CONTENT DISTRIBUTION

SUBJECT: MATHEMATICS

Class: Senior 3   **Number of periods per week:** 6 Periods

Note: Teachers will refer to this list of lessons depending on the number of weeks for a school year.

Term 1   (60 periods)

UNIT 1: PROBLEMS ON SETS	(6 periods)	
Key unit Competence: To be able to solve problem on sets		

Week	Content	Number of Periods
1	Mathematical problem on sets, analysis and interpretation of a problem using set language: union, intersection and complement of sets	2
	Representation of a problem using Venn diagrams involving two sets	1
	Representation of a problem using Venn diagrams involving Venn diagrams involving three sets	2
	End unit assessment and Remediation	1

UNIT 2: NUMBER BASES (12 periods)		
Key unit Competence: By the end of this unit, the learner should be able to present number bases and solve related problems.		

Week	Content	Number of Periods
2	Definition and examples of different number bases and numerals, the abacus and place value and number	1
	Converting a number from base ten to any other base like base 2, 3, or 5 and vice versa.	2
	Converting a number from one base to another (e.g. base 2 to base 3).	1
	Addition and subtraction exercises on number bases	2
3	Multiplication and division exercises on number bases	2
	Special bases 2 and 12	2
	Solving equations involving number bases	1
	End unit assessment and Remediation	1

UNIT 3: ALGEBRAIC FRACTIONS (24 periods)		
Key Unit Competence: By the end of the unit, the learner should be able to perform operations on rational expressions and use them in different situations.		

Week	Content	Number of Periods
4	Defining, identifying algebraic fractions and restriction on variables or conditions of existence of an algebraic fraction	3
	Simplification of fractions whose denominator /or numerator is a binomial or a quadratic expression.	3
5-6	Addition/subtraction of algebraic fractions with linear Denominator	4
	Multiplication and simplification of two algebraic fractions.	4

	Division and simplification of two algebraic fractions	4
7	Solving rational equations with linear denominators	4
	End unit assessment	1
	Remediation	1

UNIT 4: Simultaneous Linear Equations and Inequalities (18 periods)

Key Unit Competence: To be able to solve word problems involving simultaneous linear equations and inequalities

Week	Content	Number of Periods
8	Introductory activity on equations and inequalities	1
	Graphical solution of simultaneous linear equations in two unknowns	3
	Forming and solving simultaneous linear equations from word problems	2
9-10	Graphical representation of linear inequalities in one unknown	3
	Simultaneous linear inequalities in one unknown	2
	Definition and examples of simultaneous linear inequalities in two unknowns	1
	Solving simultaneous linear inequalities in two unknowns	3
	Forming linear inequalities from graphs of inequalities	2
	End unit assessment and Remediation	1
11	Exams	

TERM 2: 72 periods

UNIT 5: QUADRATIC EQUATIONS (24 periods)

Key Unit Competence: To be able to solve quadratic equations

Week	Content	Number of Periods
1	Definitions and examples of quadratic equations	2
	Factorizing Quadratic equations	2
	Solving Quadratic Equations by factorization method	3
2	Solving Quadratic equations by graphical method	2
	Solving Quadratic equations by use of Perfect Squares	2
	Solving quadratic equations by formula method	2
3	Completing squares and solving quadratic equations	3
	Solving quadratic equations by synthetic division method or Horner's method	3
4	Solving problems from real life situations involving quadratic equations	2
	End unit assessment	2
	Remediation	1

UNIT 6: LINEAR AND QUADRATIC FUNCTIONS (24 periods)

Key unit Competence:
By the end of this unit, learners should be able to solve problems involving linear and quadratic functions and interpret the graphs of quadratic functions.

Week	Content	Number of Periods
5	General form of Cartesian equation of a straight line	2
	Slopes/gradients of a linear function	2
	Finding equation of a straight line given gradient and one point on the line	2
6	Equation of a straight line joining two points	2
	Parallel lines	2
	Perpendicular lines	2
7	Introduction to quadratic functions	2
	Table of values	2
	Vertex of a quadratic function and axis of symmetry	2
8	Intercepts, vertices and sketching a quadratic function	3
	End unit assessment	2
	Remediation	1

UNIT 7: Compound Interest, Reverse Percentage, and Compound Proportional (12 periods instead of 20 periods)

Key Unit Competence: To be able to solve problems involving compound interest, reverse percentage and proportional change using multipliers .

