

St Stephen's School, Carramar
Year 10 Mathematics Development 2006
Teachers: Mr Corcoran, Mr Prideaux

Term 1

Week	Chapter 1 Number	Text Ref / Resources	Working Math	Technology
1 – 2 (2 weeks)	Revision: <ul style="list-style-type: none"> • Fractions and simplifying ratios • Ratios • Rates of change • Density • Prime factors • Operations on integers and fractions • Rounding and significant figures • Scientific notation • Set notation and Number lines 	Coursebook Exercise 1A To 1Q Puzzles p 40	NN 1 - 2	Companion Website Drag and drop Interactives <ul style="list-style-type: none"> • Maths terms • Simplifying ratios • Rates • Converting Fractions to decimals • Significant figures
	Applications Of Number:	Coursebook Applications P 42 <ul style="list-style-type: none"> • Heart rates and health • Planet models • Paper sizes Extensions P 44 <ul style="list-style-type: none"> • Distance-time graphs • Factorials 		Companion Website Technology applications <ul style="list-style-type: none"> • World Records
	Revision	Coursebook Revision Questions P 46		Companion Website Review Questions
	Assessment Task 1 (GP)	Teacher's Resource Chapter Test 1	NN 3 - 4	

Term 1

Week	Chapter 2 Business Maths	Text Ref / Resources	Working Math	Technology
3 – 4 (2 weeks)	Revision: <ul style="list-style-type: none"> • Calculations In Business • Percentages • Percentage Change • profit and Loss • Discount And Commission 	Coursebook Exercise 2A To 2E		
	Develop New Concepts: <ul style="list-style-type: none"> • Simple and Compound Interest • Reducible interest • Reducing balance loans 	Coursebook Exercise 2F To 2J Puzzles P 70		Companion Website Drag and drop Interactives <ul style="list-style-type: none"> • Going Shopping • Maths terms • Find the weekly wage
	Applications Of Business Maths:	Coursebook Applications P 72 <ul style="list-style-type: none"> • Renting a house • Buying a car Extensions P 74 <ul style="list-style-type: none"> • Effective rate of interest • Home loans 		Companion Website Technology Applications <ul style="list-style-type: none"> • Car Costs
	Revision	Coursebook Revision Questions P 76	NN 5 - 6	Companion Website Review Questions
	Assessment Task 2 (SC)	Teacher's Resource Chapter Test 2		

Term 1

Week	Chapter 3 Measurement	Text Ref / Resources	Working Math	Technology
5 – 7 (3 weeks)	Revision: <ul style="list-style-type: none"> Perimeter and Area of Sectors 	Coursebook Exercise 3A To 3C		
	Develop New Concepts: <ul style="list-style-type: none"> Surface Area Of Prisms And Pyramids Surface Area of Cylinder, Cone and Sphere Volume Of Prisms, pyramids, Cones, Spheres Capacity Pythagoras' theorem in 3D 	Coursebook Exercise 3D To 3L Puzzles P 102 SA Cone Activity		Companion Website Quicktime movie <ul style="list-style-type: none"> Maths on a building site An arched window Drag and drop Interactives <ul style="list-style-type: none"> Maths terms Perimeter 1,2 Area of sectors and composite figures Surface area of a prism Surface area of a cylinder The box animation
	Applications Of Measurement:	Coursebook Applications P 104 <ul style="list-style-type: none"> Pulleys Ellipse Bush fires A tethered lamb Extensions P 106 <ul style="list-style-type: none"> Heron's formula Approximating area under curves 	NN 7 - 8	Companion Website Technology Applications <ul style="list-style-type: none"> Belt and pulley An arched window Animation The Box
	Revision	Coursebook Revision Questions P 108		Companion Website Review Questions
	Assessment Task 3 (GP)	Teacher's Resource Chapter Test 3		

