PEAS Scheme of Work: Mathematics

SENIOR ONE

peas

PROMOTING EQUALITY IN AFRICAN SCHOOLS

Peas

SCHEME OF WORK

SUBJECT: Mathematics   Class: S.1   Term: ONE   Teacher's Name:

Time allocation: 5 periods - Lessons indicated in green are triple lessons

When it comes to planning your lessons use the structure: starter, I do, we do, you do, plenary. The starter is a written task that reviews previous learning. Ensure your lessons provide regular and extended opportunities for independent practice.

YPR:
Y= yes, I taught the lesson
P= I partially taught it e.g. I didn't get through all the content.
R= I taught the lesson, but I think students would benefit from a review

Week Subtopics	Learning outcome	Methodology	Teaching/ Learning resources	Y P R
1.1 Representing numbers on an abacus	Representing numbers on an abacus	• The teacher assigns a number grid of (Number base vs numerals) and asks learners to represent numerals of numbers in different bases. • Learners working in groups, fill the table. • Still working in groups, the learners represent numbers (34,70 and 24) on an abacii in groups of 10, 8 and 6 respectively. • Individual learners draw abacii in their exercise books and represent the same numbers (34,70 and 24) on abacii in groups of 5,4 and 3.	Oxford active mathematics bk 1 page 2 -3 Abacii	
1.2 Numbers of different bases on an abacus	Identify numbers in any base using abacus	• Teacher, demonstrates using an example how to identify numbers on abacus with a given base. • Groups learners and guides them as they solve problems. • In pairs, the learners solve more problems. • Gives more questions and asked them to solve individually	Bottle tops to act as counters Bicycle spokes to act as stands on which the bottle tops will be placed, hard paper were the spokes will be placed ICT to reinforce the understanding of abacus to learn bases	
1.3 Identifying the place value in different bases.	Identify place values on an abacus.	• The teacher reminds the learners the concept of place values. • Asks learners to work in pairs and write down the place values of numbers on abacii. • Individual learners represent the numbers 5555_{ten} and 5555_{six}. • Individual learners work on more problem sets in their exercise books.	Baroque new curriculum secondary mathematics bk 1 pg 2 Oxford active mathematics learners' book 1 page 6 - 7	

2.1 Converting Numbers	Converting from any given base to base ten and from base ten to any base	• Teacher demonstrates to the learners how numbers are converted to base ten.
		• Example 45_{eight}
		  ○ Solution
		  ○ 37
		• Learners are given tasks on conversion and asked to work in pair's e.g.
		• 123_{four} to base ten
		• 653_{eight} to base ten Learners present their work i.e. 2-3 pairs.
		• Assesses individual learner by giving an evaluation exercise
			Ladders steps to act as powers Baroque Lower Secondary curriculum Learners book1 ;Pg 5 Baroque Lower Secondary Curriculum teachers guide book 1 ;Pg 5	

2.2 Converting numbers	Convert from a given base to any base other than base ten.	• The teacher uses a worked example to show learner how numbers can be converted from one base to any base other than ten say 647_{six} to base nine. • The teacher gives the learners more problem sets and guides as they work in pairs. • The teacher assigns more problem sets to the learners to work out in their individual exercise books.		
2.3 Operation on numbers in various bases	Add numbers in various bases	• The teacher, using an example, demonstrates how addition of numbers in different bases are emphasizing that the operation is done on digits in the same place values as you do with usual addition in base ten. • Learners working in groups do activity 1.4(a) in Baroque new lower curriculum secondary mathematics book one on page 6. Let them present their findings to the class. • Each learner, working individually, works on more problem sets on addition of numbers provided by the teacher in their exercise books.	Collect oranges from different trees and put them in the same basket Peter had ten pancakes in the same bucket. Baroque Lower Secondary curriculum Learners book 1; Pg 7-8 Lower secondary school Curriculum teachers guide book 1; Pg8	

3.1 Operation on numbers in various bases	Be able to subtract, multiply and divide numbers in bases	• Explain the required procedures involved in multiplication and division of number bases • Asks learners to work out some questions in groups • Learners are given individual tasks	Use locally available materials for example stones of different sizes and put them in a heap of seven Baroque Lower Secondary curriculum Learners book 1 ;Pg 9-10 Baroque Lower Secondary Curriculum teachers guide book 1 ;Pg 9	
3.2 Operation on numbers in various bases	Find the unknown base	• Guides learners on how to multiply numbers with unknown base for example find the value of n in $45_n = 29$ • Group learners and tasks them to present their work , learners present their work on the chalk board • Task each learners with more question on determining unknown base. • Gives activity of integration.	Baroque Lower Secondary curriculum Learners book 1 ;Pg 7 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 7	
3.3 Activity of integration		• The teacher communicates the expectations from the learners		
4.1 Natural numbers Use of directed numbers	Identify, read and write natural numbers as numerals and words Differentiate between natural numbers and whole numbers Identify directed numbers	• Ask learners to collects ten stones and pair them, how many pairs are there • In groups, increase to 14 stones and find how many pair? • Still in your groups, discuss how many pair would be formed with 16 stones? • As an individual increase to 35 stones and find how many pairs and what is the remainder? • The teacher, emphasizes that directed number are numbers with positive or negative signs.	Collect ten stones and pair them, how many pairs are there ICT to reinforce understanding of natural numbers Baroque Lower Secondary curriculum Learners book 1 ;Pg 14 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 14	

