St. Mary's College

Form 2

Subject- Mathematics

Course Outline: 2014-2015

TERM 1

Proposed Date /Week	Unit Section	Topic	Modules
1-4		Number theory	Definition of types of numbers Relationship between different type of numbers Identifying number patterns and sequences Review working with integers Commutative law Associative law Distributive law Identity Review order of operations (**BOMDAS)** Mental work
	2	Arithmetic: Place value Rounding Revision of four rules : Decimals Estimation Decimal and place value Problems in context	 Rounding to the nearest 10, 100, 1000 Rounding in context Addition, subtraction, multiplication and division Emphasize the importance of ESTIMATE, CALCULATE and CHECK. Common sense rounding of numbers when calculating. Knowing when a calculated answer is incorrect Place value for decimals Ordering decimals Rounding to prescribed number places Shopping bills, travel problems, etc.
	2	Indices and Standard form index notation laws of indices	 Recap index notation For positive numbers multiplying and dividing $a^m \times a^n = a^{mn}$, $a^m \div a^n = a^{m/n}$

			$a^0=1$, $(a^m)^n= a^{mn}$
		Negative indices	reciprocals $a^{-m} = 1/a^m$
		Fractional indices	Unitary only $a^{1/2}$, $a^{1/3}$
			Multiplying and dividing by powers of 10
		Standard form	Write numbers in standard form
			Convert standard form to decimal numbers
			Write numbers to prescribed significant figures
5-8	6	<u>Fundamental Algebaric skills</u>	
		Formulae	Simple substitution of values in expressions (no transposing into subject of formulae
	25	<u>Linear Graphs and Equations</u>	
		Coordinates	Recap coordinates in all 4 quadrants
			Plotting points (x, y)
		Plotting points on straight line	Pattern and relationship between x and y
			By completing table of values
		Plotting graph given the equation	Equation of straight line trough the origin y= mx
		Equation of a straight line	General equation $y = mx + c$
			Noting the significance of gradient *m*, and y intercept *c*
	6	<u>*Equation and Formulae*</u>	
		Fundamental algebraic skills	Converting worded problems into algebraic expressions
			Substituting into formulae with brackets (BODMAS)
			Solving simple linear equations
		Linear Equations	Unknown on one side
			Unknown on both sides
			Problems leading to linear equations
9-11	4	<u>Construction</u>	Geometric vocabulary
			Review drawing lines and angles accurately
			Construct midpoint and perpendicular bisector of a line
			Construct perpendicular from a point to a line
			Construct perpendicular from a point on a line
			Construct 90°, 60°, and 120°
			Bisecting an angle to get for example 45°, 30° etc.

TERM 2

1-4	26	Review ALgebra Base arithmetic Binary numbers Other base numbers	 Recap base 10 Conversion form denary to binary Conversion from binary to denary Expressing denary numbers in other base Conversion from denary to other base numbers
5-7	9	Vectors	Definition quantity with magnitude and direction Representation of a vector using column notation
8-11	10	Transformations Shapes Translations Reflections	 Concept of similarity and congruence of shapes Translations expressed as column vector Line symmetry simple examples with mirror lines Reflection in the line y = 0, x = 0 y=2, x = 3 etc. y= x, y= -x Equation of line of reflection for horizontal and vertical lines

TERM 3

1-4	6	Algebra ic Manipulations	
		Simplifying expression	Collecting like terms
			Multiplying brackets by a single term
			Multiplying two brackets
		Factorization	Single term factorization
		Linear equations	Solving linear equations with unknown on both sides.
			Linear equations with more than one operation
			Solving problems in context
			Multiplying algebraic fractions
			Division of algebraic fractions
		Algebraic Fractions	Changing the subject of the formulae; simple examples and in context
		Using formulae	

5-8	13	<u>Transformations II</u> Enlargement	Drawing enlarged shapes (on square paper) without centre of enlargement Enlargement with a positive integer scale factor form a given centre of enlargement. Include fractional scale factors Finding the centre of enlargement and scale factor
	11	Rotations	Rotational symmetry Centre of rotation 90˚ and 180˚ rotation clockwise and anticlockwise Finding the centre of rotation given its shape and transformation
6-9	24	Statistics Discrete and quantitative data Data presentation Measures of Central tendency	 Frequency line graph, tables Mean , median, mode Interpretation and applicability of measures
	12, 15	Area and Volume	Review common names and properties of 2-D shapes Review area of special shapes: Square, rectangle, triangle, circle and compound shapes Perimeter of special shapes: square, rectangle circle , triangle and compound shapes Review common names and properties of 3-D shapes: cube, cuboid, cylinder, prism Concept of volume and surface area of these shapes
	17	Travel graphs	