



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: CONSTRUCTION OF GEOMETRIC FIGURES:** Investigating properties of geometric figures (**Lesson 17**)

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

**By the end of the lesson, learners should know and be able to**, by construction explore the sum of the interior angles of polygons.

<b>3. RESOURCES:</b>	DBE workbook 1, Sasol-Inzalo Book 1, textbook, ruler, protractor, a pair of compasses, pencil, eraser.
<b>4. PRIOR KNOWLEDGE:</b>	<ul style="list-style-type: none"> <li>• triangles</li> <li>• quadrilateral</li> <li>• polygons</li> </ul>

**5. REVIEW AND CORRECTION OF HOMEWORK** (suggested time: 10 minutes)

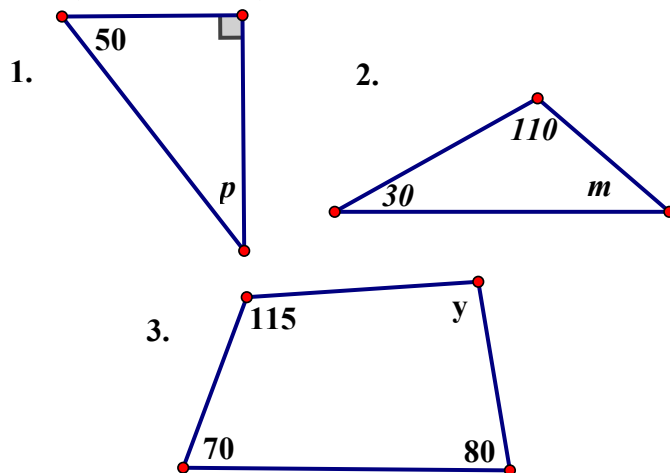
Homework provides an opportunity for teachers to track learners' progress in the mastery of mathematics concepts and to identify the problematic areas which require immediate attention. Therefore, it is recommended that you place more focus on addressing errors from learner responses that may later become misconceptions.

**6. INTRODUCTION** (Suggested time: 10 Minutes)

**Baseline Assessment:**

Learners are expected to:

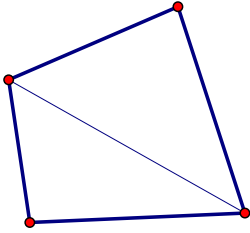
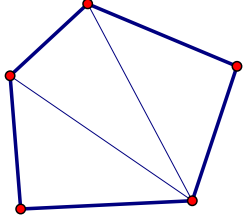
calculate, with reasons, the value of the unknown in each of the figures below:



**NOTE:** Learners are expected to know that:

- the sum of the interior angles of a triangle is  $180^\circ$ .
- the sum of the interior angles of a quadrilateral is  $360^\circ$ .

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

Teaching activities	Learning activities (Learners are expected to:)									
<p>Instruct learners to do the following activity as individuals:</p> <p><b>Activity 1</b></p> <ul style="list-style-type: none"> <li>Sketch a quadrilateral and a pentagon.</li> <li>Draw diagonals to divide the quadrilateral and the pentagon into as few diagonals as possible.</li> </ul> <p>Your diagrams should look as follows:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><b>Quadrilateral</b></p> </div> <div style="text-align: center;">  <p><b>Pentagon</b></p> </div> </div> <ul style="list-style-type: none"> <li>Use the diagrams to complete the table below:</li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Polygon</th> <th>No. of <math>\Delta</math>s</th> <th>Sum of <math>\angle</math>s</th> </tr> </thead> <tbody> <tr> <td>Quadrilateral</td> <td>2</td> <td><math>2 \times 180^\circ = 360^\circ</math></td> </tr> <tr> <td>Pentagon</td> <td>3</td> <td><math>3 \times 180^\circ = 540^\circ</math></td> </tr> </tbody> </table>	Polygon	No. of $\Delta$ s	Sum of $\angle$ s	Quadrilateral	2	$2 \times 180^\circ = 360^\circ$	Pentagon	3	$3 \times 180^\circ = 540^\circ$	<ul style="list-style-type: none"> <li>draw polygons as instructed.</li> <li>insert diagonals</li> <li>count triangles</li> <li>complete a table</li> <li>make a general statement of their observation</li> </ul>
Polygon	No. of $\Delta$ s	Sum of $\angle$ s								
Quadrilateral	2	$2 \times 180^\circ = 360^\circ$								
Pentagon	3	$3 \times 180^\circ = 540^\circ$								

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

### Activity

- Sketch a hexagon, a heptagon and an octagon.
- Draw diagonals in each polygon that divides it into as few triangles as possible.
- Complete a table below:

Polygon	No. of $\Delta$ s	Sum of $\angle$ s
Hexagon		
Heptagon		
Octagon		

- Write a formula that could be used to determine the sum of the angles in a polygon with  $n$  sides (an  $n$ -gon).

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

### a) Emphasise that:

- Diagonals should not intersect each other, that is, triangles should not overlap and all triangle vertices should also be the vertices of the polygon at hand.
- The sum of interior angles of a polygon =  $180^\circ \times (\text{the number of sides} - 2)$ .



**Notes for the teacher:**

- Give struggling learners tips on how to divide the polygons
- b) 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 books, DBE workbooks and/or textbooks for learners' homework. The selected activities should address different cognitive levels.

**Homework**

Practicing the skills learnt in the lesson and previous lessons  
DBE Workbook 1 page 114 No 1.