		• Ask learners to work in groups and identify directed numbers. • Individual learners are provided with more problem set to work out.		
4.2 **Addition and subtraction of integers**	Add numbers on a number line Subtract numbers on a number line.	• Explains how numbers are written on the number line that is to say a number line has two sides, the positive and negative sides(right and left respectively). • The teacher emphasizes that addition of numbers on a number line maintains the direction and subtraction reverses the direction. • Describe to learners how to move steps on a number line when adding positive and negative integers • Learners discuss tasks in their groups differently	Order the numbers and locate them on a number line Baroque Lower Secondary curriculum Learners book 1 ;Pg 16-17 Baroque Lower Secondary Curriculum teachers guide book 1 ;Pg 17-18	
4.3 **Multiplication and division of integers**	Multiply and divide integers	• The teacher uses examples to illustrate how the operations are made. • The teacher also emphasizes that operation on numbers with like signs result in a positive answer and unlike signs result in negative answers. • Assigns problems to learner to solve in groups	Oxford active mathematics bk 1 page 34 and 35	
5.1 **Mixed operations on integers**	The learner uses the hierarchy of operations to carry out mixed operations on integers.	• Teacher demonstrates with worked examples. • Assigns learner group problems to solve. • Each individual learner works on more problem set in their exercise books.	Oxford active mathematics bk 1 pg 37	

5.2 **Even, odd, prime and composite numbers**	Identify even, odd, prime and composite numbers Find the prime factors and multiples of any number	• Introduces the lesson by asking learners to define the key words and went on to explain basing on the learners views and harmonizes. • Asks learners to form groups to discuss and outline even numbers, odd numbers and later harmonizes. • Tasks each learner to list five even, odd and prime numbers from 5 to 30	Calculator for easy simplification of the work ICT integration used to factorize numbers Baroque Lower Secondary curriculum Learners book 1 ;Pg 19 Baroque Lower Secondary Curriculum teachers guide book 1	
5.3 **Prime Factors and multiple of any numbers**	Define prime factors Identify multiples of any numbers	• Define prime factors and multiples and demonstrates how to find prime factors and multiples of different numbers. • Ask learners to pair up and identify the prime factors and multiples of a) 12 b) 30 c) 42 as they write in their exercise books. • Ask individual learners to investigate the factors of numbers 1 to 30: • Which numbers have just two factors? • Which numbers have an odd number of factors?	Baroque Lower Secondary curriculum Learners book 1 ;Pg 21 Baroque Lower Secondary Curriculum teachers guide book 1 ;Pg 21	
6.1	Find the prime factorization of any number. Relate common factors with(HCF) and multiples with (LCM) Perform activity of integration (drawing a time table)	• Teacher demonstrates how to express a number as a product of its prime factors by showing an example. • Relates common factors with HCF and multiples with LCM using prime factorization. In groups, learners discuss the HCF and LCM of • 54 and 48 • 132, 156, 204 and 228 • Assigns learners to express numbers as product of their prime factors and hence find their HCF	Calculator for easy simplification of the work Use of ladders Baroque Lower Secondary curriculum Learners book 1; p g 22-27 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 23	
6.2 **Activity of integration**		• The teacher communicates the expectations of the learners from the activity of integration		

6.3 Fractions	Describe the different types of fractions. Convert improper fractions to mixed fractions and vice versa. Work out problems from real life situations.	• Introduces the topic by asking learners what they know about fractions. • Asks learners to discuss the different types of fractions and give examples in each case. Present their findings. • Each individual learner works out more problems from real life situations.	Charts for cutting out different parts to act as fractions Use of sticks for divisions into fractions ICT integration showing division of objects	
7.1 Equivalent fractions	The learner identifies equivalent fractions	• The teacher works out an example for the learners on simplification of fractions to their equivalent forms. • Assign a problem for learners to solve in pairs. • Assigns each individual learner more problems to work out in their exercise books.	Oxford active mathematics bk one pg 52	
7.2 Addition and subtraction of fractions	Learners should be able to ; Add and subtract fractions.	• Demonstrates to the learners how fractions are added and subtracted by working out examples of blackboard. • Groups learners and assign different tasks/ problems to discuss in each group. • Assigns learners problems to work out in their exercise books individually.	Pieces of oranges being added together Charts for demonstrations Baroque Lower Secondary curriculum Learners book 1 ;pg 34 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 31	
7.3 Multiplication and division of fractions	Multiply and divide fractions	• Ask learners how fractions are multiplied and divided and harmonizes learners responses. Then do an example on the blackboard. • Pair up learners and assign different tasks from the learner's books e.g. • ¼ x ¾ • 1 1/3 ÷1/6 • Learners present their answers for marking as a pair	Natural numbers for multiplying Calculators Baroque Lower Secondary curriculum Learners book 1; Pg 35 -39 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 32 -33	

8.1 Mixed operations on fractions	The learner performs mixed operations on fraction	• The teacher uses an example and emphasizes the hierarchy of operations on numbers when performing mixed operations. • Learners working in groups solve a problem provided by the teacher and present their answers to the rest of the class. • Each individual learner works on more sets of problems in his or her exercise book.	Oxford active mathematics bk one page 60 - 61	

8.2 Converting fractions to decimals and classification of decimals as terminating, non-terminating and recurring decimals.	Convert fractions to decimals
	Convert decimals to fractions
	Identify and classify decimals as ;
	  a) Recurring decimals
	  b) Terminating decimals
		• Demonstrates to learners using the 5 cards with numbers 1,4,6,8 and one card with a decimal point. Arranges cards in different formats.
		• Asks learners to discuss the different card numbers arranged by the teacher. Present this work.
		• Tasks individual learners work out more problems converting fractions and decimals.
			Use of calculators
			Baroque Lower Secondary curriculum Learners book 1 ;Pg 39- 40
			Baroque Lower Secondary Curriculum teachers guide book 1; Pg 34	

