## Scope and Sequence: National Curriculum Mathematics from Haese Mathematics (7 – 10A)



	Year level			
Subtopic	7	8	9	
Number and Algebra				
Number and place value				
Addition and subtraction	1B: Number strategies			
Year 7	1C: Rounding			
<ul> <li>Compare, order, add and subtract integers (ACMNA280)</li> </ul>	1D: Estimation			
	1E: Operating with numbers			
	1H: Order of operations			
	4B: The number line			
	4C: Adding and subtracting negatives			
	4F: Combined operations			
Consistence of numbers and index a station	4G: Using your calculator	4 Colladou a station		
Special types of numbers and index notation	1C: Square numbers	1C: Index notation	2A: Evaluating indices	
<ul> <li>Investigate index potation and represent whole numbers as</li> </ul>	16. Square numbers	TE: Primes and composites	2B: Index laws	
<ul> <li>Investigate index notation and represent whole numbers as products of powers of prime numbers (ACMNA149)</li> </ul>	3C: Prime and composite numbers	6A: Index Jaws		
<ul> <li>Investigate, and use square roots of perfect square numbers</li> </ul>	3D: Highest common factor	6C. The zero index law		
(ΔCMNA150)	3F: Multiples of natural numbers			
Year 8	3F: Square roots of whole numbers			
<ul> <li>Use index notation with numbers to establish the index laws with</li> </ul>				
positive integral indices and the zero index (ACMNA182)				
Year 9				
From the Real Numbers subtopic:				
<ul> <li>Apply index laws to numerical expressions with integer indices</li> </ul>				
(ACMNA209)				
<ul> <li>Express numbers in scientific notation (ACMNA210)</li> </ul>				
Solving problems using more complex operations	1B: Number strategies	1B: Integers		
Year 7	1E: Operating with numbers	1D: Order of operations		
Apply the associative, commutative and distributive laws to aid	1H: Order of operations	3B: Operations with fractions		
mental and written computation (ACMNA151)		3D: Operations with decimal numbers		
Year 8				
Carry out the four operations with rational numbers and integers,     using officient montal and written strategies and appropriate				
digital technologies (ACMNA183)				
Eractions and decimals / Real numbers				
Comparing fractions and equivalence	5D: Placing fractions on a number line			
Year 7	5E: Equal fractions and simplifying			
<ul> <li>Compare fractions using equivalence. Locate and represent</li> </ul>	5F: Comparing fractions			
positive and negative fractions and mixed numbers on a number				
line (ACMNA152)				
Fractions of a quantity	5E: Equal fractions and simplifying			
Year 7	5K: Evaluating fractions using a calculator			
• Express one quantity as a fraction of another, with and without the	5L: Problem solving			
use of digital technologies (ACMNA155)				
Operations with fractions	5G: Adding and subtracting fractions			
Year 7	5H: Multiplying fractions			
• Solve problems involving addition and subtraction of fractions,	5J: Dividing fractions			
including those with unrelated denominators (ACMNA153)	5K: Evaluating fractions using a calculator			
Invitibility and divide fractions and decimals using efficient written	SL: Problem solving			
strategies and digital technologies (ACIVINA154)				

Updated 06/05/16 <a href="http://www.haesemathematics.com.au/">http://www.haesemathematics.com.au/</a> Note: Exercises in red text indicate material in the 10A textbook

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	Year level		
Subtopic	7	8	9
Operations with decimals	6F: Multiplying by powers of 10		
Year 7	6G: Dividing by powers of 10		
<ul> <li>Multiply and divide fractions and decimals using efficient written</li> </ul>	6H: Multiplying decimal numbers		
strategies and digital technologies (ACMNA154)	6I: Dividing decimal numbers		
Percentages	6B: Converting decimals to fractions	5B: Expressing one quantity as a	
Year 7		percentage of another	
<ul> <li>Connect fractions, decimals and percentages and carry out simple</li> </ul>	8A: Understanding percentages	5C: Finding a percentage of a quantity	
conversions (ACMNA157)	8B: Interchanging number forms	5D: Percentage increase or decrease	
<ul> <li>Find percentages of quantities and express one quantity as a</li> </ul>	8C: One quantity as a percentage of	5E: Finding a percentage change	
percentage of another, with and without digital technologies.	another	5F: Business applications	
(ACMNA158)	8D: Finding a percentage of a quantity		
Year 8			
<ul> <li>Solve problems involving the use of percentages, including</li> </ul>			
percentage increases and decreases, with and without digital			
technologies (ACMNA187)			
Ratios and proportion	13A: Ratio	13C: Proportions	19A: Direct proportion
Year /	13B: Writing ratios as fractions	13D: Using ratios to divide quantities	19B: Other direct proportions
<ul> <li>Recognise and solve problems involving simple ratios (ACMNA173)</li> </ul>	13C: Equal ratios	13E: Scale diagrams	
Year 8	13D: Problem solving using ratios	14A: Datas	
<ul> <li>Solve a range of problems involving rates and ratios, with and with out disited technologies (ACMMA400)</li> </ul>	13E. Rales	14A: Rales	
Without digital technologies (ACIVINA188)	13F. Comparing prices	14B. Speed	
Year 9		14D: Delisity 14E: Converting rates	
Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to			
simple rate problems (ACMNA208)			
Pational and irrational numbers	6C: Pounding docimal numbers	2E: Pational numbers	
Vear 7	oc. Rounding decimal numbers	3E: Irrational numbers	
<ul> <li>Round decimals to a specified number of decimal places</li> </ul>			
(ACMNA156)			
Vear 8			
<ul> <li>Investigate terminating and recurring decimals (ACMNA184)</li> </ul>			
• Investigate the concept of irrational numbers, including $\pi$			
(ACMNA186)			
Year 10A			
<ul> <li>Define rational and irrational numbers and perform operations</li> </ul>			
with surds and fractional indices (ACMNA264)			
Logarithms			
Year 10A			
• Use the definition of a logarithm to establish and apply the laws of			
logarithms (ACMNA265)			
Money and financial mathematics			
Further calculations with money	13F: Comparing prices	5F: Business applications	
Year 7			
<ul> <li>Investigate and calculate 'best buys', with and without digital</li> </ul>			
technologies (ACMNA174)			
Year 8			
<ul> <li>Solve problems involving profit and loss, with and without digital</li> </ul>			
