



basic education

Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA

## MATHEMATICS LESSON PLAN

### GRADE 9

TERM 2: APRIL – JUNE

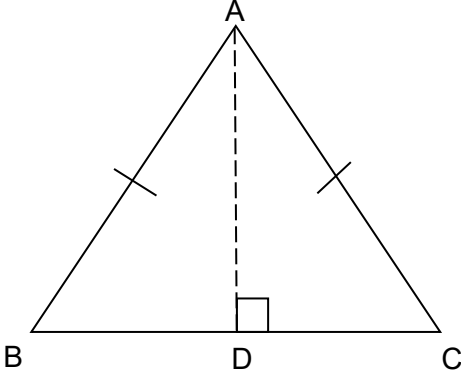
PROVINCE:	
DISTRICT:	
SCHOOL:	
TEACHER'S NAME:	
DATE:	
DURATION:	1 Hour

**1. TOPIC: AREA AND PERIMETER OF 2D SHAPES:** Area and perimeter (**Lesson 2**)

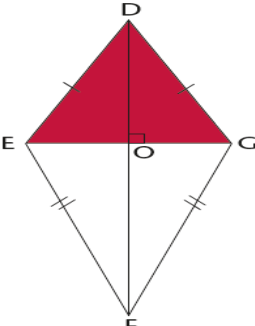
#### **2. CONCEPTS & SKILLS TO BE ACHIEVED:**

**By the end of the lesson learners should know and be able to:**

- use appropriate formulae and conversions between SI units, to solve problems and calculate perimeter and area of polygons (kite).

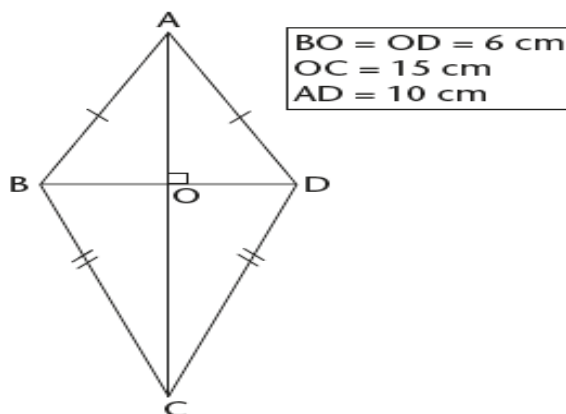
3. <b>RESOURCES:</b>	<ul style="list-style-type: none"> <li>• DBE workbook, Sasol-Inzalo book1, textbook, ruler, coloured pens</li> </ul>
4. <b>PRIOR KNOWLEDGE:</b>	<ul style="list-style-type: none"> <li>• calculation with whole numbers</li> <li>• properties of 2D shapes</li> <li>• substitution</li> <li>• Theorem of Pythagoras</li> <li>• Formula for area of a triangle</li> </ul>
5. <b>REVIEW AND CORRECTION OF HOMEWORK</b> (suggested time: 10 minutes)	
<p>Homework offers an opportunity for teachers to track learners' progress in the mastery of Mathematics concepts and identify the problematic areas which require immediate attention. Therefore it is recommended that you place more focus on addressing errors from learner responses that may later become misconceptions.</p>	
6. <b>INTRODUCTION</b> (Suggested time: 10 Minutes)	
<p>Do the following with the learners.</p> <p><b>Revision activity</b></p> <p>In the triangle below <math>AB = 5</math> cm, <math>BC = 6</math> cm, <math>AD</math> bisects <math>BC</math>; calculate the area of the triangle.</p> 	

7. LESSON PRESENTATION/DEVELOPMENT (Suggested time: 20 minutes)

Teaching activities	Learning activities (Learners are expected to:)
<p>The area of the kite can be calculated by decomposing the kite into two isosceles triangles</p> <p><b>Step 1</b></p> <ul style="list-style-type: none"> <li>Identify the figure below: <i>Kite</i></li> <li>Name two isosceles triangles found in the figure: <i><math>\triangle DEG</math> and <math>\triangle EFG</math></i></li> </ul> <div style="text-align: center;">  </div> <p><b>Step 2:</b> Write down the formula for the area triangle <math>= \frac{1}{2}(b \times h)</math></p> <p><b>Step 3:</b> Write down the formula for the area of the kite in terms of its isosceles triangles <i>Area of a kite DEFG = Area of <math>\triangle DEG</math> + Area of <math>\triangle EFG</math></i> <math>= \frac{1}{2}(b \times h) + \frac{1}{2}(b \times h)</math> <math>= \frac{1}{2}(EG \times OD) + \frac{1}{2}(EG \times OF)</math></p> <p><b>Step 4:</b> Take out common factor in <b>step 3</b> <math>= \frac{1}{2} EG(OD + OF)</math>      <span style="border: 1px solid black; padding: 2px;"><math>OD + OF = DF</math></span></p> <p>Write DF in terms of OD and OF <math>= \frac{1}{2} EG \times DF</math></p> <p><b>Step 5:</b> What is the name of DF and EG <i>Diagonals</i> N.B We can write diagonal as <i>d</i></p> <p><b>Step 6:</b> Write the area of kite DEFG in terms of its diagonals. <i>Area of a kite DEFG = <math>\frac{1}{2}(d_1 \times d_2)</math></i></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>N.B <b>Area of a kite = <math>\frac{1}{2}(\text{diagonal 1} \times \text{diagonal 2})</math></b></p> </div>	<p>be actively involved during lesson by answering questions.</p>

## Examples

2. Calculate the area of the following kite.



Solution:  $AO^2 + DO^2 = AD^2$  Pythagoras  
 $AO^2 = (10 \text{ cm})^2 - (6 \text{ cm})^2$   
 $= 100 \text{ cm}^2 - 36 \text{ cm}^2$   
 $= 64 \text{ cm}^2$   
 $\therefore AO = 8 \text{ cm}$

$$\begin{aligned}\text{Area} &= \frac{1}{2}(d_1 \times d_2) \\ &= \frac{1}{2}((6 + 6) \text{ cm} \times (15 + 8) \text{ cm}) \\ &= \frac{1}{2}(12 \text{ cm} \times 23 \text{ cm}) \\ &= 138 \text{ cm}^2\end{aligned}$$

## 8. CLASSWORK(Suggested time: 15 minutes)

Sasol-Inzalo book 1 page 263 no. (c)

## 9. CONSOLIDATION/CONCLUSION& HOMEWORK(Suggested time: 5 minutes)

### a) Emphasise that

- Learners should know the theorem of Pythagoras in order to use it to calculate unknown side of a right angle triangle.
- The primary purpose of Homework is to give each learner an opportunity to demonstrate mastery of mathematics skills taught in class. Therefore Homework should be purposeful and the principle of 'Less is more' is recommended, i.e. give learners few high quality activities that address variety of skills than many activities that do not enhance learners' conceptual understanding. Carefully select appropriate activities from the Sasol-Inzalo book 1, DBE workbooks and/or textbooks for learners' homework. The selected activities should address different cognitive levels.

**Homework:** Sasol-Inzalo book 1 page 266 no. 2 (b)