8.3 Conversion of recurring decimals into fractions	Convert recurring decimals into fractions	• Illustrate to learners how to convert recurring decimals into fractions. • Task learners to discuss some problems in groups and present their answers. • Assign learners problems with recurring decimals which involve terminating and non-terminating, to work on individually.	Use of calculators Baroque Lower Secondary curriculum Learners book 1 ;Pg 40 Baroque Lower Secondary Curriculum teachers guide book 1;30	
9.1 Converting percentages into fractions and decimals into percentages	Convert fractions and decimals into percentages	• Demonstrate to learners to understand percentages as fractions with denominator 100. Continue by developing strategies for converting decimals into fractions. • Ask learners in their groups to convert different fractions and decimals into percentages.	Use of calculators Baroque Lower Secondary curriculum Learners book 1 ;Pg 42-43 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 39	

		• Learners work on more problems of conversions individually in their work books.		
9.2 Percentage of a given quantity and percentage increase and decrease	Calculate percentage of a given quantity. Calculate the percentage increase and decrease	• Teacher starts by giving a scenario such as "Peter scored 21 marks on a midterm exam out of 30. What percentage did he score?" • Learners discuss the scenario in groups and calculate an answer. • Explains the key words "increase" and "decrease" in relation to percentages. • Ask learners to increase and decrease certain quantities using percentages in groups. • Task individual learners to work out problems in exercise books.	Use of calculators Baroque Lower Secondary curriculum Learners book 1 ;Pg 42 -44 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 37	
9.3 Activity of integration	Activity of Integration	• The teacher communicates the expectations from the students.		
10.1 Regular Cartesian coordinates in 2 dimensions	Identify the y and x -axes Draw and label the Cartesian plane	• Demonstrate using a graphical board the x-axis and the y-axis. • Further demonstrates to the learners how to draw an plot coordinates on the Cartesian plane e.g. (2,6), (0,3), (3,0) • In pairs, learners discuss and plot different co-ordinates in their graph book.	Graphical board for demonstrations Graph books Horizontal and vertical lines to act as x and y-axis Mathematical set	
10.2	Read points plotted on the Cartesian plane	• Demonstrate using (x, y) to enable learners to read plotted points on the Cartesian plane. • Learners discuss and read out different plotted points in learners books.	Graphical board for demonstrations Graph books Horizontal and vertical lines to act as x and y-axis Mathematical set	

		• Ask individual learners to read out each plotted point on the Cartesian plane		
10.3	Complete shapes on coordinates	• Review the previous lesson about plotting coordinates • Illustrates using graphical board on how to connect coordinates plotted using a ruler and pencil. • Ask learners to connect different coordinates and name shapes formed. • Provide work for learners to complete individually in their graphical books	Mathematical set Baroque Lower Secondary curriculum Learners book 1; Pg 53 Baroque Lower Secondary Curriculum teachers guide book 1 Pg 45	
11.1	Choose and use appropriate scale for bi-variable data sets	• Demonstrate by collecting data of ages of students in class and illustrates to learners on how to select a suitable scale in books. • Ask learners in pairs to select suitable scale for some values like 15,17,20,24 etc. • Ask individual learners to plot the above figures after getting suitable scale.	Calculator for easy simplification of the work	
1**1.2** **Activity of integration**		• Communicates the expectations from the learners after doing the activity of integration.		
12	Week 12 should be used for catching up on delayed content, marking, or reviewing and preparing for assessment.			

Subject: Mathematics   Class: senior one   Term: two   Teacher's Name:

When it comes to planning your lessons use the structure: starter, I do, we do, you do, plenary. The starter is a written task that reviews previous learning. Ensure your lessons provide regular and extended opportunities for independent practice.

YPR:

Y= yes, I taught the lesson

P= I partially taught it e.g. I didn't get through all the content.

R= I taught the lesson, but I think students would benefit from a review

Week Subtopics	Learning outcome	Methodology	Teaching/ Learning resources	Y P R
Theme: Geometric constructions **Competency:** The learner uses the angle properties of lines and shapes to solve problems			
1.1 **Perpendicular and parallel lines**	Construct perpendicular lines	• The teacher starts by defining and explaining perpendicular lines. • Explains how a line is drawn. • In pairs, learners construct a perpendicular line through a given point using a ruler and pair of compasses. • Still working in pairs, the learners construct a perpendicular line through a given point using a set square. • Individual learners work draw a perpendicular line from a given point to a line using a set square.	Mathematical sets Rulers and pencils Baroque Lower Secondary curriculum Learners book 1;Pg58 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 49-51	
1.2 **Construction of parallel lines and angles**	Construct parallel lines and angles	• Teacher explains what a parallel line is. • Asks learners to work in pairs and construct parallel lines using ruler and pair of compasses borrowing from the knowledge obtained from the previous lesson.	Mathematical sets Baroque Lower Secondary curriculum Learners book 1 ;Pg58 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 52	

		• Individual learners construct parallel lines using a ruler and a set square	Oxford active mathematics bk 1 pg 95	
		• The teacher explains what is meant by an angle. • Asks learners to work in pairs and construct angles of 90° and 60°. • Asks individual learners to construct angles of 15° and 120°		

1.3
Describing locus
	Describe a locus of point:
	- Equidistant from two fixed points.
	- At a given distance from a fixed point
	- At a given distance from a fixed line.
		• The teacher uses clock movements to explain what is meant by a locus.
		• Working in groups, the learners sketch the locus of the furthest point made by the movements of a tethered goat. And also the locus made by a the center of bicycle wheel as it moves along.
		• As individuals, each learner describes the loci of:
		   − The knob of a door as it is opened through a given angle.
		   − The centre of a skipping rope as a child skips.
			Mathematical sets
			Baroque Lower Secondary curriculum Learners book 1;Pg 60
			Baroque Lower Secondary Curriculum teachers guide book 1;Pg57	