technologies (ACMNA189)			

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i	
	<ul> <li>1B: Rational (fractional) indices</li> <li>3A: Radicals and surds</li> <li>3B: Simplifying radicals</li> <li>3C: Adding and subtracting radicals</li> <li>3D: Multiplications involving radicals</li> <li>3E: Division by radicals</li> </ul>
	20E: Logarithms

		Year	level	
Subtopic	7	8	9	10 / 10A
Interest calculations			3G Simple interest	14D: Compound interest
Year 9				
<ul> <li>Solve problems involving simple interest (ACMNA211)</li> </ul>				
Year 10				
• Connect the compound interest formula to repeated applications				
of simple interest using appropriate digital technologies				
(ACMNA229)				
Patterns and algebra				
Introduction to algebra	7A: Building expressions			
Year /	7B: Key words in algebra			
Introduce the concept of variables as a way of representing     pumbers using lotters (ACMNA175)	7C: Simplifying expressions			
<ul> <li>Create algebraic expressions and evaluate them by substituting a</li> </ul>	7F: Evaluating algebraic expressions			
given value for each variable (ACMNA176)	7F: Formulae			
• Extend and apply the laws and properties of arithmetic to algebraic	7G: Practical problems using formulae			
terms and expressions (ACMNA177)				
Algebraic manipulation using the four basic operations		4C: Collecting like terms		1C: Indices (not in 10A textbook)
Year 8		4D: Product and quotient simplification		1A: Index laws
<ul> <li>Simplify algebraic expressions involving the four operations</li> </ul>		4E: Generalising arithmetic		
(ACMNA192)				4C: Multiplying and dividing algebraic
Year 10		6E: Simplifying algebraic expressions		fractions
<ul> <li>Apply the four operations to simple algebraic fractions with</li> </ul>				4D: Adding and subtracting algebraic
numerical denominators (ACMNA232)				fractions
Algebraic manipulation using index laws			2B: Index laws	1A: Index laws
Year 9				1C: Indices
• Extend and apply the index laws to variables, using positive integer				
Indices and the zero index (ACMINA212)				
<ul> <li>Simplify algebraic products and quotients using index laws</li> </ul>				
(ACMNA231)				
Expansion and factorisation		6B: Expansion laws	1D: Collecting like terms	2A: Expansion laws
Year 8		6D: The distributive law		2B: Further expansion
• Extend and apply the distributive law to the expansion of algebraic		6F: Brackets with negative coefficients	5A: The distributive law	2C: The binomial expansion
expressions (ACMNA190)		6G: Factorisation of algebraic expressions	5B: The product $(a + b)(c + d)$	2D: Revision of factorisation
<ul> <li>Factorise algebraic expressions by identifying numerical factors</li> </ul>			5C: Difference of two squares	2E: Factorising expressions with four
(ACMNA191)			5D: Perfect squares expansion	terms
Year 9			5E: Further expansion	2F: Factorising quadratic trinomials
<ul> <li>Apply the distributive law to the expansion of algebraic</li> </ul>			5F: The binomial expansion	2G: Factorising $ax^2 + bx + c$ , $a \neq 1$
expressions, including binomials, and collect like terms where				2G / 2H: Miscellaneous factorisation
appropriate (ACMINA213)				
Tedi 10 • Castorico algobraic ovorossions bu taking out a common algobraic				
factor (ACMNA230)				
• Expand binomial products and factorise monic quadratic				
expressions using a variety of strategies (ACMNA233)				

	Year level			
Subtopic	7	8	9	10 / 10A
Using formulae Year 10				5C: Linear equation problems
<ul> <li>Substitute values into formulas to determine an unknown (ACMNA234)</li> </ul>				8A: Formula construction 8B: Formula substitution 8D: Rearrangement and substitution
				<ul><li>22A: Polynomials</li><li>22B: Polynomial operations</li><li>22C: The Remainder theorem</li><li>22D: The Factor theorem</li></ul>
Introduction to polynomials				
Year 10A				
<ul> <li>Investigate the concept of a polynomial and apply the factor and</li> </ul>				
remainder theorems to solve problems (ACMNA266)				
Linear and non-linear relationships	1			
The Cartesian plane	11B: Number grids		10A: The distance between two points	11D: Parallel and perpendicular lines
Year 7	11C: Positive and negative coordinates		10B: Midpoints	
<ul> <li>Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point (ACMNA178)</li> </ul>	values		10C: Gradient	
Year 9				
<ul> <li>Find the distance between two points located on the Cartesian plane using a range of strategies, including graphing software (ACMNA214)</li> </ul>				
<ul> <li>Find the midpoint and gradient of a line segment (interval) on the Contactor plane using a range of strategies, including graphing.</li> </ul>				
software (ACMNA294)				
Year 10				
Solve problems involving parallel and perpendicular lines     (ACMNA238)				
Solving single linear equations	9B: Solving simple equations	7A: Solutions of an equation		5A: Solving linear equations
Year /	9C: Maintaining balance	7B: Linear equations		5B: Equations with fractions (not in 10A
<ul> <li>Solve simple linear equations (ACMINA179)</li> </ul>	9D: Inverse operations	7C: Maintaining balance		textbook)
Year 8	9E: Algebraic now charts	7D: Inverse operations		SC / SB: Linear equation problems
<ul> <li>Solve linear equations using algebraic and graphical techniques.</li> <li>Verify colutions by substitution (ACMALA104)</li> </ul>	9F. Solving equations	7E: Solving equations		8A: Formula construction
Verify solutions by substitution (ACMINA194)	91. Problem solving	7G: Equations with a repeated unknown		8B: Formula substitution
<ul> <li>Solve problems involving linear equations, including those derived from formulas (ACMNA235)</li> </ul>		12F: Points on lines		8D: Rearrangement and substitution
<ul> <li>Solve linear equations involving simple algebraic fractions (ACMNA240)</li> </ul>		12G: Using graphs to solve equations		
		16A: Writing problems as equations 16B: Problem solving with algebra		
Solving systems of linear equations				15A / 16A: Graphical solution
Year 10				15B / 16B: Solution by substitution
<ul> <li>Solve linear simultaneous equations, using algebraic and graphical techniques, including using digital technology (ACMNA237)</li> </ul>				15C / 16C: Solution by elimination 15D / 16D: Problem solving
Linear inequalities				5D / <mark>5C</mark> : Linear inequalities
Year 10				5E / 5D: Solving linear inequalities
