



St Stephen's School, Carramar
Year 10 Mathematics Development 2008
Teachers: Mr Corcoran, Mr Prideaux

Term 1

Week	Chapter 1 Number	Text Ref / Resources	Technology
1 – 2 (2 weeks)	Revision: - 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	Companion Website Drag and drop Interactives - Maths terms - Simplifying ratios - Rates - Converting Fractions to decimals - Significant figures
	Applications Of Number:	Coursebook Applications P 42 - Heart rates and health - Planet models - Paper sizes Extensions P 44 - Distance-time graphs - Factorials	Companion Website Technology applications World Records
	Revision	Coursebook Revision Questions P 46	Companion Website Review Questions
	Assessment Task 1 (GP)	Teacher's Resource Chapter Test 1	

Term 1

Week	Chapter 2 Business Maths	Text Ref / Resources	Technology
3 – 4 (2 weeks)	Revision: • Calculations In Business • Percentages • Percentage Change • profit and Loss • Discount And Commission	Coursebook Exercise 2A To 2E	
	Develop New Concepts: • Simple and Compound Interest • Reducible interest • Reducing balance loans	Coursebook Exercise 2F To 2J Puzzles P 70	Companion Website Drag and drop Interactives • Going Shopping • Maths terms • Find the weekly wage
	Applications Of Business Maths:	Coursebook Applications P 72 • Renting a house • Buying a car Extensions P 74 • Effective rate of interest • Home loans	Companion Website Technology Applications • Car Costs
	Revision	Coursebook Revision Questions P 76	Companion Website Review Questions
	Assessment Task 2 (SC)	Teacher's Resource Chapter Test 2	

Term 1

Week	Chapter 3 Measurement	Text Ref / Resources	Technology
5 – 7 (2 $\frac{1}{2}$ weeks)	Revision: Perimeter and Area of Sectors	Coursebook Exercise 3A To 3C	
	Develop New Concepts: - 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 - Maths on a building site - An arched window Drag and drop Interactives - 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 - Pulleys - Ellipse - Bush fires - A tethered lamb Extensions P 106 - Heron's formula - Approximating area under curves	Companion Website Technology Applications - 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	Technology
7 – 9 (2 $\frac{1}{2}$ weeks)	Revision: • Labelling Right-Angle Triangles • Tangent ratio	Coursebook Exercise 5A To 5B	
	Develop New Concepts: • 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	Companion Website Drag and drop Interactives • Trigonometry puzzle
	Applications Of Trigonometry:	Coursebook Applications P 184 • Non-right Angle trig: Area, Sine and Cosine rules Extensions P 186 • Unit circle and tan • trig identities	Companion Website Technology Applications • 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	
	Chapter 5 Trigonometry Extension		
10	Develop new concepts: • Area of Non Right Triangles • Sine and Cosine Rules Possible Extension. • Sine and Cosine Law Proofs • Heron's Formula for Area	Chapter 5 Applications P184 • Area Rule Applications P 185 • Sine & Cosine Rules	Companion Website Review Questions

Term 2

Week	Chapter 6 Algebra Techniques	Text Ref / Resources	Technology
1 – 4 (4 weeks)	Revision: - 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 - Maths Terms 1 & 2 - Addition and Subtraction - Multiplication and Division - Grouping Symbols - Simplifying expressions - Factorising
	Develop New Concepts: - Other quadratic trinomials - Algebraic fractions - Linear Inequations - Index Laws including fractional and negative powers	Coursebook Exercise 6F- Q Puzzles P 228	Companion Website Drag and drop Interactives - 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 - Vegetable garden - Farmyard enclosure - Distance to the horizon - Investigating Pythagoras Extensions P 232 - Factorising by grouping - Completing the square	Companion Website Technology Applications 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	Technology
5 – 9 (4 weeks)	Revision: Graphing Linear equations using x and y intercepts	Coursebook Exercise 7A -7C	
	Develop New Concepts: - 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	Companion Website Drag and drop Interactives - 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 - Break even analysis - Internet costs Extensions P 266 - Sketching inequalities - Algebraic inequations	Companion Website Technology Applications Literal equations
	Revision	Coursebook Revision Questions P 268	Companion Website Review Questions
8	Revision and Exams (GP + SC)		
9 - 10	Revision and consolidation		
11	Work Experience		

Term 3

Week	Chapter 8 Quadratic Functions	Text Ref / Resources	Technology
1 – 4 (4 weeks)	Revision: - Classifying quadratics - Using the null factor law	Coursebook Exercise 8A - 8B	
	Develop New Concepts: - 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 - Parabolas In Headlights And Satellites Companion Website Drag and drop Interactives - Maths terms - parabola puzzle
	Applications Of Quadratic functions:	Coursebook Applications P 312 - The box problem - Fireworks - Simultaneous linear and quadratic equations Extensions P 314 - Algebraic Fractions - Solving quadratics using guess and check Quadratic Functions Summary	Companion Website Technology Applications - 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	Technology
5 – 6 (1 $\frac{1}{2}$ weeks)	Revision: - theoretical probability - Venn diagrams	Coursebook Exercise 9A – 9B	
	Develop New Concepts: - mutually exclusive events - two way tables - Independent events - sampling without replacement	Coursebook Exercise 9C – 9F Puzzles P 344	Companion Website Drag and drop Interactives - Maths Terms - Rolling two dice - Pack of cards
	Applications Of Probability:	Coursebook Applications P 346 - Mendel's genetics - matchbox - Pascal's triangle Extensions P 348 - Percentage frequency tables	Companion Website Technology Applications Probability investigation
	Revision	Coursebook Revision Questions P 350	Companion Website Review Questions
		Teacher's Resource Chapter Test 9	