2.1 **Describing locus**	Describe the locus: − Of a point equidistant from a fixed point and line (parabola) − Showing the sum of the distance from two fixed points (ellipse)	• The asks learners to use graph books and draw the locus from a fixed point and a line (parabola) • Working in groups, the learners do as the teacher has instructed. • Each individual learner draws a locus showing the sum of the distance from two fixed points is a constant (ellipse)	Oxford active mathematics bk 1 pg 99	

2.2 **Polygons, length and angles**	Draw polygons, Measure length and angles of polygons	• Define a polygon and describes how polygons are drawn and how angles and length are measured. • As a group, learners identify 3 polygons and construct them accurately and measure their lengths and angles. • In their exercise books, students construct a regular hexagon and measure its angles.	Mathematical sets ICT integration(video showing house plans and other drawn polygons)	
2.3 **Geometrical figures**	Construct triangles	• The teacher constructs a triangle of two given side and an included angle. • Learners working in groups, construct a triangle when given two angles and a side. • Each individual learner constructs, a triangle given the three sides. • Each individual learner works on more problem sets given by the teacher.	Black board set.	
3.1 **Geometrical figures**	Constructing a figures of more than three sides.	• The teacher constructs a rectangle and square. • Asks learners to work in groups and construct a parallelogram and rhombus. • Asks each individual learner to construct a trapezium.	Black board set Oxford active mathematics bk 1 page 103 - 104	
3.2 **Geometrical figures** **Activity of integration**	Construct a regular pentagon	• The teacher asks each individual learner to construct a regular pentagon. • The teacher communicates the expectations from the learners after the activity of integration		

Theme: Sequence and number patterns
Competency: The learners explore number patterns and sequences

3.3 **Draw and identify number patterns**	Draw and identify number patterns	• Introduce the topic by asking what learners know about the topic. The teacher then describes what a pattern is and how it is generated. • In groups, learners make a 1 to 100 number square and: a) Shade in multiples of 3 b) Describe the pattern they have shaded • In their exercise books, learners then identify which position in the pattern is #93, if 3, 6, and 9 are the 1st, 2nd and 3rd in the pattern. The teacher can then assign different numbers to repeat the same exercise	Baroque Lower Secondary curriculum Learners book 1;Pg71-72 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 65 Charts/manila paper	
4.1 **Describing the general rule**	Describe a general rule for finding numbers in a number pattern	• Describe to learners how to find the next and missing numbers in a sequence by explaining the general rule when identifying patterns. • Learners are tasked to discuss what missing and next numbers are and then ask them to identify the missing numbers in the following sequence (or any other sequence the teacher provides) A) 12, 17, 22, _, _, _, _, _ B) 2, _, _, 8, 10, 12, _,_,_, • Individually, learners then repeat the same exercise: a) 1, 2, 7,__ , 13,___, 19_	Baroque Lower Secondary curriculum Learners book 1;Pg 72 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 67 Internet computer tables and designs	

		b) _, 4, 9, 16, _ _ __64, __		
4.2 **Generation of number sequences**	Generate a number sequence	• Demonstrate a formula for generalizing a sequence e.g. 2n-1 for n= 3, 4, 5, 6 • Ask learners to work out in groups to generate a sequence using: a) 5n +6 b) 6n +2 • Individual learners develop a formula where the unknown numbers will be from 3 up to 8 and then find a sequence.	Baroque Lower Secondary curriculum Learners book 1;Pg 73-74 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 68	
4.3 **Generating a sequence using a number machine**	Generate a sequence using a number machine.	• The explains what a single number machine is and uses an example to illustrate how it works. • Learners working in groups, generate patterns using single number machines. • Each individual learner generates a number sequence using a double number machine.	Oxford active mathematics bk 1 pg 113 NCDC new curriculum prototype	
5.1 **Formulae for general terms**	Determine the formulae for a general terms through identifying the nth term	• Illustrate how to find the nth term using a formula by working out a problem e.g. for a sequence 3, 7, 11, 15… Find: a) The next three terms b) The 100th term • In groups, find and discuss the next and 1000th term and later exchange their answers with another group for marking.	Baroque Lower Secondary curriculum Learners book 1;Pg 73 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 69	

		• In their exercise books, learners work on another sequence. The formula for the nth term is n^2 1, 4, 9, 16, 25 Learners identify the formula for the nth term of the following sequences: a) 0, 3, 8, 15, 24 b) 10, 13, 18, 25, 34		
5.2 **Activity of integration**		• The teacher communicates the expectations from the learners after the activity of integration.		

Theme: Geometry measures/Bearings
Competency: Learners should be able to understand and use compass points, bearings and scale drawings

5.3 **Compass direction**	Draw and label the compass direction	• Define bearing and reviews the compass direction with all its points shown. • Learners are asked to discuss and draw a labelled compass direction in their exercise books. • In their exercise books, learners draw a compass direction, measure and state the angle for each point.	Geometrical instrument for constructions Baroque Lower Secondary curriculum Learners book 1;Pg 77-79 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 72 Graph books Compass to show direction i.e. from weather gage	
6.1 **Describing the direction of a place from a given point**	Describe the direction of a place from a given point using a compass direction.	• Teacher tells learners that with directions we use cardinal points of the compass and illustrates to them how it is done. • Asks learners to discuss the directions of different buildings in the school in their groups.	Geometrical instruments Graph books Baroque Lower Secondary curriculum Learners book 1 ;Pg79 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 73	

		• Individually, learners identify the direction to their home from school		
6.2 **Describing the bearing of a place from one given point to another**	Describe the bearing of a place from a given point	• Describe to learners how bearings are obtained using angles and that they must be in 3 digits i.e. 045◦, 100◦, 135◦, etc. • Illustrates how angles of bearings are measured starting from the North line and moving clockwise using a protractor. • In groups, learners measure the following angles on a compass direction: a) 060◦ b) 085◦ c) 145◦ • In their exercise books, learners state the bearing of: a) P from Q b) A from C (Or any problems set by the teacher)	Geometrical instruments Baroque Lower Secondary curriculum Learners book 1;Pg 79-81 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 73	
6.3 **Describing the bearing of a place from one given point to another**		• The teacher does more examples on bearings. • Learners, working in groups solve more problem sets involving bearings. • Each individual learner works on more problems in their exercise books.		