<ul> <li>Solve linear inequalities and graph their solutions on a number line (ACMNA236)</li> </ul>				5F / 5E: Linear inequality problems

	Year level			
Subtopic	7	8	9	10 / 10A
<ul> <li>Solving non-linear equations</li> <li>Year 10</li> <li>Solve simple quadratic equations using a range of strategies (ACMNA241)</li> <li>Year 10A</li> <li>Solve simple exponential equations (ACMNA270)</li> <li>Factorise monic and non-monic quadratic expressions and solve a wide range of quadratic equations derived from a variety of contexts (ACMNA269)</li> <li>Graphing and interpreting relationships</li> <li>Year 7</li> <li>Investigate, interpret and analyse graphs from authentic data (ACMNA180)</li> <li>Year 8</li> <li>Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193)</li> <li>Year 9</li> <li>Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215)</li> <li>Graph simple non-linear relations with and without the use of digital technologies and solve simple related equations (ACMNA296)</li> <li>Year 10</li> <li>Explore the connection between algebraic and graphical representations of relations such as simple quadratics, circles and exponential susing digital technology as appropriate (ACMNA239)</li> <li>Year 10A</li> <li>Describe, interpret and sketch parabolas, hyperbolas, circles and exponential functions and their transformations (ACMNA267)</li> <li>Apply understanding of polynomials to sketch a range of curves and describe the features of these curves from their equation (ACMNA268)</li> </ul>	14A: Properties of line graphs 14B: Estimating from line graphs 14C: Travel graphs	12B: Plotting points from a table of values 12C: Linear relationships 12D: Plotting graphs of linear equations 12E: Horizontal and vertical lines	10E: The equation of a line 10F: Graphing lines from equations 10G: Vertical and horizontal lines 10H: Finding the equation of a line 21A: Quadratic functions 21B: Axes intercepts 21C: Drawing quadratics from their axes intercepts 21D: Circles	10A: Quadratic equations of the form $x^2 = k$ 10B: The Null Factor law 10C: Solution by factorisation 10D: Completing the square 10E: The quadratic formula 10F: Problem solving 18B / 19B: Graphs of quadratic functions 18C / 19C: Axes intercepts 18D / 19D: Axis of symmetry 18E / 19E: Vertex 18F / 19F: Quadratic optimisation 19B / 20B: Graphs of exponential functions 19C / 20C: Growth and decay 20A / 24A: Circles 20B / 24B: Ellipses 24C: Hyperbolae
Measurement and geometry				
Units of measurement				
<ul> <li>Units of physical measurement Year 8</li> <li>Choose appropriate units of measurement for area and volume and convert from one unit to another (ACMMG195)</li> </ul>		9D: Area 11A: Volume		
<ul> <li>Calculating quantities of two-dimensional spatial measure Year 7</li> <li>Establish the formulas for areas of rectangles, triangles and parallelograms, and use these in problem-solving (ACMMG159) Year 8</li> <li>Find perimeters and areas of parallelograms, trapeziums, rhombuses and kites (ACMMG196)</li> <li>Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area (ACMMG197) Year 9</li> <li>Calculate areas of composite shapes (ACMMG216)</li> </ul>	12C: Area 12D: The area of a rectangle 12E: Other areas	<ul> <li>9B: Perimeter</li> <li>9C: Circumference</li> <li>9D: Area</li> <li>9E: Area of polygons</li> <li>9F: The area of a circle</li> </ul>	9E: Areas of composite figures	

	Year level		
Subtopic	7	8	9
Calculating quantities of three-dimensional spatial measure	12F: Volume	11A: Volume	11B: Surface area
Year 7		11B: Volume formulae	11C: Volume
<ul> <li>Calculate volumes of rectangular prisms (ACMMG160)</li> </ul>			
Year 8			
<ul> <li>Develop formulas for volumes of rectangular and triangular prisms</li> </ul>			
and prisms in general. Use formulas to solve problems involving			
volume (ACMMG198)			
Year 9			
Calculate the surface area and volume of cylinders and solve			
related problems (ACMINIG217)			
• Solve problems involving the surface area and volume of right			
Vear 10			
<ul> <li>Solve problems involving surface area and volume for a range of</li> </ul>			
prisms, cylinders and composite solids (ACMMG242)			
Year 10A			
<ul> <li>Solve problems involving surface area and volume of right</li> </ul>			
pyramids, right cones, spheres and related composite solids			
(ACMMG271)			
Units of time			11E: Time
Year 9			
<ul> <li>Investigate very small and very large time scales and intervals</li> </ul>			
(ACMMG219)			
Applications of time		11G: Time	
Year 8		11H: Time calculations	
<ul> <li>Solve problems involving duration, including using 12- and 24-hour time within a single time cone (ACMMAC100)</li> </ul>		111: 24-hour time	
time within a single time zone (ACMIMG199)			
Snape	104. Drawing restangular solida		
Vegr 7	18A: Drawing rectangular solids		
<ul> <li>Draw different views of prisms and solids formed from</li> </ul>			
combinations of prisms (ACMMG161)			
Location and transformation			
Transformations on the Cartesian plane	17A: Translations		
Year 7	17B: Reflections and line symmetry		
<ul> <li>Describe translations, reflections in an axis and rotations of</li> </ul>	17C: Rotations and rotational symmetry		
multiples of 90° on the Cartesian plane using coordinates. Identify	17D: Combinations of transformations		
line and rotational symmetries (ACMMG181)			
Geometric reasoning			
Parallel lines	2A: Points and lines		
Year 7	2C: Angle properties		
<ul> <li>Identify corresponding, alternate and co-interior angles when two</li> </ul>	2D: Angle pairs		
straight lines are crossed by a transversal (ACMMG163)	2E: Parallel lines		
Investigate conditions for two lines to be parallel and solve simple	2F: Geometric construction		
numerical problems using reasoning (ACMMG164)			
Properties of triangles and quadrilaterals	LUB: Irlangles		
<ul> <li>Classify triangles according to their side and angle properties and</li> </ul>	100. Aligies of a filaligie		
describe quadrilaterals (ACMMG165)	10F: Quadrilaterals		
Demonstrate that the angle sum of a triangle is 180° and use this to	10F: Angles of a quadrilateral		
find the angle sum of a quadrilateral (ACMMG166)	0		

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7C: Surface area
7D: Volume
Note: Exercises include sections on right
pyramids, right cones, spheres and
related composite solids
related composite solids.

