



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 4**)

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

**By the end of the lesson learners should know and be able to** by construction, investigate the angles in a triangle, focusing on the relationship between the exterior angle of a triangle and its interior angles.

**3. RESOURCES:** DBE Workbook 1, Sasol-Inzalo Book 1, textbooks, ruler, protractor, pencil, eraser.

**4. PRIOR KNOWLEDGE:**

- angles
- triangles

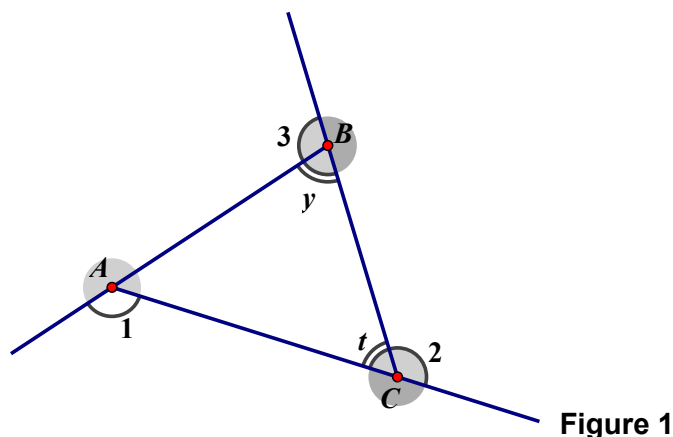
**5. REVIEW AND CORRECTION OF HOMEWORK (suggested time: 10 minutes)**

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:**

Ask learners to use the figure below to answer the questions that follow:



- Which angles are interior angles?
- Which angles are exterior angles?
- Complete the table below.

Exterior angle	Interior adjacent angle	Interior opposite angles

**Note:**

- An interior angle is an angle that lies between two sides of triangle, it is inside the triangle.
- An exterior angle is an angle between a side of a triangle and another side that is extended and it is outside the triangle.



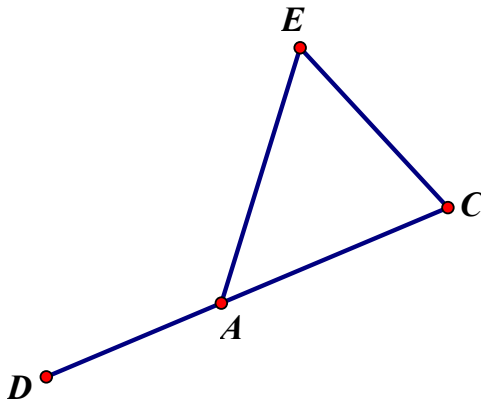
**7. LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes)

**Teaching activities**

Draw a diagram similar to Figure 2 on the chalkboard. Learners should also draw the diagram in their books. Learners should then do the activity below working in pairs.

**Activity 1**

In the Figure 2, ECA is a triangle. DC is a straight line segment.



**Figure 2**

1. Name the exterior angle.
2. Which angles are interior opposite angles to this exterior angle?
3. Measure and record the size of the interior angles
4. What is the sum of the interior angles?
5. Measure and record the size of the exterior angle
6. Complete:  $\hat{E} + \hat{C} =$
7. How does the exterior angle compare to the interior opposite angles?

Consolidate the activity by completing the table like the one below using learner measurements.

Pair	Interior opposite angles		Sum of interior opposite angles	Exterior angle
	$\hat{E}$	$\hat{C}$	$\hat{E} + \hat{C}$	$D\hat{A}E$
1				
2				
3				
4				

**Learning activities**  
(Learners are expected to:)

- draw a figure that looks like Figure 2 in their books.
- answer the activity questions.
- draw conclusions from table completed during consolidation.



### Activity 2

- allow learners to construct any triangle.
- let them extend one of the lengths of the sides by 3cm.
- Learners identify the exterior angle and the 2 interior opposite angles.

**NB:** An exterior angle is the angle between the side of a triangle and another side that is extended.

- Let learners measure the sizes of the interior opposite angles and the exterior angle using a protractor.
- Allow learners to compare and discuss their findings above. They should discover that the exterior angle of a triangle is equal to the sum of the two interior opposite angles.

- construct figure in their books.
- draw conclusions from their findings

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

### Activity 1

Construct  $\triangle STD$  with  $ST = 6\text{ cm}$ ,  $\hat{STD} = 65^\circ$  and  $TD = 7,5\text{ cm}$ . Extend  $TD$  to  $K$  such that exterior angle  $SDK$  is formed.

Your diagram should look as follows:

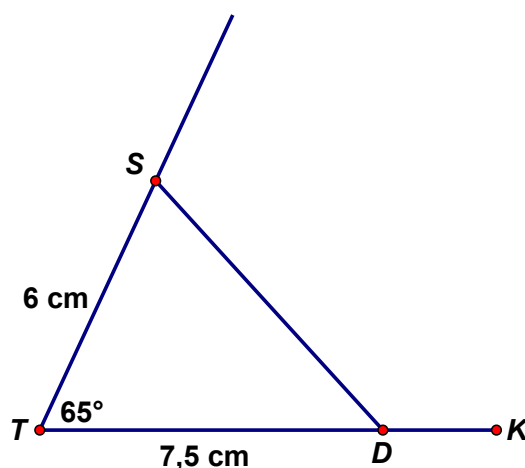


Figure 3



- Measure and record the size of  $\widehat{TSD}$ .
- Measure and record the size of  $\widehat{SDK}$
- Calculate  $\widehat{TSD} + \widehat{STD}$
- How does  $\widehat{TSD} + \widehat{STD}$  compare to the size of  $\widehat{SDK}$  ?
- What conclusion can be made from the above observation?

### Activity 2

Do the investigation on page 186 no 1 - 4 of the Sasol-Inzalo Book 1

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

### a) **Emphasise that:**

- An interior angle is an angle that lies between two sides of triangle, it is inside the triangle. A triangle has three angles.
- An exterior angle is an angle between a side of a triangle and another side that is extended. It is outside the triangle.
- An exterior angle of a triangle is equal to the sum of the two opposite interior angles.

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.