7.1 **Sketches and scale drawings**	Draw a sketch diagram , Choose a suitable scale for drawing accurate diagrams	• Demonstrate to learners how to draw a sketch. • Then further demonstrate how to obtain suitable scales for large values and how to use the given scale, for example in converting from KM to CM. • Assign learners a task to discuss in groups and draw a scale drawing to show the position of a ship which is 270km away from a point on a bearing of 110◦. • In their exercise books, learners then make a scale drawing to find the distance and bearing of the hospital from Henry's home in the below problem: "Henry's school is 4km away from his home on a bearing of 070◦. The market is 2km away from the school on a bearing of 250◦. The hospital is 6km away from the market.	Mathematical sets Baroque Lower Secondary curriculum Learners book 1; Pgs. 80-81 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 74	
7.2 **Sketches and Scale drawings**	Choose suitable scale for drawing accurate diagrams.	• The teacher does further examples for the learners on the drawing of accurate diagrams using a suitable scale. • Working in their groups, the learners solve more problem sets and present their findings to the class. • Each individual learner is assigned more problem sets to solve in their exercise books.	Mathematical sets Baroque Lower Secondary curriculum Learners book 1; Pgs. 80-81 Baroque Lower Secondary Curriculum teachers guide book 1; Pg 74	

7.3 **Differences between a sketch and a scale drawing**	Differentiate between a sketch and a scale drawing	• Explain to learners about a sketch and its components and a scale drawing and its components. • Learners are tasked to discuss different diagrams and identify whether they are sketches or scale diagrams. • Learners are assigned with different problems involving application of bearing to real-life situations which involves them to come up with sketches and scale drawings.	Foundation of buildings and the final constructions	
8.1 **Activity of integration**		• The teacher communicates the expectations of the learners from the activity of integration.		
Theme: Geometry and measures **Topic:** General and angle properties of geometric figures **Competency:** The learner uses the angle properties of lines and shapes to solve problems				
8.2 **Different angle types**	Define angles Identify different types of angles	• The teacher draws angles on a straight line and explains what is meant by adjacent angles. • Learner working in pairs draw given angles at point which should add up to 360° • Each individual learner draws vertically opposite angles in their exercise books	Hands for determining a space between two given lines ICT integration showing shapes of different polygons and angles Black board set	
8.3 **Different angle types**	Identify different types of angles (Angles on a transversal)	• The teacher explains what is meant by angles on a transversal, corresponding angles, alternate angles. • Learners working in groups, determine the sizes of the angles marked on given figures provided by the teacer eg a parallelogram.	Oxford active mathematics book 1 pg 138 -139	

		• Each individual learner works out the sizes of transversal angles marked on various figures		
9.1 **Angle properties of polygons** **(Interior angles of a polygon)**	Use angle properties of polygons to solve problems	• The teacher describes interior angles using a polygon. • Teacher emphasizes how the interior angle sum of a polygon can be calculated. • Learners working in groups calculate the interior angles of a regular polygon that has seven sides.	Oxford active mathematics book 1 pg 140	
9.2 **Angle properties of polygons** **(Exterior angles of a polygon)**	Use angle properties of polygons to solve problems	• The teacher explains what exterior angles are using a triangle . • Teacher emphasizes how exterior angles are obtained. • Learners working in groups work out more exterior angle of polygons given by the teacher. • Each individual learner works on more problem sets provided by the teacher.	Oxford active mathematics book 1 pg 143	
9.3 **Angle properties of polygons** **(Angle properties of a triangle)**	Use angle properties of polygons to solve problems	• The teacher draws four types of triangles on the black board and describes their angle properties. • Learner working in groups a given problem basing on what the teacher has described and share answers with the class. • Each individual learner works on more problem sets provided by the teacher.	Oxford active mathematics book 1 pg 146	

10.1 **Angle properties of quadrilaterals**	To state and use angle properties of polygons when solving problems.	• Illustrate different problems involving finding the number of sides exterior angles and interior angles of polygons. • In groups, learners find the size of each of the six angles at the Centre for the verticals of a regular hexagon and the ones at the Centre of the hexagon. • As individuals, learners find the sum of the interior angles of a polygon with: a) 22 sides b) 18 sides c) 12 sides	Shapes drawn on charts Mathematical instruments	
10.2 **Activity of integration**		• Teacher communicates the expectations of the learners		
Theme: Data and probability **Topic:** Data collection and presentation **Competency:** The learner collects and presents different types of data				
10.3 **Types of data**	Define data, chart, pie chart, qualitative and quantitative Distinguish types of data	• Introduce the lesson by defining and explaining key words like data, pictograms, pie-charts, quantitative and qualitative. The teacher illustrates more about the types of data. • In groups, learners identify which of the below key terms best described different types of data listed, with explanation: a) Qualitative data b) Discrete quantitative data c) Continuous quantitative data	Heights of students Ages of students Baroque Lower Secondary curriculum Learners book 1;Pg 96 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 90	

		1) Age 2) Birth place 3) Weight 4) World ranking 5) School life experiences 6) Height • In their groups, learners identify more examples of each type of data		
11.1 **Data collection**	Collect and represent simple data from the local environment using bar charts, tally charts and line graphs	• Teacher explains to learners how to collect data, organize it and interpret it using a tally chart, and then to display it using pictograms. • In groups, learners identify the means of transport that each learners uses to travel to school, and as a class see which is the most common. • Learners later present their findings to the class. • As an individual, learners draw pictograms to represent the data they previously collected in their groups.	Charts/ manila Paper Record books Ruler Calculator for adding data Baroque Lower secondary curriculum Learners book 1;Pg 97 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 91	
11.2 **Data Collection**	Collect and represent simple data from the local environment using bar charts, tally charts and line graphs	• The teacher illustrates to learner how data is represented on a line chart. • Teacher explains situations in which the line graph is the most suitable type of graph to use • Learners work in pairs and represent sets of data given to them on line graphs. • Each individual learner works on more problem sets provided by the teacher in their exercise books.	Oxford active mathematics bk 1 pg 159	

11.3 Bar charts	Draw and interpret bar charts	• Describe how bar charts are drawn using a pencil and ruler • Ask learners to work in groups to collect data of ages of the learners in their groups and then represent the data on a bar chart. • As individuals, learners identify how many learners have the same ages and how many have different ages	Example bar chart draw Baroque Lower Secondary curriculum Learners book 1;Pg 100 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 92 ICT integration to obtain data on population census and draw bar graph	
12.1 Pie charts	Represent data on pie-charts	• Demonstrates how pie-charts are drawn using a pencil and a protractor for measuring angles. The teacher also explains how angles are converted to degrees. • Displays a table showing some data e.g. sugar production in Uganda from 2015 to 2019. • As a group, learners draw a pie-chart to represent the data displayed in the table. • In their exercise books, learners find the % of sugar production in 2016 and 2019	Drawing of pie chart Mathematical instruments Lower Secondary curriculum Learners Baroque book 1;Pg98-99 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 93	
12.2 Activity of integration		• The teacher communicates the expectations of the learners from the activity of integration.		

Subject: Mathematics   Class: Senior One   Term: Three   Teacher's Name:

When it comes to planning your lessons use the structure: starter, I do, we do, you do, plenary. The starter is a written task that reviews previous learning. Ensure your lessons provide regular and extended opportunities for independent practice.

YPR:
Y= yes, I taught the lesson
P= I partially taught it e.g. I didn't get through all the content.
R= I taught the lesson, but I think students would benefit from a review

Week Subtopics	Learning outcome	Methodology	Teaching/ Learning resources	Y P R
THEME: REFLECTION **COMPETENCY: The learners reflect shapes in range of context and identify lines of symmetry**				
1.1 Symmetry	Identify lies of symmetry for different figures	• Introduce the topic by asking learners to define symmetry • Illustrates the uses of symmetry • Asks learners in their groups to fold a rectangular sheet of paper to determine perfect folding's they can make • Task learners individually to state and draw the line of symmetry for a square	Rectangular sheet of paper Pair of scissors Baroque Lower Secondary Curriculum learners book 1;Pg 106-107 Baroque lower secondary curriculum teachers guide book 1; Pg96	
1.2 Lines of symmetry	Stating the number of lines of symmetry	• Teacher gives learners a number of figures • Learners in their groups divide figures in the middle and sketch it, then state the number of lines of symmetry. • Individually learners draw the following polygons and state their lines of symmetry a) a triangle b) rectangle	Leaves and alphabetical letters Shape, circles and pair of scissor Lower Secondary curriculum Learners Baroque book 1;Pg107-108 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 97	

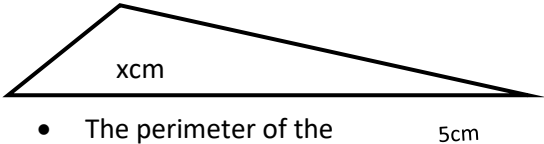|				
1.3 Reflection in the plane mirror	Identify the nature of reflection of objects in the plane mirror	• Asks learners to hold the plane mirror with their left hands. • Asks the learners in their groups to Move their hands forward and backward and state what happens. • Learners still working in groups draw the reflection of different objects on paper. • Asks the leaners individually to reflect other objects using the mirror • Each individual learner draws the reflection of more figures using a straight line to represent the mirror.	Plane mirror Pens sets marked manila cards	
2.1 Reflection in the Cartesian plane (Reflection in the x-axis and y axis)	Apply reflection in the Cartesian plane.	• The teacher emphasizes that the horizontal line on the cartesian plane is the x- axis. • The teacher draws the cartesian plane on the and plots any three points P (-3,0), Q(2,2) and R(4,0). • Learners working in groups reflect the above points on the horizontal line and join them. They then identify the shape formed. • Each individual learner find the coordinates of point P whose image after reflection is the point P'(8,3)	Oxford active mathematics bk 1 pg 172	

