine the contrapositive statement given a conditional statement? Answer: <i>The contrapositive of a conditional statement is found by negating both the hypothesis and conclusion of the converse.</i></p>
E. Discussing new concepts and practicing new skills #2	
F. Developing mastery (leads to Formative Assessment 3)	<p>What to do:</p> <p>Use the same process and guide question in (D) in the following statements:</p> <ul style="list-style-type: none"> ▪ A vehicle in good condition is safe for driving. ▪ Once bitten by an animal, disinfect the wound with 70% alcohol. <p><i>Note: If time permits, the teacher may post item 1.2 or more for students' deeper understanding of the topic.</i></p> <p>Answers:</p> <p>1. A vehicle in good condition is safe for driving.</p> <p>Hypothesis (p): A vehicle in good condition Conclusion (q): Safe for driving If-then: If a vehicle is in good condition, then it is safe for driving. - TRUE</p>

	<p>Converse: If a vehicle is safe for driving, then it is in good condition. – TRUE</p> <p>Inverse: If a vehicle is not in good condition, then it is not safe for driving. - TRUE</p> <p>Contrapositive: If a vehicle is not safe for driving, then it is not in good condition. – TRUE</p> <p>2. Once bitten by an animal, disinfect the wound with 70% alcohol.</p> <p>Hypothesis (p): Once bitten by an animal</p> <p>Conclusion (q): Disinfect the wound with 70% alcohol</p> <p>If-then: If you are bitten by animal, then disinfect the wound with 70% alcohol. - TRUE</p> <p>Converse: If you disinfect your wound with 70% alcohol, then you are bitten by an animal. - FALSE</p> <p>Inverse: If you are not bitten by a animal, then don't disinfect the wound with 70% alcohol. - FALSE</p> <p>Contrapositive: If you don't disinfect your wound with 70% alcohol, then you are not bitten by a animal. – FALSE</p>
G. Finding practical applications of concepts and skills in daily living	
H. Making generalizations and abstractions about the lesson	<p>What to do:</p> <p>1. Ask the following questions</p> <p>1.1: How inverse, converse, and contrapositive statements differ from one another?</p> <p>1.2 “Given an if-then statement, how do we determine its inverse, converse, and contrapositive statements?”</p> <p>Answer:</p> <p>Given if-then: $p \rightarrow q$ read as “p then q” or “p implies q”</p> <ul style="list-style-type: none"> • The <u>converse</u> of a conditional statement is found by interchanging the hypothesis and the conclusion. Converse: $q \rightarrow p$ read as “q then p” or “q implies p”

	<ul style="list-style-type: none"> The <i>inverse</i> of a conditional statement is found by negating both the hypothesis and the conclusion of the statement. Inverse: $\sim p \rightarrow \sim q$ read as “not p then not q” or “not p implies not q” The <i>contrapositive</i> of a conditional statement is found by negating both the hypothesis and conclusion of the converse. Contrapositive: $\sim q \rightarrow \sim p$ read as “not q then not p” or “not q implies not p”
I. Evaluating learning	
J. Additional activities for application or remediation	<p>What to do:</p> <p>1. Let the learners do <u>Activity No. 1</u> (Individual Enrichment)</p> <p>Answer Key: Activity No. 1</p> <p>II. BUILDING COMPREHENSION:</p> <p>1. Cigarette smoking is dangerous to your health.</p> <p>Hypothesis: Cigarette smoking Conclusion: Dangerous to your health</p> <p>If-then form: If a person smokes cigarette, then his/ her health is in danger. - TRUE Converse: If his/ her health is in danger, then that person smokes cigarette. - FALSE Inverse: If a person don't smoke cigarette, then his/ her health is not in danger. - FALSE Contrapositive: If his/ her health is not in danger, then that person don't smoke cigarette. – TRUE</p> <p>2. A responsible pet owner provides proper nutrition, loving care, and attention to his/her pet and gives yearly anti-rabies vaccination.</p> <p>Hypothesis: A responsible pet owner Conclusion: Provides proper nutrition, loving care and attention to his/her pet and gives yearly anti-rabies vaccination. If-then form: If a person is a responsible pet owner, then he/ she provides proper nutrition, loving care</p>

and attention to his/her pet and gives yearly anti-rabies vaccination. – TRUE

Converse: If he/ she provide proper nutrition, loving care and attention to his/her pet and gives yearly anti-rabies vaccination, then that person is a responsible pet owner. - FALSE

Inverse: If a person is not a responsible pet owner, then he/ she does not provide proper nutrition, loving care and attention to his/her pet and gives yearly anti-rabies vaccination. - FALSE

Contrapositive: If he/ she don't provide proper nutrition, loving care and attention to his/her pet and gives yearly anti-rabies vaccination, then that person is not a responsible pet owner. - TRUE

3. All vertical angles are congruent.

Hypothesis: All vertical angles

Conclusion: Congruent

If-then form: If angles are vertical, then they are congruent. - TRUE

Converse: If angles are congruent, then they are vertical. - FALSE

Inverse: If angles are not vertical, then they are not congruent. - FALSE

Contrapositive: If angles not are congruent, then they are not vertical. - FALSE

III. ANALYSIS:

Given an if – then statement how do you determine its converse, inverse and contrapositive statement?