Subscip79910/100Regresses and independence1/2: Transformations 10: Congrument independence 10: Congrument independence10: Congrument independence 10: Congrument independence 10: Congrument independence 10: Congrument independence10: Congrument independence 10: Congrument independence 10: Congrume		Year level			
Corguesce and similarity of points shapes and processes       27.0. Englanders and inductions       26.0. Englanders and inductions       90.0. Englanders and inductions         2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	Subtopic	7	8	9	10 / 10A
Verte 8       Unite 9       Unite Signaling Sig	Congruence and similarity of polygons		17A: Transformations	16A: Enlargements and reductions	9A: Congruence of figures
<ul> <li>Definite rangements of plane shapes shape transitions (ACMM622D)</li> <li>Deckon (ACMM62A)</li> <lideckon (acmm62a)<="" li=""> <li>Deckon</li></lideckon></ul>	Year 8		17B: Congruent figures	16B: Similar figures	9B: Congruent triangles
LACMAGGON Develop the conditions for congruence of trangles (ACMAG22) • strolling model trans using congruence of trangles (ACMAG22) • strolling model trans to be ential model trans using congruence of trangles (ACMAG22) • strolling model trans to be ential (ACMAG22) • strolling the conditions for transpect t	<ul> <li>Define congruence of plane shapes using transformations</li> </ul>		17C: Congruent triangles	16C: Similar triangles	9C: Proof using congruence
Description conductors for conjugues of training (ACMAG20)     Subplit properties of quadifictions willing conjugues to gradient subjits and gaine properties, and solve related numerical publicities using conjugues of training (ACMAG20)     Subjit properties of quadifictions will arresting problems using conjugues of training (ACMAG20)     Subjit properties of quadifictions the seques mining (ACMAG20)     Subjit properties of quadifictions will be inflicit (ACMAG20)     Subjit properties of quadifictions will be inflicit (ACMAG20)     Subjit properties of quadifictions (ACMAG20)     Subjit properties (ACMAG20)     Subjit properties (ACMAG20)     Subjit properties of quadifictions (ACMAG20)     Subjit properties of quadifictions (ACMAG20)     Subjit properti	(ACMMG200)		17D: Proof using congruence	16D: Problem solving	9D: Similarity
Excluding properties of quantum transples and major transples and t	• Develop the conditions for congruence of triangles (ACMMG201)			16E: Area of similar objects	9E: Similar triangles
angle right right middle function of the conduct of the section is similarly and device the conduct of the conduct of the similarly and device the similarly and device the conduct of the similarly and device the similarly and	• Establish properties of quadrilaterals using congruent triangles and				
resioning (ACMAG202) * 42 stars * Use the intergreement transformation to explain similar figures * Some problems informations for transfer to explain similar figures * Some problems informations for transfer to explain similar figures * Apply topical reasoning, including the use of congruence and * Apply topical reasoning, including the use of congruence and * Proceedual apply angle and cloud properties of informations * Some proceedual apply angle and cloud properties of informations * Proceedual apply angle and cloud properties of informations * Some proceedual apply angle and cloud properties of informations * Some proceedual apply angle and cloud properties of informations * Some proceedual apply angle and cloud properties of informations * Some proceedual apply angle angle in right angle to r	angle properties, and solve related numerical problems using				
Year 0	reasoning (ACMMG202)				
<ul> <li>Use the alargement transformation to explain similarity and develop the conditions for transge to be similar (NDM222)</li> <li>Solve problems using ratio and scale factors in similarity guess (ACMM622)</li> <li>Solve problems using ratio and scale factors in similarity and develop the conditions for transge to be similar (NDM224)</li> <li>Solve problems (ACMM6219)</li> <li>Provide and supply rate and chord properties (ACMM6217)</li> <li>Provide and supply rate and transge to conditions of transges involving plane shapes (ACMM6219)</li> <li>Provide and supply rate and transges involving plane shapes (ACMM6219)</li> <li>Provide and supply rate and chord properties of circles (ACMM6219)</li> <li>Provide and transpective transges (ACMM6219)</li> <li>Use similarity to investigate the contrancy of the sine, costne and transges (ACMM6221)</li> <li>Use similarity to investigate the costnancy of the sine, costne and transges (ACMM6221)</li> <li>Use similarity to investigate the costnancy of the sine, costne and transges (ACMM6221)</li> <li>Use similarity to investigate and sectors (ACMM6221)</li> <li>Solve signed transge</li></ul>	Year 9				
develop the conditions for triangles to be similar (KOM0220)       solve problems sing ratio and scale factors in similar (Figures (ACM06221)       solve problems similar (Figures (ACM0622))       solve problems (MCM023)       <	<ul> <li>Use the enlargement transformation to explain similarity and</li> </ul>				
<ul> <li>Solve problems using ratio and scale factors in dimilar figures (ACMMG22)</li> <li>Year 10</li> <li>Pormular proofs involving congruent triangles and angle properties (ACMMG23)</li> <li>Apply logic anonymic diding, the use of congruence and similarity, to proofs and numerical searcises involving galane shapes (ACMMG22)</li> <li>Prote and papy angle and chord properties of circles (ACMMG22)</li> <li>Prote and papy angle and chord properties of circles (ACMMG22)</li> <li>Probagoras and trigonometry</li> <li>Apply logic and sapple shows (Sample and chord properties of circles (ACMMG22))</li> <li>Prote and papy angle and chord properties of circles (ACMMG22)</li> <li>Prote and papy angle and chord properties of circles (ACMMG22)</li> <li>Prote and trigonometry</li> <li>Simular trigonometry</li> <li>Simular trigonometry</li> <li>Simular trigonometry (Commerce and this application to solving simular base)</li> <li>Simular trigonometry (Commerce and this application to solving simular base)</li> <li>Simular trigonometry (Commerce and this application to solving simular trigonometry to solving trigonometry to solving trigonometry to solving trigonometry (Commerce and this application to solving simular base)</li> <li>Apply trigonometry to solve right-angled triangles problems including those involving using triangle triangles (CMMG22)</li> <li>Apply trigonometry to solve right-angled triangles problems including those involving dire angles of problems (CAMMG22)</li> <li>Apply trigonometry to solve right-angled triangles and solve rights angles (CAMMG22)</li> <li>Apply trigonometry to solve right-angles triangles and solve rights angles (CAMMG22)</li> <li>Apply trigonometry to solving three-dimensional problems including those involving dire angles of transports (CAMMG22)</li> <li>Apply trigonometry to solving three-dimensional problems including those involving dire angles of transports (CAMMG22)</li> <li>Apply trigonom</li></ul>	develop the conditions for triangles to be similar (ACMMG220)				
(ACMM0221) Version <ul> <li>Formulate proof: involving congruent triangles and angle properties (KVM0233)</li> <li>Apply tigical reasoning, including the use of congruence and sinianity, to proofs and numerical secretises involving blane shapes</li> <li>Circle genotients</li> <li>Formulation and angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM02772)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and supply angle and chord properties of circles (ACMM0272)</li> <li>Probes and angle circles circles and angle circles circles and angle circles circles angle circles circles circles circles circles circles circles circles circl</li></ul>	<ul> <li>Solve problems using ratio and scale factors in similar figures</li> </ul>				
Year 10	(ACMMG221)				