		• Individual learner work out in their exercise books more problem sets involving reflection in the x – axis and after draw the image after reflection in the y axis.		
2.2 Reflection in the cartesian plane (reflection in the line y = x and y = -x)	Apply reflection in the cartesian plane	• The teacher explains the lines y = x and y = - x • Learners work in pairs and reflect objects along the line y = x on the cartesian plane. • Each individual learner reflects objects on the line y = -x on the cartesian plane.	Oxford active mathematics bk 1 pg 174	
2.3 Reflection in lines x = k and y = k	Apply reflection in the cartesian plane	• The teacher explain what is meant by the line x = k and y = k. • Learners working in pairs reflect objects along the line y = k on the cartesian plane. • Each individual learner reflects the same objects on the line x = k • Individually learners work on more problems presented to them by the teacher.	Oxford active mathematics bk 1 pg 176	
3.1 Activity of integration		• Teacher communicates the expectations to the learners		
Theme: Equations on lines				
Competency: The learner understands and uses linear equations and their graphs				
3.2 Equations of lines (lines parallel to the x-axis and the y – axis)	Forming linear equations with given points	• Using an example the teacher models how an equation of a parallel can be formed from a set of given points. • The teacher emphasizes that for parallel lines the points on one axis remains the same as the ones on the other axis keep changing.	Graphical board Oxford active mathematics bk 1 pg 184 – 185	

		• Learners working in groups draw the line passing through the following points (0,1),(0,2),(0,4). They should state what they notice about the line and proceed to write down the equation of the line. • Each individual learner draws lines passing through the points (1,0),(-2,0) and (4,0). Stating what they notice and writing down the equation of the line.		
3.3 Equations of lines (not parallel to the axes)	Plot coordinates on graph paper. Find the equation of a line when given two pairs of coordinates	• Illustrate using the graphical board on how coordinates can be plotted on a Cartesian plane e.g. x-coordinates on the x-axis and y-coordinates on the y-axis. • Learners then describe the relationship between x and y coordinates in their groups. • Learners are then tasked to plot different pairs of coordinates and connect or join those points using a ruler in their graph books.	Rulers Charts Graphical board Graph books	
4.1 Drawing graphs of lines given the equation	Draw graphs of lines based on the equations	• Demonstrates to the learners and emphasizes that all linear equations must give a straight line. • In groups, learners are tasked to plot the below coordinates and then present their work to harmonizes understanding. | X	-2	-1	0	1	2
Y	-3	-1	1	3	5 | • Sets additional similar questions for learners to practice individually.	Graphical board Rulers Graph books	

4.2 **Drawing graphs of lines given the equation**	Draw graphs of lines based on the equations	• Demonstrate to the learners how to how to create a table of results. solve a graph of y= 2x+3 for -4 ≤ x ≤ 4 and then further explains • Learners then work in pairs to find the solutions to the different problems given e.g. • Draw a graph to represent the line of y= 2x +4 • Individually learners represent the line y =3x+6 in their graph books.	Mathematical sets Rulers Graphical boards	

4.3 **Plotting graphs**	Draw the graph of a line given its equation	• Demonstrate by reviewing the previous lesson and emphasizing on the procedures to be followed and also explains that when joining points in a graph, they should use free hand.
		• Learners are tasked to work in groups of 4 to solve a problem by plotting the following coordinates on a square graph paper and then join them with a smooth curve:
		(0,5), (1,0), (2, -3), (3, -4), (4, -3), (5,0), (0,5)
		    • Individually learners plot and join the A(0,1),B(4,5),C(-4,-8).
		• Tasks every learner to plot the following coordinated on graph paper:
		a) (-3, 6), (-2, 0), (-1, -4), (0, -6), (2, -4), (3, 0), (4, 6)
		b) Y= 2, X= -5, Y=X
		c) Y= -2X – 4, y= -X – 4
		    • Students present their work for marking
			Graph books
			Baroque Lower Secondary curriculum Learners book 1;Pg 116-117
			Baroque Lower Secondary Curriculum teachers guide book 1;Pg 102-103	

5.1 **Activity of integration**	Activity of integration	• The teacher communicates what he/she expects from the learners.		

Theme: Algebra 1
Competency: The learner forms and uses simple algebraic expression

5.2 **Use of letters to represent numbers**	Use letters to represent numbers. Recognize equivalent quadratic expressions	• Introduces the topic by asking learners to define the key terms and harmonizes the learners understanding. • In groups, learners discuss and solve a problem set by the teacher on the blackboard. • Individual learners are then tasked to simplify some expressions e.g. a) 2a + 3a + a b) a+ 2b+ 4a-b	Baroque Lower Secondary curriculum Learners book 1;Pg 120-123 Baroque Lower Secondary Curriculum teachers guide book 1;Pg107-108	
5.3 **Use of letters to represent numbers**	Use letters to represent numbers. Recognize equivalent quadratic expressions	• the teacher works out more examples on using letters to represent numbers. • Learners workout more problems provided by the teacher in their groups. • Each individual learners works on more problems in their exercise books.	Oxford active mathematics bk 1 pg 198	
6.1 **Agebraic expressions**	Generating algebraic expressions using a number machine	• Teacher models to the learners how a number machine works. • Asks learners to work in groups and generate algebraic expressions using number machines. • Each individual learner solves more problems using the number machine in their exercise books.	Baroque Lower Secondary curricullum Learner's book 1 pg 120 - 121	

6.2 **Use of letters to represent numbers**	Expand some algebraic expressions	- Asks learners the meaning of the word expansion, and then the teacher demonstrates expanding algebraic equations. - In groups, learners work on expanding different equations and then present their answers. - Individually, learners practice with more problems set by the teacher: a) $(2x + 1)(2)$ b) $(x+ y)(x+1)$	Baroque Lower Secondary curriculum Learners book 1;Pg 123 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 108	
6.3 **Writing statements in algebraic form**	Write statements in algebraic form and use it to solve problems	- Introduces the lesson by sharing an example: a number is multiplied by 10 and then 6 is added, to get 30. What is the number? - Learners discuss in their groups to find the answer. - Every learner is then tasked to write a statement in algebraic form and present their work for marking.	Baroque Lower Secondary curriculum Learners book 1;Pg 122-123 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 108 Charts	
7.1 **Writing statements in algebraic form**	Evaluate algebraic expressions by substituting numerical values	- Demonstrate how to solve algebraic expressions. - Learners are tasked in their groups to solve some algebraic expressions as given by the teacher. - Individually, learners then write some algebraic expressions: Solve the following equations a) $X + 5 = 8$ b) $4y = 12$ c) $5y - 6 = 6y -5$	Baroque Lower Secondary curriculum Learners book 1;Pg 122-123 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 108 Charts	

