

Year 9 Dwyer	SCASA Standards	Dwyer	Extra Resources	Teaching Strategy References	Assessments
<b>TERM 1</b> <b>Weeks 1-2</b> Chapter 9 - Statistics • Histograms	A – (30%) <ul style="list-style-type: none"> <li>Displays data in histograms and back-to-back stem-and-leaf plots and analyses the data to compare two or more sets, including reference to measures of location and spread.</li> <li>Uses precise statistical language in the description of data displays, eg negatively skewed, symmetric, bimodal, clusters, more or less, dense, gaps. Explains the impact on each of the measures of location and spread.</li> </ul>	Ex 9.1 – 9.10	ABS Student Census at School data <a href="http://www.cas.abs.gov.au/cgi-local/cassampler.pl">http://www.cas.abs.gov.au/cgi-local/cassampler.pl</a>  Quest: Ch14 – Ex 14A – 14E  Cambridge: Ch 9 (9.7 – 9.11)  Pearson: Ch 8 (8.1 – 8.4)		
	B – (40%) <ul style="list-style-type: none"> <li>Displays data in histograms and back-to-back stem-and-leaf plots and calculates measures of location and spread.</li> <li>Describes the shape of data displays using correct statistical language, e.g. negatively or positively skewed, symmetric, bimodal. Explains the expected consequential relationship between the mean and the median.</li> </ul>				
	C – (30%) <ul style="list-style-type: none"> <li>Displays data in histograms and back-to-back stem-and-leaf plots.</li> <li>Uses the shape of data displays to describe data as being skewed, symmetric or bimodal and identifies that a consequential relationship between the mean and the median exists.</li> </ul>				
<b>Week 3-4</b> Chapter 1 – Indices • Index Laws  Chapter 11 • Scientific Notation	A Applies index laws and the properties of number multiple times to simplify expressions involving mixed numerical bases, scientific notation or algebraic bases with non-negative powers. Compares and orders numbers expressed in mixed forms.	Ex 1.1 – 1.11	Quest: Ch 2 & Ch 10  Cambridge: Ch 6 & 1 (Revision)  Pearson: Ch 3 (3.1 – 3.3)		
	B Identifies a base to apply index laws to simplify products and quotients expressed with different numerical bases and integral powers. Applies index laws to simplify expressions written in scientific notation. Compares and orders numbers expressed in scientific notation.	Ex 11.10 – 11.15			

	C Applies index laws to numbers to simplify products and quotients with like numerical bases and integer powers. Expresses numbers in scientific notation. Expresses numbers in decimal form when given scientific notation.				
<b>Week 5-6</b> Chapter 2 – Algebra • Terminology • Like terms • Distributive Law • Factorisation	A Formulates algebraic expressions to represent situations and applies the distributive law, including negatives and fractions, to expand and simplify binomial products. B Applies the distributive law to expressions, including negatives and fractions, to expand and simplify binomial products. C Applies the distributive law to expressions, including binomials, and simplifies by collecting like terms where appropriate.	Ex 2.1 – 2.11	Quest: Ch 3 (Ch17 – Quadratics) Cambridge: Ch 2 & 8 Pearson: Ch 3 (3.4 – 3.8)		
<b>Weeks 7-9</b> Chapter 4 – Linear & Non-linear Graphs	A • Sketches linear functions using the coordinates of two points for all forms of a linear rule. Extracts information from a worded problem to determine a linear rule and justifies, with working. Solves linear equations graphically and verifies the solution algebraically, showing full working. • Distinguishes between linear, quadratic and circular relations and sketches their matching graphs, showing the coordinates. Graphically solves non-linear equations and supports solutions with correct algebraic working. B • Sketches a linear function where the rule is given in a form other than gradient or with a non-integral gradient. Solves linear equations graphically. Calculates a linear function rule satisfying the given conditions. Solves linear equation graphically and verifies the solution algebraically. Solves problems involving direct proportion. • Identifies the algebraic forms of non-linear relations and sketches their matching graphs showing coordinates of key points. Graphically solves non-linear equations.	Ex 4.1 – 4.7	Quest: Ch 4 & 7 (7A – 7F) (EXT: Ch16 – Functions; Ch 18 - Quadratics) Cambridge: Ch Pearson: Ch 5 & 9	Week 7: Test 1: Statistics, Number & Algebra (Ch 9, 1 & 11) Week 8: Mental test Week 9: Investigation 1 – Statistics? Home Section handed out	