Formulate prode involving congruent triangles and angle properties (ACMM6228)     Apply hogical reasoning, including the use of congruence and similarity, to produce and spoke and thord properties of circles (ACMM6272)     Circle produces and numerical exercises involving plane shapes (ACMM6274)     Proce and spoke and chord properties of circles (ACMM6272)     Circle produces and numerical exercises involving plane shapes (ACMM6274)     Proce and spoke and chord properties of circles (ACMM6272)     Circle produces and trigonometry     Regit angled trigonometry     Regit angle in regit angle in right angled triangles     I/R: The regionometry     Regit angled trigonometry     Regit angle     Regit angle     Regit angle     Regit angle     Regit angle     Regit angle     Regit	Year 10				
properties (ACMM6233)       Applv logical scoring, including the use of congruence and similarity, to prof5 and numerical exercises involving glane shapes (ACMM624)       SE: Cricle problems (ACMM624)         Circle geometry       Year 10.       SE: The constance of cricles (ACMM6227)       SE: The constance of cricles (ACMM6227)         Pythagoras and trigonometry       Se: Cricle problems       SE: Protecand apply angle and chord properties of circles (ACMM6227)       SE: Pythagoras' theorem         Pythagoras and trigonometry       SE: Protecand apply angle and chord properties of circles (ACMM6227)       SE: Pythagoras' theorem         Is: Instructure of Pythagoras' theorem       SE: Protecand apply angle and chord properties of circles (ACMM6227)       SE: Pythagoras' theorem         Is: Instructure of Pythagoras' theorem       SE: Protecand apply angle and chord properties of circles (ACMM6224)       SE: Pythagoras' theorem         Is: Instructure of pythagoras' theorem       SE: The construct of theorems of circles (ACMM6224)       SE: Pythagoras' theorem         Is: Instructure of pythagoras' theorem       SE: The constructure of theorems of circles (ACMM6224)       SE: Pythagoras' theorem         Is: Instructure of pythagoras' theorem and its application to subing with regionometry to low tright angle of triangle triangle (ACMM6225)       SE: Instructure of pythagoras' theorem         Is: Instructure of pythagoras' theorem and registry of pythagoras' theorem and regist	<ul> <li>Formulate proofs involving congruent triangles and angle</li> </ul>				
<ul> <li>Apply logical reasoning, including the use of congruence and similarity, topological reasoning, including the use of congruence and similarity, topological reasoning, including the use of congruence and similarity, topological reasoning, including the use of congruence and similarity, topological reasoning, including the use of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle and chord properties of circle (ACMMG272)</li> <li>Prove and apply angle angle in right-angled triangles (ACMMG272)</li> <li>Prove angle in right-angled triangles problems (including those involving dirt angled triangles problems (including those involving dirt angled triangle problems (including those involving dirt angled triangle problems (including those involving dirt angled triangle problems (including those involving direction and angles of langle problems involving dirt angled triangle problems (including those involving direction and angles of langle triangle problems (including those involving direction and angles of langle triangle problems (including those involving direction and angles of langle triangle problems (including those involving direction and angles of langle triangle and solve direction and angles of langle triangle and solve direction and angles of langle triangle and solve direction and angles of langle trian</li></ul>	properties (ACMMG243)				
similarity to profis and numerical exercises involving plane shapes       image: constraint of the	<ul> <li>Apply logical reasoning, including the use of congruence and</li> </ul>				
(ACMMG24)       Image: Circle ground in the single of the si	similarity, to proofs and numerical exercises involving plane shapes				
Circle geometry Vear 10ABit Circle problemsBit Circle problemsBit Circle problemsPythagoras and trigonometryPythagoras theorem 321 Circle theorems 321 Circle theorems 	(ACMMG244)				
Year 10A       • Prove and apply angle and chord properties of circles (ACMM6272)       21: Circle theorems 21: Further circle theorem 85: Problem solving right angled triangles (ACMM6221)         • Use similarity to investigate the constance of triangles (ACMM6222)       • Solve right angled triangles (ACMM6223)       • Solve right angled triangles (ACMM6224)         • Apply trigonometry to solve right angle triangle problems including those involving direction and angles of levents and angles of	Circle geometry				6E: Circle problems
<ul> <li>Prove and apply agle and chord properties of circles (ACMMG272)</li> <li>Pythagoras and trigonometry</li> <li>Refx angled trigonometry</li> <li>Year 9</li> <li>Investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles (ACMMG222)</li> <li>Use similarity to investigate the constancy of the cons</li></ul>	Year 10A				
Production     Image: Second Sec	• Prove and apply angle and chord properties of circles (ACMMG272)				21A: Circle theorems
Pythagoras and trigonometry       21C. Geometric proof         Right angled trigonometry       80: Pythagoras' theorem       64: Pythagoras' theorem         80: Pythagoras' Theorem and its application to solving simple problems involving right angled triangles (ACMMG222)       64: Pythagoras' theorem         1 Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles problems (ACMMG223)       17A: Labelling right angled triangles problems (ACMMG224)       67: Three-dimensional problems (ACMMG242)         Vear 10       50: right-angled problems including those involving dimensional angles of elevation and depression (ACMMG245)       17E: Finding side lengths 17E: Froblem solving with trigonometry (SCMMG276)       12E: Froblem solving with trigonometry 12E: Problem solving with trigonometry 12E: True bearings 12C: Solve right-angled triangle problems including those involving direction and angles of elevation and depression (ACMMG275)       12E: Finding side lengths 12E: Problem solving with trigonometry 12E: True bearings 12E: True bearings 12E: True bearings 12E: True bearings 12E: The area of a triangle solve single trigonometry 12E: True bearings 12E: The area of a triangle solve single trigonometry 12E: True bearings 12E: Problem solving with trigonometry 12E: True bearings 12E: Problem solving with trigonometry 12E: True bearings 12E: Problem solving with sine and cosine rules 12E: Problem solving with trigonometry 12E: True bearings 12E: Problem solving with the sine, cosine rule 12E: Problem solving with the sine and cosine rule					21B: Further circle theorems
Pythagoras and trigonometry         Kight angled trigonometry         Year 9         Investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles (ACMMG222)       6A: Pythagoras' theorem 8E: The converse of Pythagoras' theorem 8E: The trigonometry 17A: Labelling right angled triangles (ACMMG223)       6A: Pythagoras' theorem 8E: The converse of Pythagoras' theorem 17A: Labelling right angled triangles (ACMMG224)       5F: The erigonometry 17D: Finding angles 17E: Problem solving with trigonometry 12D: Finding angles 17E: Problem solving with trigonometry 12D: Finding angles 17E: Problem solving with trigonometry 12D: Finding angles 12D: Finding angles					21C: Geometric proof
Right angled trigonometry Year JoBD: Pythagoras' theorem SD: Pythagoras' theorem and its application to solving simple problems involving using Pythagoras' theorem and its application to solving simple problems involving using Pythagoras' theorem and its application to solving to use similarity to investigate the constance of the sine, cosine and tangent ratios for a given angle in right-angled triangles (ACMMG223)BD: Pythagoras' theorem and SD: Pythagoras' theorem and tangent ratios for a given angle in right-angled triangle problems (ACMMG224)BD: Pythagoras' theorem and SD: Finding angles 170: Finding	Pythagoras and trigonometry				