Term 3

Week	Chapter 10 Statistics	Text Ref / Resources	Technology
6 - 7 (1 $\frac{1}{2}$ weeks)	Revision: Histograms	Coursebook Exercise 10A	
	Develop New Concepts: - 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 Maths terms
	Applications Of Statistics:	Coursebook Applications P 386 - Mobile phone bills - Predicting the mean from a sample - Misuse of statistics Extensions P 388 - Bell shaped curves	Companion Website Technology Applications Bivariate project
	Revision Assessment Task 7 (GP)	Coursebook Revision Questions P 390	Companion Website Review Questions

Term 3

Week	Chapter 11 Variation, Exponential and Reciprocal functions	Text Ref / Resources	Technology
8 - 10 (3 weeks)	Develop New Concepts: • 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 • Kepler's Law • Lunar attraction • Hooke's Law Extensions P 426 • the effects of operations on variation rules • Deflection of a beam	Companion Website Technology Applications • Radio active decay • Modelling relationships
	Revision	Coursebook Revision Questions P 428	Companion Website Review Questions
	Assessment Task 8 (SC)	Teacher's Resource Chapter Tests 10 and 11	

Term 4

Week	Chapter 4 Space Chapter 12 Trigonometric and Cubic Functions	Text Ref / Resources	Technology
1 – 3 (3weeks)	Revision: - Angles and Polygons - Congruent Shapes - Similar figures Applications Of Space: - Applying similar triangles Develop new concepts: - Trigonometric graphs - Difference Tables - Cubic functions	Coursebook Chapter 4 4A, 4B, 4E – 4G Puzzles P 142 Applications P 144 - The Sierpinski triangle - the Koch snowflake Extensions P 146 - Complex similar triangle problems - maximum flow networks Chapter 12 Exercise 12A – 12M Puzzles P 454 Guess the Function Worksheet	Companion Website Chapter 4 Drag and drop Interactives - Maths terms - Angles Review1, 2, 3 - Triangles and quadrilaterals review - Angle sum of polygons review - Similar triangles puzzle Technology Applications - The maths race Chapter 12 Animation - Unit circle Technology Application - Investigating Sine Curves
	Applications of Trigonometric and Cubic functions	Coursebook Applications P 456 - Gradients of tangents Extensions P 458 - hybrid functions	
	Revision	Coursebook Revision Questions P 148 & P460	Companion Website Review Questions
	Assessment Task 9 (GP)	Teacher's Resource Chapter Tests 4 and 12	

Term 4

Week	Chapter 13 Circle Geometry	Text Ref / Resources	Technology
4 – 5 (2 weeks)	Develop New Concepts: • Circle definitions • Angles in a circle • Tangents to circles • Geometric Constructions • Small and great circles	Coursebook Exercise 13A – 13L Puzzles p 482 Mathxtec.com Circle Geometry Interactives and notes. Great Circles Activity.	Companion Website Drag and drop Interactives • Circle geometry puzzle
	Applications Of Circle Geometry:	Coursebook Applications P 484 • Polar Co-ordinates • Cardioid • spiral of Archimedes Extensions P 486 • Equations of circles • Conics • Directrix of parabolas	Companion Website Technology Applications • Circles Investigation • Spin graphs animation
	Revision	Coursebook Revision Questions P 488	Companion Website Review Questions
6	Revision and exam (SC)		
7	Year 11 Preparation		
8	Camp		



Stephen's School – Carramar Campus

Mathematics Learning Area

Year 10 Mathematics Development – Student Course Notes 2008

1. All students must have the following equipment as well as their textbook: pens; pencils; eraser; ruler; Math-Aid; Proliner; graph paper; and a suitable graphic calculator.
2. Students must keep and maintain a Mathematics Journal.
3. Investigations and problem solving form part of the assessment schedule.
4. Students must keep a portfolio containing all assessments. Parents are expected to sight and sign these.
5. At the end of each topic it is a good idea to file all work at home in a way that helps examination revision later in the semester.
6. Mathematics classes are grouped based on ability levels. It is normal for a small number of students to be moved into a more challenging or less demanding mathematics course depending on how well they are coping with their current mathematics course.
7. During significant assessments teachers may permit students to prepare 1 A4 page of notes to be used during the assessment. On occasions the student's mathematics journal may also be permitted.
8. In the interest of fairness and as stated in the school Assessment Policy, students who are absent for any significant mathematics assessment are expected to produce a medical certificate. Failure to do so may result in a zero score for the missed assessment.
9. Only approved calculators as stated on the booklist for this course are permitted in assessments. Some assessments or parts of assessment will be resource free.
I.e. No calculators or notes permitted.

10. Homework is an integral part of our mathematics curriculum. Year 10 students should be completing an average of 30 - 40 minutes mathematics homework (fun work at home) at least 5 nights a week. Once class work and set homework has been completed students are expected to work on assignments, mathematics journals, extension work, revision, read ahead in text book etc.

Assessment Breakdown Year 10 Semester 1

Tests(Common to level)	40%
Exam (Common to level)	25%
Investigations, problem solving and/or assignments	25%
Journal	10%

Assessment Breakdown Year 10 Semester 2

Tests(Common to level)	40%
Exam (Common to level)	25%
Investigations, problem solving and/or assignments	25%
Journal	10%

Final mark for year will be the average of both semester's marks.

Grades allocated (from high to low) will be A, B, C, D and E.

Parent Signature:

Date: