

DAILY LESSON LOG OF M9GE-IVf-g-1(Day One)

School		Grade Level	Grade 9
Teacher		Learning Area	Mathematics
Teaching Date and Time		Quarter	Fourth
I. OBJECTIVES	<i>Objectives must be met over the week and connected to the curriculum standards. To meet the objectives, necessary procedures must be followed and if needed, additional lessons, exercises and remedial activities may be done for developing content knowledge and competencies. These are assessed using Formative Assessment Strategies. Valuing objectives support the learning of content and competencies and enable children to find significance and joy in learning the lessons. Weekly objectives shall be derived from the curriculum guides.</i>		
A. Content Standards	The learner demonstrates understanding of the basic concepts of trigonometry.		
B. Performance Standards	The learner is able to apply the concepts of trigonometric ratios to formulate and solve real-life problems with precision and accuracy.		
C. Learning Competencies/ Objectives	Learning Competency: Illustrates laws of sines and cosines (M9GE-IVf-g-1) Learning Objectives: 1. Identify oblique triangles 2. State the law of sines 3. Illustrate the law of sines 3. Appreciate the importance the law of sine in solving problems involving oblique triangles		
II. CONTENT	Illustrating the Law of Sines		
III. LEARNING RESOURCES			
A. References	Teacher’s guide, Learner’s module Nivera, G., et. al. (2013). Grade 9 Mathematics Patterns and Practicalities. Don Bosco Press, Inc. Makati City. Oronce, O.& Mendoza, M.(2014). e-math 9. Rex Bookstore, Inc. Sampaloc, Manila.		
1. Teacher’s Guide pages			
2. Learner’s Materials pages	pp. 477-496		
3. Textbook pages	Grade 9 Mathematics Patterns and Practicalities: pp. 468 - 478 e-math 9: pp. 412-420		
4. Additional Materials from Learning Resource (LR) portal			
B. Other Learning Resources /Materials	Activity sheets, instructional materials, scientific calculator		
IV. PROCEDURES	<i>These steps should be done across the week. Spread out the activities appropriately so that pupils/students will learn well. Always be guided by demonstration of learning by the pupils/ students which you can infer from formative assessment activities. Sustain learning systematically by providing pupils/students with multiple ways to learn new things, practice the learning, question their learning processes, and draw conclusions about what they learned in relation to their life experiences and previous knowledge. Indicate the time allotment for each step.</i>		
A. Review previous lesson or presenting the new lesson	The teacher lets the students identify oblique triangles by posting pictures of oblique triangles on the board. He/she lets the students answer in groups of three the following guide questions: 1. The triangles we see around are not all right triangles. Look at the pictures Below. (Post pictures of objects that are shaped like oblique triangles) Can you see the triangular patterns? Do the triangles you see in the pictures contain right angle? 2. Aside from the pictures presented, can you list down at least two things around that may not be considered as right triangles? These triangles are called oblique triangles. 3. Take a second look at the things posted and those you have listed. Find out what common characteristic these triangles have. 4. If you were asked to classify the things in your list and those that were posted on the board, how would you do it? What is your basis for classifying them as such? 5. Can you now define oblique triangle? Give your definition of an oblique triangle based on what you have observed. 6. On the basis of your observation, how would you classify oblique triangles? <i>Possible answers/responses:</i>		

	1. No 2. The students answer may vary, depending upon how the room was structured. 3. The triangles do not contain a right angle. 4. The triangles may be classified as acute triangles or obtuse triangles. 5. Your students may state the definition of oblique triangles in several ways. What is important is that they realize that all oblique triangles do not contain a right angle. 6. Oblique triangles may be classified into two. These are: acute triangles and obtuse triangles. The teacher calls some students to share their answers to the class.
B. Establishing a purpose for the lesson	The teacher lets the students realize that there are some real life problems that involve oblique triangles. And since these triangles do not contain right angles, using the trigonometric ratios involving right triangle is not applicable to these types of triangles. These types of triangles can be solved using either the law of sines or the law of cosines.
C. Presenting examples/ instances of the new lesson	The teacher lets the students answer the Oral Exercises which is found on pages 478 – 479 of the learner’s module. Answer Key: 1. 105°; obtuse triangle 2. 90°; neither 3. 85°; acute triangle 4. 60°; 60°; acute triangle 5. 55°; acute triangle 6. 110°; obtuse triangle 7. 65°; neither 8. 25°; obtuse triangle 9. 92°; obtuse triangle 10. 80°; acute triangle
D. Discussing new concepts and practicing new skills #1	The teacher lets the students, by pair, answer Activity 1, which is found on page 480 of the learner’s module. Possible answers: 1. Any of the following answers is correct – • All triangles are oblique • 3 parts of each triangle are given, while the other three are missing • In some triangles, the measures of two angles and one side are given. In others, the measures of two sides and the angle one of these sides are given. 2. Any of the following answers is correct – • Based on the measures of the angles and the general appearance of the triangles, some students may group them as acute triangles or obtuse triangles. • Based on the parts whose measures are given, some students may group them as follows: ☐ triangles whose measures of two sides and an angle opposite one of these sides are given ☐ triangles whose measures of two angles and a side are given (Note: The second basis for grouping is what is desired in this activity. If in case you cannot elicit this answer from your students, ask them additional questions that will lead them to it.) 3. No to both
E. Discussing new concepts and practicing new skills #2	The teacher discusses thoroughly the derivation of the Law of Sines by following the procedures of Activity 2: Exploring Possibilities, which is found on page 480 of the learner’s module. He/she discusses Illustrative example 1: SAA case. (Refer to page 481 of the learner’s module) The teacher may give another illustrative example on the SAA case. (optional)
F. Developing mastery (leads to formative assessment 3)	
G. Finding practical applications of concepts and skills in daily living	

H. Making generalizations and abstractions about the lesson

The teacher lets the students summarize the lesson by asking the following questions:

1. What are oblique triangles?
2. How can we solve oblique triangles?
3. State the formula of the Law of Sines.
4. What are the cases or given information of an oblique triangle where we can use the Law of Sines?

Answer Key:

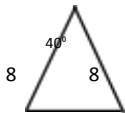
1. Oblique triangles are triangles which do not contain any right triangle.
2. We can solve oblique triangles by using the law of sines or the law of cosines.
3. In any $\triangle ABC$,
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$
4. We can use the law of sines in solving an oblique triangle if the following information are given:
 - ☐ two angles and one side (SAA Case & ASA Case)
 - ☐ two sides and an angle opposite one of these sides (SSA case)

I. Evaluating Learning

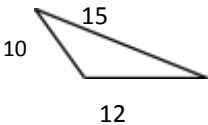
The teacher lets the students answer the following activity individually.

Directions: Determine which trigonometric law to apply: sine or cosine.

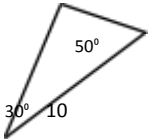
_____ 1.



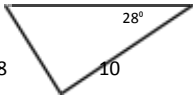
_____ 2.



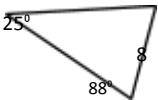
_____ 3.



_____ 4.



_____ 5.



Answer Key:

1. cosine law
2. cosine law
3. sine law
4. sine law
5. sine law

J. Additional activities or remediation

V. REMARKS	
VI. REFLECTION	
A. No. of learners who earned 80% of the evaluation	
B. No. of learners who require additional activities for remediation who scored below 80%	
C. Did the remedial lesson 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	

Prepared by:

VIRNA MARIE C. PORIO
Paknaan National HS