Term 1

Week	Chapter 5 Trigonometry	Text Ref / Resources	Working Math	Technology
8 – 10 (3 weeks)	Revision: <ul style="list-style-type: none"> • Labelling Right-Angle Triangles • Tangent ratio 	Coursebook Exercise 5A To 5B		
	Develop New Concepts: <ul style="list-style-type: none"> • Trig ratios • Special triangles and exact values • Angles Of Elevation And Depression • Bearings • Trigonometry in 3D • Exploring the Unit Circle 	Coursebook Exercise 5C To 5P Puzzles P 182	NN 9 - 10	Companion Website Drag and drop Interactives <ul style="list-style-type: none"> • Trigonometry puzzle
	Applications Of Trigonometry:	Coursebook Applications P 184 <ul style="list-style-type: none"> • Non-right Angle trig: Area, Sine and Cosine rules Extensions P 186 <ul style="list-style-type: none"> • Unit circle and tan • trig identities 		Companion Website Technology Applications <ul style="list-style-type: none"> • Investigating Sine curves Animation • Unit circle
	Revision	Coursebook Revision Questions P 188		Companion Website Review Questions
	Assessment Task 4 (SC)	Teacher's Resource Chapter Test 5		

Term 2

Week	Chapter 6 Algebra Techniques	Text Ref / Resources	Working Math	Technology
1 – 4 (4 weeks)	Revision: <ul style="list-style-type: none"> • Expanding single brackets • Expanding double brackets • Factorisation • Simple quadratic trinomials • Simple Linear Equations • Transposing formula • Index numbers 	Coursebook Exercise 6A - 6E Exercise 6L-6M		Companion Website Drag and drop Interactives <ul style="list-style-type: none"> • Maths Terms 1 & 2 • Addition and Subtraction • Multiplication and Division • Grouping Symbols • Simplifying expressions • Factorising
	Develop New Concepts: <ul style="list-style-type: none"> • Other quadratic trinomials • Algebraic fractions • Linear Inequations • Index Laws including fractional and negative powers 	Coursebook Exercise 6F- Q Puzzles P 228	NN 11 - 12	Companion Website Drag and drop Interactives <ul style="list-style-type: none"> • Addition and Subtraction of Algebraic Fractions • Multiplication and Division of Algebraic Fractions • Substitution and Formulae • Fractional indices • Index laws • Negative Indices
	Applications Of Algebra Techniques:	Coursebook Applications P 230 <ul style="list-style-type: none"> • Vegetable garden • Farmyard enclosure • Distance to the horizon • Investigating Pythagoras Extensions P 232 <ul style="list-style-type: none"> • Factorising by grouping • Completing the square 		Companion Website Technology Applications <ul style="list-style-type: none"> • Magic squares with algebraic fractions
	Revision	Coursebook Revision Questions P 234		Companion Website Review Questions
	Assessment Task 5 (GP)	Teacher's Resource Chapter Test 6		

Term 2

Week	Chapter 7 Linear Functions	Text Ref / Resources	Working Math	Technology
5 – 7 (3 weeks)	Revision: <ul style="list-style-type: none"> Graphing Linear equations using x and y intercepts 	Coursebook Exercise 7A -7C		
	Develop New Concepts: <ul style="list-style-type: none"> Graphing Linear equations using m and c. Finding equations of lines Simultaneous linear equations Parallel and perpendicular lines Midpoints and distances between points Absolute value graphs 	Coursebook Exercise 7D – 7M Puzzles P 262	NN 13 - 14	Companion Website Drag and drop Interactives <ul style="list-style-type: none"> Solving Inequations Equations Equations with fractions Maths Terms 1 & 2 Number Plane review Graphing Lines X and y intercepts Horizontal and vertical lines Gradient and y-intercept of a straight line
	Applications Of Linear Functions	Coursebook Applications P 264 <ul style="list-style-type: none"> Break even analysis Internet costs Extensions P 266 <ul style="list-style-type: none"> Sketching inequalities Algebraic inequations 		Companion Website Technology Applications <ul style="list-style-type: none"> Literal equations
	Revision	Coursebook Revision Questions P 268		Companion Website Review Questions
8	Revision and consolidation			
9	Revision and Exams			
10	Work Experience			