Year 9 Investigate Pythagora' theorem and its application to solving simple problems involving right angled triangles (ACMM6222) Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles (ACMM6223) Apply trigonometry to solve right-angled triangle problems (ACMM6224) Year 10 Solve right-angled triangles problems including those involving direction and angles of elevation and depression (ACMM6245) Year 10A Apply trigonometry to solve right-angled triangles (ACMM6275) Year 10A Apply trigonometry to solve right-angled triangles (ACMM6275) Year 10A Establish the sine, cosine and trigonometry to solving three- dimensional problems in right-angled triangles (ACMM6275) Year 10A Establish the sine, cosine and area rules for any triangle and solve related problems (ACMM6273) Year 10A Establish the sine, cosine and area rules for any triangle and solve related problems (ACMM6273) Year 10A Establish the sine, cosine and area rules for any triangle and solve related problems (ACMM6273) Year 10A Establish the sine, cosine and area rules for any triangle and solve related problems (ACMM6273) Year 10A Establish the sine, cosine and area rules for any triangle and solve Year 10A Establish the sine, cosine and area rules of any triangle and solve related problems (ACMM6273) Year 10A Establish the sine, cosine and area rules for any triangle and solve related problems (ACMM6273) Year 10A Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMM6274) Solve simple trigonometric equations (ACMM6275) Solve simple trigono	Right angled trigonometry			8D: Pythagoras' theorem	6A: Pythagoras' theorem
<ul> <li>Investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles (ACMM6222)</li> <li>Use similarity to investigate the constancy of the sine, cosine and tangles (ACMM6223)</li> <li>Apply trigonometry to solve right-angled triangles problems including those involving direction and angles of elevation and depression (ACMM6275)</li> <li>Solve right angled trigonometric functions, and graph the sine and sine problems (ACMM6273)</li> <li>Solve the int circle to define trigonometric functions, and graph them with and without the use of digital technologies</li> <li>Solve right ingent right angled trigonometric functions, and graph them with and without the use of digital technologies</li> <li>Solve right ingent right angled trigonometric functions, and graph them with and without the use of digital technologies</li> <li>Solve right ingent right angle trigonometric functions (ACMM6275)</li> <li>Solve right angled trigonometric functions (ACMM6275)</li> </ul>	Year 9			8E: The converse of Pythagoras' theorem	6B: The converse of Pythagoras' theorem
simple problems involving right angles (ACMMG222) Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles (ACMMG223) A poly trigonometry to solve right-angled triangle problems (ACMMG224) Year 10 Solve right-angled triangle problems including those involving direction and angles of elevation and depression (ACMMG275) Year 10A A poly trigonometry to solving three- dimensional problems in right-angled triangles (ACMMG276) Year 10A Stabilish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273) Trigonometric functions Year 10A Stabilish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273) Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274) Year 10A Stabilish the sine, cosine and area rules for any triangle and solve triated roblems (ACMMG275) Year 10A Stabilish the sine, cosine and area rules for any triangle and solve triated roblems (ACMMG273) Trigonometric functions Year 10A Stabilish the sine, cosine and area rules for any triangle and solve triated roblems (ACMMG273) Trigonometric functions Year 10A Stabilish the sine, cosine and area rules for any triangle and solve triated roblems (ACMMG273) Trigonometric functions Year 10A Stabilish the sine, cosine and area rules for any triangle and solve triated roblems (ACMMG273) Trigonometric functions Stabilish the trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274) Stabilish the relationship between sin $\theta$ and cosine rules Stabilish the trigonometric functions Stabilish t	<ul> <li>Investigate Pythagoras' Theorem and its application to solving</li> </ul>			8G: Problem solving using Pythagoras	6D: Problem solving using Pythagoras'
• Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles (ACMMG223)17A: Labelling right angled triangles 17B: The trigonometric ratios 17C: Finding side lengths 17D: Finding angles 17D: Finding angles 17D: Finding angles 17D: Finding angles 17E: Problem solving with trigonometry 17E: Problem solving with trigonometry to solve right-angled triangle problems indication and angles of elevation and depression (ACMMG245) Year 10A • Apply Pythagoras' Theorem and trigonometry to solving three- dimensional problems inght-angled triangles (ACMMG276)12C: Finding angles 12C: Finding angl	simple problems involving right angled triangles (ACMMG222)				theorem
tangent ratios for a given angle in right-angled triangles (ACMMG223)       178: The trigonometric ratios (ACMMG224)       178: The trigonometric ratios (ACMMG224)       6F: Three-dimensional problems 170: Finding side lengths 170: Finding side lengths 170: Finding angles 177: Problem solving with trigonometry ver 104       120: Finding side lengths 120: Finding angles 120: F	• Use similarity to investigate the constancy of the sine, cosine and			17A: Labelling right angled triangles	6E: Circle problems
(ACMMG223)17C: Finding side lengthsApply trigonometry to solve right-angled triangle problems (ACMMG224)17D: Finding anglesYear 10Solve right-angled triangle problems including those involving direction and angles of elevation and depression (ACMMG245)12D: Finding anglesYear 10AApply Pythagoras' Theorem and trigonometry to solve right-angled triangles (ACMMG276)15D: The area of a triangle to solve right-angled triangles (ACMMG276)Non-right angled trigonometry Year 10A15D: Theorem and area rules for any triangle and solve related problems (ACMMG273)15D: The area of a triangle to solve ruleTrigonometric functions Year 10A15D: The cosine rule to solve right-angled triangles and graph them with and without the use of digital technologies (ACMMG273)15D: The cosine rule to solve rule to solve rule to solve rulesYear 10A23A: The unit circle to define trigonometry (uncloss, and graph them with and without the use of digital technologies (ACMMG273)23A: The unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)23A: The unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG275)23D: Trigonometric functions to solve rules	tangent ratios for a given angle in right-angled triangles			17B: The trigonometric ratios	6F: Three-dimensional problems
<ul> <li>Apply trigonometry to solve right-angled triangle problems (ACMMG224) Year 10</li> <li>Solve right-angled triangle problems including those involving direction and angles of elevation and depression (ACMMG245) Year 10A</li> <li>Apply Pythagoras' Theorem and trigonometry to solving three- dimensional problems in right-angled triangles (ACMMG276)</li> <li>Non-right angled triangles for any triangle and solve related problems (ACMMG273)</li> <li>Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)</li> <li>Trigonometric functions Year 10A</li> <li>Solve right tere- dimensional problems in right-angled triangles (ACMMG275)</li> <li>Solve right tere- dimensional problems in right-angled triangles (ACMMG276)</li> <li>Solve right tere- dimensional problems in right-angled triangles (ACMMG276)</li> <li>Solve sight tere- dimensional problems in right-angled triangles (ACMMG273)</li> <li>Solve sight tere- dimensional problems in right-angled triangles (ACMMG273)</li> <li>Solve sight tere- dimensional problems in right-angled triangles (ACMMG275)</li> <li>Solve sight tere- dimensional problems in right-angled triangles (ACMMG275)</li> <li>Solve sight tere of a final problems in right-angled triangles (ACMMG275)</li> <li>Solve sight tere tere of a final problem solving with trigonometric equations (ACMMG275)</li> <li>Solve sight tere tere of a final problem solve and the solve and the</li></ul>	(ACMMG223)			17C: Finding side lengths	