Week	Content	Number of Periods
9	Introduction (review of percentages, loan, savings and simple interest)	2
	Reverse percentage	1
	Compound interest – step by step method	3
10	The compound interest formula	2
	The compound proportional change or continued proportions using multipliers.	3
	End unit assessment and Remediation	1

UNIT 8: RIGHT-ANGLED TRIANGLES (12 periods /18 periods)

Key Unit Competence: To be able to find lengths of sides and angles in right angled triangles using trigonometric ratios.

Week	Content	Number of Periods
11	Review of Pythagoras theorem	1
	Median theorem of a right-angled triangle	2
	Altitude (Height) theorems of a right-angled triangle	1
	Leg theorem of a right-angled triangle	2
12	Introduction to trigonometry (**Sine and cosine of an acute angle**)	2
	Finding sine and cosine using calculators	1
	Using sines and cosines to find angles and lengths for sides of right-angled triangles	2

	Assessment	1
13	**Exams**	

TERM 3: 72 periods

UNIT 8: **RIGHT-ANGLED TRIANGLES** (6 Remaining periods/18 periods)		

Key Unit Competence: To be able to find lengths of sides and angles in right angled triangles using trigonometric ratios.

Week	Content	Number of Periods
1	Tangent of an acute angle	2
	Using calculators to find tangent of angles	
	Using tangents to solve triangles	2
	Application of trigonometric ratios (sine, cosine and tangent)	1
	End unit assessment and Remediation	1

UNIT 9: CIRCLE THEOREM (18 periods)		

Key Unit Competence: To be able to construct mathematical arguments about circles and disks and use circle theorem to solve related problems

Week	Content	Number of Periods
2	Elements of a circle and disk: Center, radius, diameter, circumference, area, chord, tangent, secant, sector.	2
	Theorem 1:Angles at the centre and the circumference of a circle	2
	Theorem 2:Angle in a semicircle	1
	Theorem 3: Angles in the same segment	1
3	Theorem 4: Angles in a cyclic quadrilateral	2
	Theorem 5: Tangents to a circle	3
	sixth circle theorem (angle between circle tangent and radius), seventh circle theorem (alternate segment theorem)	2
4	Properties of chords: eighth circle theorem (perpendicular from the centre and bisects the chord).	3
	End unit assessment	1
	Remediation	1

UNIT 10: COLLINEAR POINTS AND ORTHOGONAL VECTORS (6 periods)

Key Unit Competence: To be able to apply properties of colinearity and orthogonality to solve problems involving vectors

Week	Content	Number of Periods
5	Collinear points	2
	Orthogonal vectors	1
	Problems about points and vectors in two dimensions	1
	End unit assessment and Remediation	1

UNIT 11:ENLARGEMENT AND SIMILARITY IN 2D (18 instead of 22 Periods)

Key Unit Competence: To be able to solve problems regarding shape enlargement and similarities in 2D.

Week	Content	Number of Periods
6	Introduction, definition and properties of similarity	1
	Similar triangles	1
	Similar polygons	2
	Calculating lengths of sides of similar shapes using similarity and Thales theorem	2
7	Introduction, definition and properties of enlargement	1
	Enlargement with positive scale factor	1
	Enlargement with negative scale factor	1
	Locating the centre of enlargement and finding scale factor	2
8	Enlargement in the Cartesian plane	2
	Finding lengths of sides of similar shapes using Thales theorem.	
	Area scale factor and volume scale factor	2
	Composite and inverse enlargements	1
	End unit assessment and Remediation	1

UNIT 12: INVERSE AND COMPOSITE TRANSFORMATIONS IN 2D   (12 periods)

Key Unit Competence: To be able to solve problems involving the inverse and composite transformations of shapes

Week	Content	Number of Periods
9	Introduction to composite transformations in two dimensions	2
	Composite translations in two dimensions	
	Composite reflections in two dimensions	2
	Composite rotations in two dimensions	2
10	Mixed transformations in two dimensions	2
	Inverse transformations in two dimensions.	2
	End unit assessment	1
	Remediation	1

UNIT 13: STATISTICS (BIVARIATE DATA) (12 Periods)		
Key Unit Competence: By the end of this unit, the learner should be able to collect, represent and interpret bivariate data.		
Week	**Content**	**Number of Periods**
11	Definition and examples bivariate data.	2
	Frequency distribution table of bivariate data.	2
	Review of data representation using graphs.	2
12	Scatter diagrams	2
	Correlation: positive and negative correlations	2
	End unit assessment	1
	Remediation	1
13	Exams	