7.2 **Manipulating simple algebraic equations**	Manipulate simple algebraic equations in one variable and solve them.	- Start the lesson with a scenario: "30 books are bought for UGX 10,800. Some cost UGX 400 each and other cost UGX 300 each. How many books of each value are bought? - In groups, learners then draw a triangle and label as shown: xcm 5cm - The perimeter of the triangle is 26cm. Learners are tasked to calculate the value of X in the triangle.	Mathematical sets Charts Calculators to simplify expressions	
7.3 **Formation of equations from word problems**	Form algebraic equations from word problems	- The teacher illustrates with examples how an equation can be formed from a word problem. - Learners, working in groups solve more word problems and form equations from it. - Each individual learner is given more problem sets to work out in his or her exercise book. - Give learners more questions to practice e.g. a) Form a linear equation in terms of K. - Find the value of	Baroque lower secondary mathematics book 1 pg 125	
8.1 **Activity of integration**	Activity of integration	The teacher communicates the expectations of the learners after doing the activity of integration	Answer sheets	

Topic: Business arithmetic				
Competency: The learner understands and applies business arithmetic				
8.2 Describing and calculating profits	Describe and calculate profit and loss	- Ask learners to write their own definition of profit, Loss and how to calculate profit and loss in their respective groups. - Learners then present their ideas and the teacher harmonizes the discussion. - Learners then write the calculation for profit and loss in their exercise books and present their work for marking.	Baroque Lower Secondary curriculum Learners book 1;Pg 128-129 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 113	
8.3 Describing and calculating profit	Describe and calculate profit and loss	- Ask learners to define loss and profit - Learners discuss in their groups and then share their ideas. - Individually, learners write a summary of causes of losses and why insurance is important. - Learners individually also tasked with activities on profit and loss	Baroque Lower Secondary curriculum Learners book 1;Pg 130-132 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 113-114 Calculators	
9.1 Express profit as a percentage	Express profit or loss as a percentage	- Ask learners to brainstorm the formula for finding percentage profit. - In their groups, learners discuss and present their ideas to the class. The teacher harmonizes the discussion by displaying the correct formula on the board. - Learners write the formula in their exercise +books and later on use it in calculations of profit.	Calculators ICT integration using computers to calculate the profit	

9.2 Express loss as a percentage	Express profit or loss as a percentage	• Asks learners to brainstorm the formula for determining loss and expressing it as a percentage. • Learner's working in groups solve more problem sets expressing loss as percentage. • Individual learners are given more problem sets to work out in their exercise books.	Calculators
9.3 More worked examples on profit and loss	Express profit or loss as a percentage	• Asks learners to individually solve the following problems: a) A book is bought at 1500 UGX and sold at a profit of 40%. Find the selling price b) A trader sold an item at 7,000 UGX and made a loss of 12%. Find the cost price. c) A company selling newspapers spends UGX 1,500 to produce one newspaper and sells it at 2,000 UGX. On a given day, they produce 2000 copies and sell 1000 copies. What is their profit or loss daily? • Learners submit their work for marking	Calculators
10.1 Describing and calculating of discount	The learner calculates the discount	• The asks learners what they understand by the term discount and works out an example. • Learners working in groups solve more problems on discount.	
10.2 Solve simple interest	Solve simple interest problems	• Demonstrate and illustrates to the learners the formula for finding simple interest and defines the unknowns in the formula. • Learners are tasked to discuss in their groups and find the solutions to the problems set by the teacher.	Calculators Baroque Lower Secondary curriculum Learners book 1;pg 133-134 Baroque Lower Secondary Curriculum teachers guide book 1;Pg 115

		• Individually, learners then practice solving more problems in their exercise books.	Charts	
10.3 Describing and calculating commission	Describe and calculate commission	• The teacher explains what is meant by commission and its application in day to day lives. • The teacher works out an example on the calculation of commission • Learners working in groups solve a problem given to them by the teacher. • Each individual learner solves more problem in their exercise books.	Oxford active mathematics bk 1 pg 218	
11.1 Activity of integration		• Teacher communicates the expectations of the learners after the activity of integration		
Theme: Geometry and measures/Time and time tables **Competency;** The learner understands and uses time				
11.2 Units of time	Identify and use units of time Use and interpret different representations of time.	• The teacher help learner identify and appreciate that there are different units. • Learners working in groups use their school time and workout the length of lunch time in minutes and seconds. – How time is spent on lessons per day in hours. • Each individual learner works out the starting time of a chemistry practical lesson which ended at 12:20 pm and was 80 minutes long.	Baroque new lower secondary curriculum bk 1 pg 138	

		• Each individual learner solves more problems provided by the teacher in their exercise books.		
11.3 Time Tables	The learner applies the understanding of time in a range of relevant real –life contexts	• The teacher tells the learners the importance of time tables in everyday life and why they need to have a time table. • The teacher uses a train departure time table as an example. • Learners working in groups design a simple time for their sports day. • Each individual learners interprets any time table provided by the teacher and answers subsequent questions.	Baroque new lower secondary curriculum bk 1 pg 139	
12.1 Activity of integration		• The teacher communicates the expectations from the learners.		