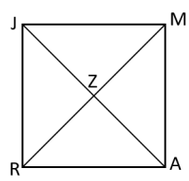
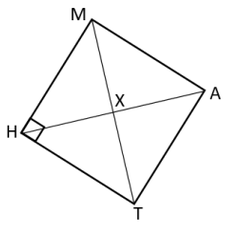
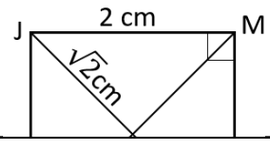
DAILY LESSON LOG OF M9GE-IIIc-1 (Day 3)

School		**Grade Level**	Grade 9
Teacher		**Learning Area**	Mathematics
Teaching Date and Time		**Quarter**	First
I. OBJECTIVES	*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.*		
A. Content Standards	The learner demonstrates understanding of key concepts of parallelograms and triangle similarity.		
B. Performance Standards	The learner is able to investigate, analyze, and solve problems involving parallelograms and triangle similarity through appropriate and accurate representation.		
C. Learning Competencies/ Objectives	*Learning Competency:* Proves theorems on the different kinds of parallelogram (rectangle, rhombus, square). **(M9GE-IIIc-1)** *Learning Objectives:* 1. State the theorems related to a square 2. Apply the theorems related a square in finding unknown quantities 3. Demonstrate the value of cooperation in doing the activities		
II. CONTENT	Theorems on Related to a Square		
III. LEARNING RESOURCES			
A. References			
1. Teacher's Guide			
2. Learner's Materials			
3. Textbook pages			
4. Additional Materials from Learning Resource (LR) portal			
B. Other Learning Resources			
IV. PROCEDURES	*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.*		
A. Review previous lesson or presenting the new lesson	The teacher asks the students, in pairs, to do the exercise below: For each of the following statements, determine whether it is Never True, Sometimes True, or Always True. 1. All squares are parallelograms. 2. A rectangle is a square. 3. A square is a rectangles. 4. All rhombuses are squares. 5. A square is a rhombus. *Answer:* *1.* Always True *2.* Sometimes True *3.* Always True *4.* Never True *5.* Always True		

	The teacher helps the students see the logic of each of the answer by citing definitions of, properties of, and/or theorems related to the quadrilaterals involved in the statement. *Possible Reasons:* 1. A square is a parallelogram. Hence, all squares are parallelograms. 2. A rectangle is a parallelogram with four right angles. It is possible to draw a rectangle with four congruent sides. Hence, there are some rectangles that are squares. 3. A theorem on rectangle states that if a parallelogram has at least one right angle, then it has four right angles and is a rectangle. A square is a parallelogram and has four right angles, hence, it is a rectangle. 4. It is possible to give one counterexample to the statement. 5. A square is a parallelogram with four congruent sides and angles. Because all its sides are congruent, it matches the definition of a rhombus. Hence, it is a rhombus.
B. Establishing a purpose for the lesson	The teacher lets the students realize that the connections between a parallelogram, a rectangle, a rhombus and a square with each other are important principles needed in understanding the properties of a square.
C. Presenting examples/ instances of the new lesson	The teacher tells the students: "A square is a very special type of parallelogram. This is because it has the properties of a parallelogram, a rectangle and a rhombus." The teacher then lets the students, in groups of three, answer the exercise below. Using square JMARZ, answer the questions that follow. 1. Suppose $\overline{JM}$ = 2 cm, how long is $\overline{RA}$? 2. Suppose $\overline{MR}$ = 4 cm, 2.1. how long is $\overline{ZM}$? 2.2. how long is $\overline{JA}$? 3. What is the measure of ∠JRA? 4. What is the measure of ∠JRM? 5. What is the measure of ∠JZM?  Afterwards, the teacher calls a representative from the class to give and justify his/her answer to the class.
D. Discussing new concepts and practicing new skills #1	The teacher facilitates the drawing of answers from the students by letting other students react to the answer given by one student. The teacher emphasizes that the properties of a parallelogram, a rectangle and a rhombus holds true for all squares. *Answer Key & Reasons:* 1. 2 cm. □JMAR is a square and by definition, all its sides are congruent. 2.1. 2 cm. □JMAR is a parallelogram with four right angles and congruent sides. In a parallelogram, diagonals bisect each other. 2.2. 4 cm. □JMAR is a square has four right angles, hence it is a rectangle. This is why, the diagonals are congruent. 3. 90^0. □JMAR is a square and by definition, all its angles are right. 4. 45^0. □JMAR is a square and by definition, all its sides are congruent. Hence, it is a rhombus and in a rhombus, each diagonals bisect opposite angles. 5. 90^0. □JMAR is a square and by definition, all its sides are congruent. Hence, it is a rhombus and in a rhombus, diagonals are perpendicular. Perpendicular lines are lines that intersect and form right angles.