Term 3

Week	Chapter 8 Quadratic Functions	Text Ref / Resources	Working Math	Technology
1 – 4 (4 weeks)	Revision: <ul style="list-style-type: none"> Classifying quadratics Using the null factor law 	Coursebook Exercise 8A - 8B	NN 15 - 16	
	Develop New Concepts: <ul style="list-style-type: none"> Solving Quadratic Equations The quadratic equation Exploring Parabolas Sketching parabolas Solving worded problems Solving quadratic inequations Completing the square and turning point form 	Coursebook Exercise 8C – 8P Puzzles P 310 Quadratic Graph Transformations Quadratics Optimisation Stenduser		Companion Website Quick Time Movies <ul style="list-style-type: none"> Parabolas In Headlights And Satellites Companion Website Drag and drop Interactives <ul style="list-style-type: none"> Maths terms parabola puzzle
	Applications Of Quadratic functions:	Coursebook Applications P 312 <ul style="list-style-type: none"> The box problem Fireworks Simultaneous linear and quadratic equations Extensions P 314 <ul style="list-style-type: none"> Algebraic Fractions Solving quadratics using guess and check Quadratic Functions Summary	NN 17 - 18	Companion Website Technology Applications <ul style="list-style-type: none"> Completing the square Parabolas in turning point and x-intercept form
	Revision	Coursebook Revision Questions P 316		Companion Website Review Questions
Assessment Task 6 (SC)	Teacher's Resource Chapter Test 8			

Term 3

Week	Chapter 9 Probability	Text Ref / Resources	Working Math	Technology
5 – 6 (1.5 weeks)	Revision: <ul style="list-style-type: none"> theoretical probability Venn diagrams 	Coursebook Exercise 9A – 9B		
	Develop New Concepts: <ul style="list-style-type: none"> mutually exclusive events two way tables Independent events sampling without replacement 	Coursebook Exercise 9C – 9F Puzzles P 344		Companion Website Drag and drop Interactives <ul style="list-style-type: none"> Maths Terms Rolling two dice Pack of cards
	Applications Of Probability:	Coursebook Applications P 346 <ul style="list-style-type: none"> Mendel's genetics matchbox Pascal's triangle Extensions P 348 <ul style="list-style-type: none"> Percentage frequency tables 		Companion Website Technology Applications <ul style="list-style-type: none"> Probability investigation
	Revision	Coursebook Revision Questions P 350		Companion Website Review Questions
	Assessment Task 7 (GP)	Teacher's Resource Chapter Test 9	NN 19 - 20	

Term 3

Week	Chapter 10 Statistics	Text Ref / Resources	Working Math	Technology
6 - 7 (1.5 weeks)	Revision: <ul style="list-style-type: none"> • Histograms 	Coursebook Exercise 10A		
	Develop New Concepts: <ul style="list-style-type: none"> • Mean And Standard deviation • Cumulative frequency • Boxplots and The Interquartile Range • Outliers 	Coursebook Exercise 10B – 10F Puzzles P 384		Companion Website Drag and drop Interactives <ul style="list-style-type: none"> • Maths terms
	Applications Of Statistics:	Coursebook Applications P 386 <ul style="list-style-type: none"> • Mobile phone bills • Predicting the mean from a sample • Misuse of statistics Extensions P 388 <ul style="list-style-type: none"> • Bell shaped curves 		Companion Website Technology Applications <ul style="list-style-type: none"> • Bivariate project
	Revision	Coursebook Revision Questions P 390	NN 21 - 22	Companion Website Review Questions