The converse of a conditional statement is found by interchanging the hypothesis and the conclusion.

The inverse of a conditional statement is found by negating both the hypothesis and the conclusion of the statement.

The contrapositive of a conditional statement is found by negating both the hypothesis and conclusion of the converse.

Each of these statements may be true or false. One counterexample is sufficient to show that a statement is false.

V. REMARKS	Further discussion and summative assessment using math theorems, postulate and statement will be done on the second day.	
VI. REFLECTION		
A. No. of learners who earned 80% in the evaluation		
B. No. of learners who require additional activities for remediation		
C. Did the remedial lessons work? No. of learners who have caught up with the lesson		
D. No. of learners who continue to require remediation		
E. Which of my teaching strategies worked well? Why did these work?		
F. What difficulties did I encounter which my principal or supervisor can help me solve?		
G. What innovation or localized materials did I use/discover which I wish to share with other teachers?		

ACTIVITY SHEET

ACTIVITY SHEET NO. 1

Name: _____ **Date:** _____

Grade and Section: _____

I. OBJECTIVE/S:

Identify the hypothesis and conclusions of the following statements.

Formulate an if- then, converse, inverse, and contrapositive statement.

II. BUILDING COMPREHENSION:

Direction: Read each statement carefully and identify the hypothesis and conclusion to form an if-then, converse, inverse and contrapositive statement. Write yours answers on the space provided in each item

1. Cigarette smoking is dangerous to your health.

Hypothesis _____

Conclusion _____

If-then form _____

Converse _____

Inverse _____

Contrapositive _____

2. A responsible pet owner provides proper nutrition, loving care and attention to his/her pet and gives yearly anti-rabies vaccination.

Hypothesis _____

Conclusion _____

If-then form _____

Converse _____

Inverse _____

Contrapositive _____

3. All vertical angles are congruent.

Hypothesis _____

Conclusion _____

If-then form _____

Converse _____

Inverse _____

Contrapositive _____

III. ANALYSIS:

Direction: Answer briefly the question below. Write your answer on the space provided

Given an if – then statement, how do you determine its converse, inverse and contrapositive statement?

Help Prevent Rabies...

Be a responsible pet owner

Have your dogs and cats vaccinated against rabies at 3 months of age and every year thereafter.



Provide your pet with proper nutrition, enough care, and attention.

Be sure to keep their cage clean and comfortable.



Keep your dog on a leash and do not let them roam freely in the streets.

Or suffer the consequences...

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(Anti-Rabies Act of 2007)**

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Pet owners who fail or refuse to have their dog registered and immunized against rabies shall be punished by a fine of Two Thousand Pesos (P2,000.00).

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RABIES

for



OIE



RABIES IS...

Fatal...

Rabies is a highly fatal disease killing 300-600 Filipinos per year. Most affected are children between 5-14 years old.

Contagious...

Rabies can spread from animals to humans. The disease is transmitted when the virus, which is present in the saliva of an infected animal, penetrates the skin usually through a bite. It can also be acquired if a scratch, wound, and/or body openings such as mucous membrane of the eyes, nose or mouth are exposed to contaminated saliva.

Incurable...

In animals, the first sign of rabies is a change in behavior. Rabid animals usually stop eating and drinking, and may appear to want to be left alone. The animal is then likely to become vicious or begin to show signs of paralysis. Some rabid animals bite at the slightest provocation while others become depressed and are difficult to arouse. Once the animal shows signs of paralysis, the disease progresses very quickly and the animal dies.

MANAGING BITE INCIDENCE

What to do when bitten by a dog or other animal?

1. Wash the wound with soap or detergent under running water.



2. Disinfect wound with alcohol or tincture of iodine.



3. Immediately consult a doctor or seek the nearest Animal Bite Treatment Center (ABTC) in your locality.



What to do to the biting dog?

1. Leash or confine the dog in a cage and observe for 14 days.



2. Do not kill the dog.
3. If the dog dies within 14 days, seek the assistance of a veterinarian for proper submission of specimen for diagnosis.
4. Bring the specimen to the nearest animal rabies diagnostic laboratory in your area.

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Department of Agriculture in the Region

Rabies Diagnostic Laboratory
Philippine Animal Health Center
Bureau of Animal Industry
Visayas Avenue, Diliman, Quezon City

Research Institute for Tropical Medicine
Department of Health
Alabang, Metro Manila

5. Consult a veterinarian to clarify other information on animal rabies.

For inquiries or feedback, please write or call:

Department of Education – Bureau of Learning Resources (DepEd-BLR)

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