	C				
	<ul style="list-style-type: none"> <li>Sketches linear relations and solves associated linear equations graphically and algebraically. Matches linear relations to their graph.</li> <li>Identifies the algebraic forms of non-linear relations and sketches their matching graphs, with and without the use of technologies.</li> </ul>				
<b>Week 10</b>	Revision & Activities				Investigation 1 – In-class validation
<b>TERM 2</b>	A	Ex 3.1 – 3.8	Quest: Ch 12		
<b>Week 1-3</b>	<ul style="list-style-type: none"> <li>Extracts information from word problems to calculate the area of composite shapes.</li> <li>Represents information diagrammatically, and solves complex worded problems involving surface area and volume of right prisms and cylinders, with the use of exact values and including inverse calculations.</li> </ul>	Ex 13.1 – 13.6	Cambridge: Ch 5		
Chapter 3 – Area			Pearson: Ch 4		
Chapter 13 – Volume	B				
	<ul style="list-style-type: none"> <li>Selects from dissection or enclosure to efficiently determine the area of a composite shape.</li> <li>Interprets a description of a familiar and routine situation to draw a diagram, and calculates the surface area and volume of right prisms and cylinders.</li> </ul>				
	C				
	<ul style="list-style-type: none"> <li>Calculates the area of composite shapes.</li> <li>Calculates the surface area and volume of right prisms and cylinders, from a given diagram.</li> </ul>				
<b>Weeks 4-5</b>	A	Ex 7.1 – 7.6	Quest: Ch 6 (6A – 6D)		Week 4: Test 2 – Measurement & Geometry
Chapter 7	Diagrammatically represents a complex worded problem and applies Pythagoras' Theorem multiple times to determine an unknown side length, expressing the length in irrational form. Classifies a triangle as acute or obtuse when the Pythagorean relationship does not apply.		Cambridge: Ch 3 (3.1 – 3.4)		Week 5 – Mental test
<ul style="list-style-type: none"> <li>Pythagoras' Theorem</li> </ul>			Pearson: Ch 2		
	B				
	Diagrammatically represents a worded problem and applies				

	Pythagoras' Theorem to determine an unknown side length of a right-angled triangle.				
	C Applies Pythagoras' Theorem to determine an unknown side length of a given right-angled triangle.				
Week 6	Exam Revision				
Week 7	<b>Semester 1 Exam</b>				
Weeks 8-10	RMF				
RMF					
<b>TERM 3</b>	RMF				Investigation 2 – Pythagoras? Week 2 – Home Section
Week 1-2					
RMF					
Week 3	<ul style="list-style-type: none"> <li>Solve problems involving direct proportion</li> <li>Explore the relationship between graphs and equations corresponding to simple rate problems.</li> <li>Understand the difference between direct and inverse proportion, identifying these in real life contexts and using these relationships to solve problems.</li> </ul>	Ex 6.1 – 6.9	Quest: Ch 8 Cambridge: Ch 1 Pearson: Ch 9 (9.6 – 9.7)		Investigation 2 – In-class validation
Ch 6 - Proportion					
Weeks 4-5	A Extracts information from a word problem to draw a diagram using geometrical conventions and justifies similarity. Uses the ratio or identifies the scale factor and applies it multiple times to determine the lengths of unknown sides.	Ex 8.1 – 8.7	Quest: Ch 5 Cambridge: Ch 7 Pearson: Ch 6		
Chapter 8 Geometry	B Identifies and names similar triangles from various orientations, naming the condition. Uses the ratio or determines the scale factor to calculate the lengths of unknown sides.				
	C				

	Explains similarity in triangles. Interprets ratio and scale factors in similar figures. Determines the scale factor and applies it to given similar figures to calculate missing side lengths of the triangle.				
<b>Weeks 6-7</b> Chapters 12 & 17 Trigonometry • Tangent Ratio • Sine Ratio • Cosine Ratio • Trigonometry • Elevation & Depression • Multi-Step Problems	<b>A</b> Diagrammatically represents a complex word problem and applies trigonometry to determine an unknown side length and angles of a right-angled triangle.	Ex 12.1 – 12.8	Quest: Ch 6 (6E – 6H)  Cambridge: Ch 3 (3.5 – 3.10)  Pearson: Ch 7		
	<b>B</b> Explains the connection between similarity and the trigonometric ratios. Uses trigonometry to find the length of an unknown side in a given right-angled triangle.	Ex 17.1 - 17.8			
	<b>C</b> Selects and uses the correct trigonometric ratio to calculate unknown angles, e.g. angles of elevation and depression.				
<b>Weeks 8-9</b> Chapter 18 – Algebra 2 Binomial expansion • Graphing parabolas • Finding x & y intercepts	<b>A</b> • Formulates algebraic expressions to represent situations and applies the distributive law, including negatives and fractions, to expand and simplify binomial products. • Distinguishes between linear, quadratic and circular relations and sketches their matching graphs, showing the coordinates. Graphically solves non-linear equations and supports solutions with correct algebraic working.	Ex 18.9 – 18.14  (Selective revision of Ex 18.1 – 18.8)	Quest: Ch 18 (Revisit Ch 3; Ch16 – Function)  Cambridge: Ch 8 & 10  Pearson: Ch 9 (9.3) & Ch 5 (5.6; 5.7)		Week 8: Test 3  Week 9: Mental test
	<b>B</b> • Applies the distributive law to expressions, including negatives and fractions, to expand and simplify binomial products. • Identifies the algebraic forms of non-linear relations and sketches their matching graphs showing coordinates of key points. Graphically solves non-linear equations.				
	<b>C</b>				