(ACMMG224)       120: Finding angles         Year 10       122: Problem solving with trigonometry         Solve right-angled triangle problems including those involving direction and angles of elevation and depression (ACMMG245)       126: Problem solving with trigonometry         Year 10A       Apply Pythagoras' Theorem and trigonometry to solving three-dimensional problems in right-angled triangles (ACMMG276)       158: The area of a triangle         Non-right angled trigonometry       158: The area of a triangle       155: The sine rule         • Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)       158: The area of a triangle         Trigonometric functions       23A: The unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG275)       23A: The unit circle         Year 10A       Solve rigits in problems in right-angled triangle of 30° and 45° (ACMMG274)       23C: The multiples of 30° and 45° (ACMMG275)	<ul> <li>Apply trigonometry to solve right-angled triangle problems</li> </ul>			1/D: Finding angles	12C: Finding side lengths
Year 10       126: Problem Solving With Tgonometry         • Solve right-angled triangle problems including those involving direction and angles of elevation and depression (ACMMG245)       127: True bearings         Year 10A       • Apply Pythagoras' Theorem and trigonometry to solving three-dimensional problems in right-angled triangles (ACMMG276)       128: True bearings         Non-right angled trigonometry       158: The area of a triangle       158: The area of a triangle         Year 10A       158: The area of a triangle       150: The osine rule         Ver 10A       156: The sine rule       150: The osine rule         Ver 10A       156: The sine rule       150: The osine rule         Year 10A       156: The orea of a triangle       156: The sine rule         Ver 10A       156: The orea of a triangle       156: The orea of a triangle         Year 10A       156: The orea of a triangle       156: The orea of a triangle         Ver 10A       238: The unit circle       238: The unit circle         Year 10A       238: The unit circle       238: The multiclionship between sin θ and cos or θ         Year 10A       238: The multiclionship between sin θ and cos or θ       230: Trigonometric functions, and graph them with and without the use of digital technologies (ACMM6275)       230: Trigonometric functions         Year 10A       230: The multiples of 30° and 45° 230: Trigonometric equations       231: Trigon	(ACMMG224)			17E: Problem solving with trigonometry	12D: Finding angles
<ul> <li>Solve right-angled triangle problems including those involving direction and angles of elevation and depression (ACMMG245) Year 10A</li> <li>Apply Pythagoras' Theorem and trigonometry to solving three-dimensional problems in right-angled triangles (ACMMG276)</li> <li>Non-right angled trigonometry</li> <li>Year 10A</li> <li>Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)</li> <li>Trigonometric functions</li> <li>Year 10A</li> <li>Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG275)</li> <li>Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG275)</li> <li>Solve simple trigonometric equations (ACMMG275)</li> </ul>	Year 10				12E: Problem solving with trigonometry
direction and angles of elevation and depression (ACMMG245)       126. 3-differing block in solving         Year 10A       158: The area of a triangle         Year 10A       158: The sine rule         * Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)       158: The area of a triangle         Trigonometric functions       150: The cosine rule         Year 10A       150: The cosine rule         • Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)       158: The area of a triangle         Trigonometric functions       238: The rule icricle       238: The relationship between sin θ and cos θ         • Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG275)       230: The rulations of 30° and 45° a         • Solve simple trigonometric equations (ACMMG275)       231: Trigonometric equations (ACMMG275)	Solve right-angled triangle problems including those involving				12F: True bearings
Year 10A • Apply Pythagora' Theorem and trigonometry to solving three- dimensional problems in right-angled triangles (ACMMG276)15B: The area of a triangle triangleNon-right angled trigonometry Year 10A • Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)15B: The area of a triangle trigonometric functions 23A: The unit circle 23B: The relationship between sin θ and cos θ 23C: The multiples of 30° and 45° 23C: The multiples of 30° and 45° 23D: Trigonometric countions (ACMMG275)• Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)23A: The unit circle 23B: The relationship between sin θ and cos θ 23C: The multiples of 30° and 45° 23D: Trigonometric countions (ACMMG275)	direction and angles of elevation and depression (ACMMG245)				12G. S-dimensional problem solving
<ul> <li>Apply Pyrhagoras Theorem and trigonometry to solving three- dimensional problems in right-angled triagles (ACMMG276)</li> <li>Non-right angled trigonometry</li> <li>Year 10A</li> <li>Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)</li> <li>Trigonometric functions</li> <li>Year 10A</li> <li>Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)</li> <li>Solve simple trigonometric equations (ACMMG275)</li> </ul>	Year 10A				
Indicational problems in right-angled triangles (ACMMG275)IndicationIndica	Apply Pythagoras' Theorem and trigonometry to solving three-				
Non-right angled trigonometryIss: The area of a triangleYear 10A15C: The sine rule• Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)15C: The sine ruleTrigonometric functions15E: Problem solving using the sine and cosine rulesYear 10A23A: The unit circleVear 10A23B: The relationship between sin $\theta$ and cos $\theta$ Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)23B: The relationship between sin $\theta$ and 45° 23D: Trigonometric functions• Solve simple trigonometric equations (ACMMG275)24CMMG275)23E: Trigonometric equations	dimensional problems in right-angled triangles (ACMIMG276)				45 Dy The energy of a twice als
Tear 10A       15C. The sine rule         • Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)       15D: The cosine rule         Trigonometric functions       23A: The unit circle         Year 10A       23B: The relationship between sin θ and cos θ         • Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)       23C: The multiples of 30° and 45°         • Solve simple trigonometric (ACMMG275)       23E: Trigonometric equations	Non-right angled trigonometry				15B: The area of a triangle
<ul> <li>Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273)</li> <li>Trigonometric functions</li> <li>Year 10A</li> <li>Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)</li> <li>Solve simple trigonometric equations (ACMMG275)</li> </ul>	Yedr TUA				15C: The sine rule
Trigonometric functions       23A: The unit circle         Year 10A       23B: The relationship between sin θ and cos θ         • Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)       23C: The multiples of 30° and 45°         • Solve simple trigonometric equations (ACMMG275)       23E: Trigonometric equations	<ul> <li>Establish the sine, cosine and area rules for any thangle and solve related problems (ACMMC272)</li> </ul>				15D. The cosine rule
Trigonometric functions23A: The unit circleYear 10A23B: The relationship between sin θ and cos θ• Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)23C: The multiples of 30° and 45° 23D: Trigonometric functions• Solve simple trigonometric equations (ACMMG275)23E: Trigonometric equations	Telated problems (ACIVINI6275)				cosine rules
