

Turramurra High School - 2020 - Year 10 5.3 - Scope and Sequence

Term 1 - Tuesday, 28th January to Thursday, 9th April

Week 1		Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11		
S. D. D.	Years 7, 11, 12 Whole School	Algebraic Techniques	Swimming Carnival	Equations and Polynomials			Trigonometry		Rational Indices and Surds	Refer to outcomes on the right	Good Friday	Easter Monday	Rational Indices, Surds and Logarithms
				MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 5NA	MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 7NA, MA5.3 10NA	MA5.1 10MG, MA5.2 13MG, MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 15MG	MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 6NA						
<ul style="list-style-type: none"> Uses algebraic techniques to simplify expressions, expand binomial products and factorise quadratic expressions. 				<ul style="list-style-type: none"> Solve complex linear, quadratic, and simple cubic and rearranges literal equations. Investigate the concept of a polynomial and apply the four operations to polynomials and simple graphing 			<ul style="list-style-type: none"> Review Trigonometry from Year 9; finding the length of sides and size of angles and solving angles of elevation/depression and bearings problems. Applies Pythagoras' theorem and right angles-trigonometric relationships to solve problems involving problems involving three dimensions. Solves problems in right-angled triangles using the exact sine, cosine and tangent ratios for 30°, 45° and 60°. 		<ul style="list-style-type: none"> Practice simplifying surds and rationalizing the denominator. Use integers and fractions for index notation. Convert between surd and index notation. Simplify and expand algebraic expressions involving integer and fractional indices Logarithms Define logarithms as indices: $y = a^x$ is equivalent to $x = \log_a y$, and explain why this definition only makes sense when $a > 0, a \neq 1$ Manipulates and solves expressions and equations with exponentials using <u>log laws</u> 				
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Term 2 - Monday, 27th April to Friday, 3rd July

Week 1		Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	
S. D. D.	Rational Indices and Surds	Non-Right Trigonometry	Athletics Carnival	Non- Right Trigonometry		Non- Right Trigonometry		Linear Relationships		Non-Linear Relationships	
				MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 15MG	MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 15MG	MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 8NA	MA5.1 7NA, MA5.2 10NA, MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 9NA, MA5.3 10NA				
<ul style="list-style-type: none"> Use the unit circle to define trigonometric functions, and graph them, with and without the use of igital technologies. Determine the possible acute and/or obtuse angle(s), given a trigonometric ratio. Establish the sine, cosine and area rules for any triangle and solve related problems. 				Semester 1 Assessment		<ul style="list-style-type: none"> Refer to the left. 		<ul style="list-style-type: none"> Uses formulas to find midpoint, gradient and distance on the Cartesian plane, and applies standard forms of the equation of a straight line. Determine the angle of inclination of a line on the cartesian plane by establishing and using the relationship $m = \tan \theta$. Solves a variety of problems by applying coordinate geometry formulas. 		<ul style="list-style-type: none"> Describe, interpret and sketch parabolas, hyperbolas, circles, cubics, exponential and logarithmic functions and their transformations. Understands and uses interval notation as a way of representing the domain and range. Extension: Apply an understanding of polynomials to sketch a range of curves and describe the features of these curves from their equation. 	
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Term 3 - Monday, 20th July to Friday, 25th September

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
	Graphs of Physical Phenomena	Simultaneous Eqns	Single Variable Data Analysis (A)	Data Analysis			Probability		Financial Mathematics	
	MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 4NA	MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 7NA	MA5.2 15SP, MA5.3 18SP	MA5.2 1WM, MA5.2 3WM, MA5.2 15SP, MA5.2 16SP, MA5.3 1WM, MA5.3 2WM, MA5.3 19SP			MA5.2 1WM, MA5.2 2WM, MA5.2 3WM, MA5.1 13SP, MA5.2 17SP		MA5.2 1WM, MA5.2 2WM, MA5.2 4NA, MA5.1 5NA	
S. D. D.	<ul style="list-style-type: none"> Solves problems involving direct proportion; explore the relationship between graphs and equations corresponding to simple rate problems. Draws, interprets and analyses graphs of physical phenomena (Note: This topic would suit being done alongside the Linear and non-linear relationships topics) 	<ul style="list-style-type: none"> Review solving simultaneous equations, using algebraic and graphical techniques. Solves simultaneous equations, where one equation is non-linear, using algebraic and graphical techniques, including the use of digital technologies. 	<ul style="list-style-type: none"> Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread. Determine quartiles and interquartile range, Construct and interpret box plots and use them to compare data sets. Compare shapes of box plots to corresponding histograms and dot plots. 	<ul style="list-style-type: none"> Review constructing and interpreting box plots and using them to compare data sets. Investigate and describe bivariate numerical data where the independent variable is time. Use scatter plots to investigate and comment on relationships between two numerical variables. Use information technologies to investigate bivariate numerical data sets; where appropriate, students use a straight line to describe the relationship, allowing for variation. Investigate reports of studies in digital media and elsewhere for information on their planning and implementation. 			<ul style="list-style-type: none"> Calculates relative frequencies from given or collected data to estimate probabilities of events involving "and" or "or" Interpret and use venn diagrams and two way tables. List all outcomes for two-step experiments, with and without replacement, using tree diagrams or arrays; assign probabilities to outcomes and determine probabilities for events. Describe the results of two- and three-step chance experiments, with and without replacement, assign probabilities to outcomes, and determines probabilities of events; investigate the concept of independence. Use the language of 'if then', 'given', 'of', 'knowing that' to investigate conditional statements and to identify common mistakes in interpreting such language 		<ul style="list-style-type: none"> Investigates ways of paying for an item and solves simple interest problems that involve buying on terms Connects compound interest to repeated applications of simple interest and establishes then uses the formula for compound interest. Solves problems involving compound interest and depreciation. Solves equations arising from substitution into financial maths formulae. 	
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Term 4 - Monday, 12th October to Wednesday, 16th December

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	
	Measurement		Semester 2 Assessment	Measurement (continued)	Functions		Work Experience	Geometry		Congruency and Other Proofs	
	MA5.3 1WM, MA5.3 2WM, MA5.3 13MG, MA5.3 14MG				MA5.3-1WM, MA5.3-3WM, MA5.3 12NA			MA5.3 1WM, MA5.3 2WM, MA5.3 3WM, MA5.3 16MG		MA5.2 14MG, MA5.3 3WM, MA5.3 16MG	
	<ul style="list-style-type: none"> Solves problems involving the surface area of right pyramids, right cones, spheres and related composite solids. Solves problems involving the volumes of right pyramids, right cones, spheres and related composite solids. Solve problems involving similarity ratios and areas and volumes. 				Describe, interpret and sketch functions			<ul style="list-style-type: none"> Uses deductive reasoning in presenting arguments and formal proofs. Proves triangles are similar or congruent, and uses formal geometric reasoning to establish properties of quadrilaterals. 		<ul style="list-style-type: none"> Apply logical reasoning to more complex numerical problems involving plane shapes. Construct proofs involving congruent triangles. Apply logical reasoning to proofs involving plane shapes. Prove and apply theorems and properties 	