	<ul style="list-style-type: none"> <li>Applies the distributive law to expressions, including binomials, and simplifies by collecting like terms where appropriate.</li> <li>Identifies the algebraic forms of non-linear relations and sketches their matching graphs, with and without the use of technologies.</li> </ul>				
<b>Week 10</b>	Activities / Catch Up				
<b>TERM 4</b> <b>Week 1-2</b>	A Conjectures that any segment from a line will have a gradient the same as the line. Conjectures from a diagram that parallel lines in a Cartesian plane have the same gradient. Calculates the equation of a linear rule from a diagram, a table of values or a graph.	Ex 16.1 – 16.9	Geogebra -investigate changes to a,b,c,d on $y=x^2$  Quest: Ch 7 (7G).  Cambridge: Ch 4  Pearson: Ch 5 (5.5)		
Chapter 16 – Coordinate Geometry	B Solves problems on the Cartesian plane using gradient, midpoint and distance, including finding missing coordinates. Calculates the equation of a line, given the gradient and a point.				
	C Uses two points on the Cartesian plane to determine the gradient of a line segment. Calculates the distance between two given points and calculates the midpoint of a segment.				
<b>Week 3</b>	A Draws the sample space for unequally likely outcomes for two-step experiments, and correctly interprets probabilities that include the words 'not', 'and' or 'or'. Uses the connection between relative frequency and long-run probability. Repeats experiments to confirm probabilities. Calculates theoretical probabilities and compares all results, providing an explanation for discrepancies.	Ex 14.1 – 14.8	Quest: Ch 13  Cambridge: Ch 9 (9.1 – 9.6)  Pearson: Ch 8 (8.5 – 8.7)		
Chapter 14 – Probability	B Draws the sample space for a non-routine, two-step experiment with equally likely outcomes, and assigns probabilities. Correctly interprets probabilities that include the words 'not', 'and' or 'or'. Conducts experiments and calculates relative frequencies to estimate probabilities and compares these to theoretical probabilities.				
	C				

	Draws the sample space to represent the outcomes of a two-step experiment, and assigns probabilities. Conducts experiments and calculates relative frequencies to estimate probabilities.				
Week 4-5 Chapter 19 - Data	A Evaluates different techniques that could be used to collect data from primary and secondary sources, including the reliability of the sources. Selects the most appropriate techniques and justifies choices.	Ex 19.1 – 19.8	Quest: Ch 14 (Revisit 14A & 14B)  Cambridge: Ch 9 Revision)  Pearson: Ch 8 (Revisit 8.1)		Week 4: Test 4 – Chapters 16, 14 & 19
	B Evaluates different techniques that could be used to collect data from primary and secondary sources. Selects the most appropriate techniques.				
	C Compares alternatives to select appropriate techniques to collect data from primary and secondary sources.				
Week 5-6	Exam Revision				
Week 6	<b>Semester 2 Examination</b>				
OLNA Preparation					Week 7: Mental Test
Financial Mathematics (Number and Algebra)  [Not in DWYER]	A Extracts relevant information from a worded problem and manipulates the formula for simple interest to calculate principal, rate or time to make financial decisions. Identifies compound interest as multiple applications of simple interest.		Quest: Ch 11  Cambridge: Ch 1 (1.8 – 1.11)  Pearson: Ch 1		
	B Extracts information from a word problem for a financial situation and calculates simple interest and other associated amounts.				
	C Extracts information from a simple problem and calculates simple interest, with or without technologies.				
	D Calculates profit and loss or interest payments, expressed as a dollar amount or as a percentage.				