Year 10A       23B: The relationship between sin θ and cos θ         • Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)       23C: The multiples of 30° and 45° 23D: Trigonometric functions         • Solve simple trigonometric equations (ACMMG275)       23E: Trigonometric equations	Trigonometric functions				23A: The unit circle
<ul> <li>Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274)</li> <li>Solve simple trigonometric equations (ACMMG275)</li> <li>Solve simple trigonometric equations (ACMMG275)</li> </ul>	Year 10A				23B. The relationship between sin A and
them with and without the use of digital technologies (ACMMG274) • Solve simple trigonometric equations (ACMMG275)	<ul> <li>Use the unit circle to define trigonometric functions, and graph</li> </ul>				$\cos \theta$
(ACMMG274) • Solve simple trigonometric equations (ACMMG275)	them with and without the use of digital technologies				23C: The multiples of 30° and 45°
Solve simple trigonometric equations (ACMMG275)	(ACMMG274)				23D: Trigonometric functions
	<ul> <li>Solve simple trigonometric equations (ACMMG275)</li> </ul>				23E: Trigonometric equations

		Yea	r level	
Subtopic	7	8	9	10 / 10A
Statistics and probability				
Chance				
Numerical representations of probability	15B: Assigning numbers to probabilities			
Year 7	15D: Theoretical probability			
• Assign probabilities to the outcomes of events and determine				
probabilities for events (ACMSP168)				
Venn diagrams and events		15C: Theoretical probability	15A: Experimental probability	16B / 17B: Compound events
Year 8		15D: Complementary events	15B: Probabilities from tabled data	16D / 17D: Conditional probability
• Identify complementary events and use the sum of probabilities to		15E: Experimental probability	15C: Life tables	
solve problems (ACMSP204)		15F: Probabilities from tabled data	15G: Compounds events	
• Describe events using language of 'at least', exclusive 'or' (A or B		15G: Probabilities from Venn diagrams	15J: Probabilities from Venn diagrams	
but not both), inclusive 'or' (A or B or both) and 'and'. (ACMSP205)				
• Represent events in two-way tables and Venn diagrams and solve				
related problems (ACMSP292)				
Year 9				
Calculate relative frequencies from given or collected data to				
estimate probabilities of events involving 'and' or 'or' (ACMSP226)				
Year 10				
• Use the language of 'ifthen', 'given', 'of', 'knowing that' to				
investigate conditional statements and identify common mistakes				
in interpreting such language (ACMSP247)				
Simple chance experiments	15A: Describing probability			
Year 7	15C: Sample space			
• Construct sample spaces for single-step experiments with equally				
likely outcomes (ACMSP167)				
Multi-level chance experiments			15D: Sample spaces	16A / 17A: Theoretical probability
Year 9			15E: Theoretical probability	16B / 17B: Compound events
• List all outcomes for two-step chance experiments, both with and			15F: Using 2-dimensional grids	16C / 17C: Expectation
without replacement using tree diagrams or arrays. Assign			15G: Compound events	16D / 17D: Conditional probability
probabilities to outcomes and determine probabilities for events			15H: Using tree diagrams	
(ACMSP225)			15I: Sampling with and without	
Year 10			replacement	
<ul> <li>Describe the results of two- and three-step chance experiments,</li> </ul>				
both with and without replacements, assign probabilities to				
outcomes and determine probabilities of events. Investigate the				
concept of independence (ACMSP246)				
Data representation and interpretation				
Data collection		18A: Categorical data	14A: Types of data	
Year 8		18B: Numerical data	14B: Discrete numerical data	
<ul> <li>Investigate techniques for collecting data, including census,</li> </ul>		18C: Grouped data	14C: Continuous numerical data	
sampling and observation (ACMSP284)		18E: Data collection	14G: Data collection	
Year 9				
<ul> <li>Identify everyday questions and issues involving at least one</li> </ul>				
numerical and at least one categorical variable, and collect data				
directly and from secondary sources (ACMSP228)				

	Year level		
Subtopic	7	8	9
Analysis of data collection methods	16A: Data collection	18E: Data collection	14G: Data collection
Year 7	16C: Numerical data		
<ul> <li>Identify and investigate issues involving numerical data collected</li> </ul>			
from primary and secondary sources (ACMSP169)			
Year 8			
<ul> <li>Explore the practicalities and implications of obtaining data</li> </ul>			
through sampling using a variety of investigative processes			
(ACMSP206)			
Year 9			
<ul> <li>From the chance subtopic: Investigate reports of surveys in digital</li> </ul>			
media and elsewhere for information on how data were obtained			
to estimate population means and medians (ACMSP227)			
Year 10A			
• From the chance subtopic: Investigate reports of studies in digital			
media and elsewhere for information on their planning and			
implementation (ACMSP277)			
Data representation	16B: Categorical data		14B: Discrete numerical data
Year /	16C: Numerical data		14F: Comparing numerical data
• Construct and compare a range of data displays including stem-			
and-leaf plots and dot plots (ACMSP170)			
Year 9			
Construct back-to-back stem-and-leaf plots and histograms and			
describe data, using terms including skewed , symmetric and bi			
Modal (ACMSP282)			
<ul> <li>Construct and interpret box plots and use them to compare data</li> </ul>			
• Construct and interpret box plots and use them to compare data			
Interpretation of data displays			
Vear 10			
Compare shapes of box plots to corresponding histograms and dot			
nlots (ACMSP250)			
<ul> <li>Evaluate statistical reports in the media and other places by linking</li> </ul>			
claims to displays statistics and representative data (ACMSP253)			

10 / 10A			
13A: Discrete data			
13B: Continuous data			
13D: Cumulative data			
13H: Evaluating reports			
13F: Box plots			
13F: Box plots			
13G / 13H: Evaluating reports			

	Year level			
Subtopic	7	8	9	10 / 10A
Measures of location and spread	16B: Categorical data	18A: Categorical data	14D: Measuring the centre of a data set	13C: Measuring the centre
Year 7	16C: Numerical data	18B: Numerical data	14E: Measuring the spread of data	13E: Measuring the spread
• Calculate mean, median, mode and range for sets of data. Interpret	16D: Measuring the centre and spread	18C: Grouped data	14F: Comparing numerical data	13F: Box plots
these statistics in the context of data (ACMSP171)		18D: Measuring centre and spread		13G: Standard deviation
• Describe and interpret data displays using median, mean and range		18E: Data collection		
(ACMSP172)				
Year 8				
• Explore the variation of means and proportions of random samples				
drawn from the same population (ACMSP293)				
<ul> <li>Investigate the effect of individual data values, including outliers,</li> </ul>				
on the mean and median (ACMSP207)				
Year 9				
<ul> <li>Compare data displays using mean, median and range to describe</li> </ul>				
and interpret numerical data sets in terms of location (centre) and				
spread (ACMSP283)				
Year 10				
<ul> <li>Determine quartiles and interquartile range (ACMSP248)</li> </ul>				
Year 10A				
Calculate and interpret the mean and standard deviation of data				
and use these to compare data sets (ACMSP278)				
Bivariate data				21A / 25A: Line graphs
Year 10				21B / 25B: Scalar plots
<ul> <li>Use scatter plots to investigate and comment on relationships</li> </ul>				21C / 25C: Correlation
between two numerical variables (ACMSP251)				25D: Measuring correlation
Investigate and describe bivariate numerical data where the				25E: Line of best fit
independent variable is time (ACMSP252)				
Year 10A				
Use information technologies to investigate bivariate numerical				
data sets. Where appropriate use a straight line to describe the				
relationship allowing for variation (ACMSP279)				