Term 3

Week	Chapter 11 Variation, Exponential and Reciprocal functions	Text Ref / Resources	Working Math	Technology
8 - 10 (3 weeks)	Develop New Concepts: <ul style="list-style-type: none"> • Direct and spatial variation • Inverse variation and reciprocal relationships • Joint variation • Exponential relationships 	Coursebook Exercise 11A -11M Puzzles P 422		Companion Website Drag and drop Interactives Direct variation puzzle
	Applications Variation, Exponential and Reciprocal functions.	Coursebook Applications P 424 <ul style="list-style-type: none"> • Kepler's Law • Lunar attraction • Hooke's Law Extensions P 426 <ul style="list-style-type: none"> • the effects of operations on variation rules • Deflection of a beam 	NN 23 - 24	Companion Website Technology Applications <ul style="list-style-type: none"> • Radio active decay • Modelling relationships
	Revision	Coursebook Revision Questions P 428		Companion Website Review Questions
	Investigation Due (SC)		Investigation Due (SC)	
	Assessment Task 8 (GP)	Teacher's Resource Chapter Tests 10 and 11		

Term 4

Week	Chapter 4 Space Chapter 5 Trigonometry Extension Chapter 12 Trigonometric and Cubic Functions	Text Ref / Resources	Working Math	Technology
1 – 4 (3.5 weeks)	<p>Revision:</p> <ul style="list-style-type: none"> • Angles and Polygons • Congruent Shapes • Similar figures <p>Applications Of Space:</p> <ul style="list-style-type: none"> • Applying similar triangles <p>Develop new concepts:</p> <ul style="list-style-type: none"> • Area of Non Right Triangles • Sine and Cosine Rules • Trigonometric graphs • Difference Tables • Cubic functions 	<p>Coursebook Chapter 4 4A, 4B, 4E – 4G Puzzles P 142 Applications P 144</p> <ul style="list-style-type: none"> • The Sierpinski triangle • the Koch snowflake <p>Extensions P 146</p> <ul style="list-style-type: none"> • Complex similar triangle problems • maximum flow networks <p>Chapter 5 Applications P184</p> <ul style="list-style-type: none"> • Area Rule <p>Applications P 185</p> <ul style="list-style-type: none"> • Sine & Cosine Rules <p>Chapter 12 Exercise 12A – 12M Puzzles P 454 Guess the Function Worksheet</p>	NN 25 - 26	<p>Companion Website Chapter 4 Drag and drop Interactives</p> <ul style="list-style-type: none"> • Maths terms • Angles Review1, 2, 3 • Triangles and quadrilaterals review • Angle sum of polygons review • Similar triangles puzzle <p>Technology Applications</p> <ul style="list-style-type: none"> • The maths race <p>Chapter 12 Animation</p> <ul style="list-style-type: none"> • Unit circle <p>Technology Application</p> <ul style="list-style-type: none"> • Investigating Sine Curves
	Applications of Trigonometric and Cubic functions	<p>Coursebook Applications P 456</p> <ul style="list-style-type: none"> • Gradients of tangents <p>Extensions P 458</p> <ul style="list-style-type: none"> • hybrid functions 		
	Revision	<p>Coursebook Revision Questions P 148 & P460</p>	NN 27 - 28	<p>Companion Website Review Questions</p>
	Assessment Task 9 (SC)	<p>Teacher's Resource Chapter Tests 4 and 12</p>		

Term 4

Week	Chapter 13 Circle Geometry	Text Ref / Resources	Working Math	Technology
4 – 5 (1.5 weeks)	Develop New Concepts: <ul style="list-style-type: none"> • Circle definitions • Angles in a circle • Tangents to circles • Geometric Constructions • Small and great circles 	Coursebook Exercise 13A – 13L Puzzles p 482 Mathxtc.com Circle Geometry Interactives and notes. Great Circles Activity.		Companion Website Drag and drop Interactives <ul style="list-style-type: none"> • Circle geometry puzzle
	Applications Of Circle Geometry:	Coursebook Applications P 484 <ul style="list-style-type: none"> • Polar Co-ordinates • Cardioid • spiral of Archimedes Extensions P 486 <ul style="list-style-type: none"> • Equations of circles • Conics • Directrix of parabolas 	NN 29 - 30	Companion Website Technology Applications <ul style="list-style-type: none"> • Circles Investigation • Spin graphs animation
	Revision	Coursebook Revision Questions P 488		Companion Website Review Questions
6	Revision and exam			
7	Camp			
8	Year 11 Preparation			