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 1)**

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:
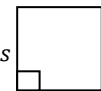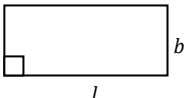- squares,
- rhombus
- rectangles
- parallelograms

3.	**RESOURCES:**	DBE workbook, Sasol-Inzalo book1, textbook, ruler, scissors Shapes of polygons
4.	**PRIOR KNOWLEDGE:**	- calculation with whole numbers - properties of 2D shapes - equations - substitution - calculation with whole numbers - Theorem of Pythagoras - Formula for area of a rectangle and a square

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

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

Revise with learners the following work done in Grade 8 by asking them to:
- define:
  - perimeter of a polygon: The sum of lengths of its sides or the distance along the sides of a shape.
  - area of a polygon: The amount of space covered by the polygon or the size of the flat surface enclosed by the polygon.
- list the properties of the following polygons: square, rhombus, rectangle and parallelogram
- define the following:
  - a square in terms of a rhombus
  - a rectangle in terms of a parallelogram
- Convert between appropriate SI units.
  - $1\ cm = 10\ mm$ then $1\ cm^2 = 10\ mm \times 10\ mm = 100\ mm^2$
  - $1\ m = 100\ cm$ then $1\ m^2 = 100\ cm \times 100\ cm = 10\ 000\ cm^2$

- Write the formula for the perimeter and area of polygons in the table below:

Name	Shape	Perimeter	Area
Square	s	P = $4s$	A= s^2
Rectangle	b l	P= $2(l + b)$	A= $length \times breadth$ = $l \times b$

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Grade 9 Lesson Plan: 1 + 4 Intervention Model – Term 2
AREA AND PERIMETER OF 2D SHAPES: Area and perimeter (Lesson 1)
(Draft)

Page 2 of 5

| 7. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes	
Teaching activities	**Learning activities** (Learners are expected to:)

Show learners how to derive the formula for calculating the area of a parallelogram and a rhombus
 	
Activity 1
 	
   (a) Give learners shapes of parallelogram to cut out and follow the steps thereafter.
Step 1: Cut off the parallelogram along the perpendicular height.
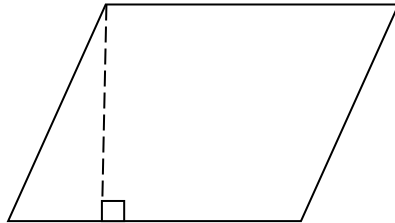 	
Step 2: Translate the triangle to the other side of parallelogram as shown below such that it forms one figure.
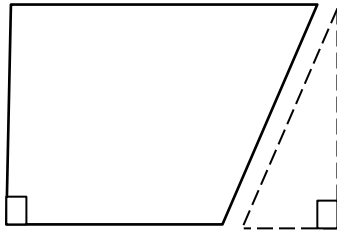 	
Step 3: Identify the newly formed shape after translating the triangle
Step 4: Write down the area of a parallelogram in terms of the rectangle
Step 5: Identify the length and breadth in the rectangle
Step 6: Write down the formula of calculating the area of a parallelogram.
 	
Example 1: The diagram below shows a parallelogram with sides $7,3\ cm$; $5,5\ cm$ and height $3,8\ cm$.
   a) Calculate the perimeter and area of the parallelogram.
   b) Convert area to m^2
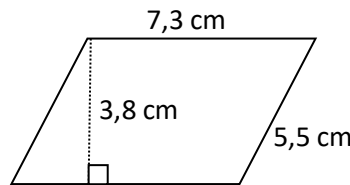 	
Solution:
   a) Perimeter $= 2(s_1 + s_2) = 2(7,3\ cm + 5,5\ cm) = 25,6\ cm$
Area $= b \times h = 7,3\ cm \times 3,8\ cm = 27,74\ cm^2$
 	
   b) $27,74\ cm^2 = 27,74 \times 0,0001\ m^2 = 0,002774 m^2$
	be actively engaged during lesson presentation by answering questions
	
	do activity 1 following the instructions.

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Grade 9 Lesson Plan: 1 + 4 Intervention Model – Term 2
AREA AND PERIMETER OF 2D SHAPES: Area and perimeter (Lesson 1)
(Draft)

Page 3 of 5

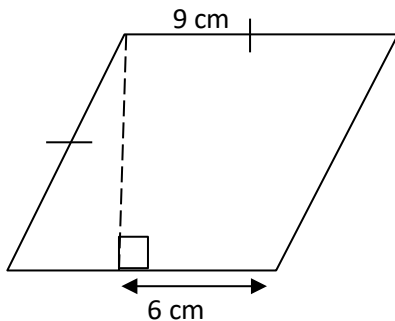|	
Activity 2 Give learners shapes of rhombi to cut out and follow the steps as done in to develop the formula for calculating the area of a rhombus**.** **Example** Calculate the **perimeter** and the **height** of a rhombus with base length $3,9\ cm$ and area $= 31,2\ cm^2$. Solution: $Perimeter = 4s$ $$= 4 \times 3,9\ cm$$ $$= 15,6\ cm$$ $$base \times height = Area\ of\ rhombus$$ $$3,9\ cm \times height = 31,2\ cm^2$$ $$height = \frac{31,2\ cm^2}{3,9\ cm}$$ $$= 8\ cm$$	Learners do Activity 2in groups and then discuss their conclusions with the whole class.

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

1. Calculate the perimeter and area of square with a length of $8\ cm$ and convert answers to mm or mm^2

2. The area of a rectangle is $72\ cm^2$ and its length is $8\ cm$. Calculate the breadth in m.

3. Calculate the area of the parallelogram below
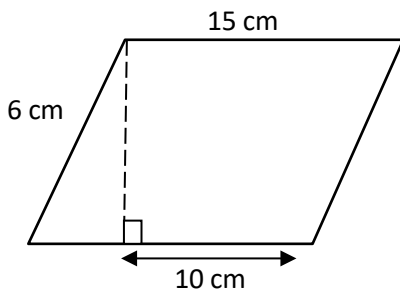
4. Calculate the area of the rhombus below.

5. DBE workbook 1 R14 page xlii no 1 and 2
   Sasol-Inzalo book 1 page 257 no. 3 (a)

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Grade 9 Lesson Plan: 1 + 4 Intervention Model – Term 2
AREA AND PERIMETER OF 2D SHAPES: Area and perimeter (Lesson 1)
(Draft)

Page 4 of 5

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

(a) Emphasise that:

A square is a regular polygon (All sides and all angles are equal). The formulae for calculating the perimeter of a square and a rhombus are the same.

A rectangle, a parallelogram and a rhombus are irregular polygons. The formulae for calculating the perimeter of a square and a rhombus are the same. The formulae for calculating the perimeter of a square and a rhombus are the same.

(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 book 1, DBE workbooks and/or textbooks for learners' homework. The selected activities should address different cognitive levels.

Homework:
Sasol-Inzalo book 1 page 257 no. 1 (a) – (d)
Sasol-Inzalo book 1 page 258 no. 2 and page260 no. 2 (a) and (c)

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Grade 9 Lesson Plan: 1 + 4 Intervention Model – Term 2
AREA AND PERIMETER OF 2D SHAPES: Area and perimeter (Lesson 1)
(Draft)

Page 5 of 5