E. Discussing new concepts and practicing new skills #2	
F. Developing mastery (leads to formative assessment 3)	The teacher lets the students, in pairs, answer the exercise below. Using square MATH, answer the questions that follow. 1. Suppose $\overline{HM}$ = 5 cm, 1.1. how long is $\overline{MA}$? 1.2. what is the perimeter of square MATH? 2. Suppose $\overline{MX}$ = 3.5 cm, 2.1. how long is $\overline{MT}$? 2.2. how long is $\overline{HX}$? 3. What is the measure of ∠MAT? 4. What is the measure of ∠MHA 5. What is the measure of ∠MXH?  *Answer:* 1.1. 5 cm 1.2. 20 cm 2.1. 7 cm 2.2. 3.6 cm 3. 90^o 4. 45^o 5. 90^o
G. Finding practical applications of concepts and skills in daily living	
H. Making generalizations and abstractions about the lesson	The teacher helps the students summarize all the properties of a square by letting them complete the sentences below using the following words: CONGRUENT BISECT PERPENDICULAR SUPPLEMENTARY In a square, ● all four sides are _____. *(congruent)* ● all four angles are _____. *(congruent)* ● opposite sides are _____. *(congruent)* ● opposite angles are _____. *(congruent)* ● two consecutive angles are _____. *(supplementary)* ● diagonals _____ each other. *(bisect)* ● diagonals are _____ and _____. *(congruent and perpendicular)* ● Each diagonal _____ opposite angles. *(bisects)* ● Each diagonal divides the square into two _____ triangles. (*congruent)*
I. Evaluating Learning	The teacher evaluates students' learning by letting them answer the exercise blow orally. Using the diagram of square JMAR with its diagonals intersecting at Z, and given that $\overline{JA}$ = 2 cm and $\overline{JZ}$ = $\sqrt{2}$ cm, find the measure of the following quantities 1. $\overline{JA}$ 2. $\overline{MR}$ 3. $\overline{MA}$ 

	4. perimeter of □JMAR 5. Perimeter of ΔAMJ 6. ∠RJA 7. ∠JZR *Answer:* 1. $2\sqrt{2}$ cm 2. $2\sqrt{2}$ cm 3. 2 cm 4. 8 cm 5. 4 cm 6. 45^0 7. 90^0
J. Additional activities or remediation	Study all the theorems related to a rectangle, rhombus and square.
V. REMARKS	
VI. REFLECTION	*Reflect on your teaching and assess yourself as a teacher. Think about your students' progress. What works? What else needs to be done to help the pupils/students learn? Identify what help your instructional supervisors can provide for you so when you meet them, you can ask them relevant questions.*
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	garden

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Put a check (√) mark to indicate which property is true to a square.

Property	Square
1. Opposite sides are parallel.	

2. Opposite sides are congruent.	
3. Opposite angles are congruent.	
4. Consecutive angles are supplementary.	
5. Diagonals bisect each other.	
6. All angles are right angles.	
7. Diagonals are congruent.	
8. All sides are congruent.	
9. Diagonals bisect opposite angles.	
10. Diagonals are perpendicular to each other.	
11. Each diagonal divides the quadrilateral into two congruent triangles.	

Answer Key:

Property	**Square**
1. Opposite sides are parallel.	√
2. Opposite sides are congruent.	√
3. Opposite angles are congruent.	√
4. Consecutive angles are supplementary.	√
5. Diagonals bisect each other.	√
6. All angles are right angles.	√
7. Diagonals are congruent.	√
8. All sides are congruent.	√
9. Diagonals bisect opposite angles.	√
10. Diagonals are perpendicular to each other.	√
11. Each diagonal divides the quadrilateral into two congruent triangles.	√

Possible Justifications:

1. A square is a parallelogram so, be definition of a parallelograms, its opposite sides are parallel.
2. It's a parallelogram.
3. It's a parallelogram.
4. It's a parallelogram.
5. It's a parallelogram.
6. By definition of a square, all its four angles are right.
7. Since it has all four right angles, it is a rectangle. Hence, its diagonals are congruent also.
8. By definition of a square, all its four sides are congruent.
9. Since all its sides are congruent, it is a rhombus. Hence, the property of a rhombus in which its diagonals are perpendicular is also true to a square.