



Stephen's School – Carramar Campus

Mathematics Learning Area

Year 9 – 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 scientific 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 sign 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 9 students should be completing an average of 25 - 35 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 9

Semester 1

Tests (Common to level)	65%
Investigations, problem solving and/or assignments	25%
Journal	10%

Assessment Breakdown Year 9

Semester 2

Tests (Common to level)	70%
Investigations, problem solving and/or assignments	25%
Journal	5%

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

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

Parent Signature:

YEAR 9 MATHEMATICS MENTAL SKILLS

While the appropriate use of a calculator is a key objective, much of the “street mathematics” we do is performed mentally. These skills should be practiced regularly.

Furthermore, mental is useful for revising concepts previously taught or alerting you to skills to be used in lessons.

The following is a list of some of the skills that should be practiced in mental (after the relevant lessons have been taught in most cases).

- money operations
- units of time
- mixed operations with whole numbers
- multiplying & dividing by multiples of 10
- decimals multiplied or divided by a whole number
- continuing number sequences
- fraction of a quantity
- estimation of a computation by rounding
- factors, multiples, squares, square roots, cubes, cube roots, divisibility tests for whole numbers
- fraction/decimal/percentage equivalents
- percentage of a quantity
- solving simple equations
- comparisons of negative integers
- angle relationships
- using ratios
- calculating with a rate
- simple perimeters, areas & volumes
- recall of terminology
- spelling of terminology
- substitution into algebraic expressions
- simplifying simple algebraic expressions
- scientific notation
- recall of area formulas

St Stephen's School – Carramar

Year 9 Mathematical Development Program 2008

TEACHERS: Glen Prideaux, Catherine Stanley & David Adeline

PROGRAM – TERM 1 - 2008

Lesson	Week	Chapter 1 Numbers	Class Work	Technology
1-4	1	Revision: • Whole Numbers • Decimal And Fractions • Directed Numbers • Indices • Percentages • Mental Strategies	Coursebook Exercise 1A To 1R Puzzles P 26	
5-7	2	Applications Of Whole Numbers:	Coursebook Applications P 28 • Battleships • Sorting Percentages Extensions P 30 • Bank Statements • Cross Sections	Companion Website Technology Applications • Coldest Temperatures • Percentages To Fractions And Decimals • Number Properties • Addition And Subtraction Of Directed Numbers
8		Revision	Coursebook Revision Questions P 32	Companion Website Review Questions
9		Assessment Task 1 (CS)		
Lesson	Week	Chapter 2 Consumer Maths	Class Work	Technology
1-4	3	Revision: • Calculations In Business • Percentages In Our Diet	Coursebook Exercise 2A To 2B	

5-8	4	Develop New Concepts: - Percentages Of Quantities - Percentage Change - Discount And Commission - Wages And Tax Scales - Simple Interest And Best Buy	Coursebook Exercise 2C To 2L Puzzles P 50	
9		Applications Of Consumer Maths:	Coursebook Exploring Shopping 2f Applications P 52 - Fundraising - Budgeting Extensions P 54 - Compound Interest - Hospital Cover	Companion Website Technology Applications - Petrol To Lpg - Percentage Puzzle - Money Puzzle
10	5	Revision	Coursebook Revision Questions P 56	Companion Website Review Questions
11		Assessment Task 2 (GP)	Teacher's Resource Chapter Test 2	
Lesson	Week	Chapter 3 Measurement	Class Work	Technology
1-4	6	Revision: - Converting Units - Perimeter Of Shapes	Coursebook Exercise 3A To 3B	
5-6	7	Develop New Concepts: - Circumference Of A Circle - Composite Shapes - Area Of Trapezium, Circles And Sectors - Surface Area Of Prisms And Pyramids - Volume Of Prisms And Capacity	Coursebook Exercise 3C To 3L Puzzles P 80	

7		Applications Of Measurement:	Coursebook Applications P 82 • Fish Tanks • Skateboarding • Clothes Line Extensions P 84 • Perimeters Of Complex Shapes • Truncated Cones • Maximum Volumes	Companion Website Technology Applications • Luggage Volumes • Units Of Length Puzzle • Maths Terms Puzzle • Units Of Capacity And Volume • Area And Volume Formulas
8		Revision	Coursebook Revision Questions P 86	Companion Website Review Questions
9		Assessment Task 3 (DA)	Teacher's Resource Chapter Test 3	
Lesson	Week	Chapter 4 Pythagoras	Class Work	Technology
1-8	8-9	Develop New Concepts: • Pythagoras' Theorem • Pythagorean Triples • Compound Shapes	Coursebook Exercise 4A To 4G Puzzles P 106	
9	10	Applications Of Pythagoras: • Co-Ordinate Geometry 4h	Coursebook Applications P 108 • Plotting Irrational Numbers • Perigal's Dissection Extensions P 110 • Area Of Complex Shapes • Generalising Pythagorean Triples	Companion Website Technology Applications • Pythagorean Triples • Pythagoras Puzzle • Maths Terms Puzzle • Pythagoras Animation
10		Revision	Coursebook Revision Questions P 112	Companion Website Review Questions
11		Assessment Task 4 (CS)	Teacher's Resource Chapter Test 4	

PROGRAM – TERM 2 – 2008

Lesson	Week	Chapter 5 Trigonometry	Class Work	Technology
1-9	1-2	Develop New Concepts: • Labelling Right-Angle Triangles • Tangent Ratios • Finding Sides And Angles Using Tan Extensions: • Sine And Cosine Ratios • Finding The Hypotenuse • Angles Of Elevation And Depression • Bearings	Coursebook Exercise 5A To 5K Puzzles P 136	
10-11	3	Applications Of Trigonometry:	Coursebook Applications P 138 • Shooting For Goal • Measuring Tan Extensions P 140 • Complex Problems • Areas Of Shapes • Bushwalking	Companion Website Technology Applications • Shooting For A Goal • Trigonometry Puzzle • Trig Ratios Animation
12		Revision	Coursebook Revision Questions P 142	Companion Website Review Questions
13		Assessment Task 5 (GP)	Teacher's Resource Chapter Test 5	
Lesson	Week	Chapter 6 Ratio And Rates	Class Work	Technology
1-4	4	Revision: • Ratio And Proportion • Simplifying Ratios	Coursebook Exercise 6A	
5-7	5	Develop New Concepts: • Using Ratios • Rates And Speed, Distance And Time • Graphs And Time • Scale Diagrams • Exploring Maps	Coursebook Exercise 6B To 6H Puzzles P 166	

8	6	Applications Of Ratio And Rates:	Coursebook Applications P 168 • The Parthenon • Living Golden Ratios • Designing Houses • Favourite Rectangles Extensions P 170 • Density • Complex Ratios	Companion Website Technology Applications • Speed, Distance And Time • Simplifying Ratios Puzzle • Rates Puzzle • Equivalent Ratios Puzzle
9		Revision	Coursebook Revision Questions P 172	Companion Website Review Questions
10		Assessment Task 6 (DA)	Teacher's Resource Chapter Test 6	
Lesson	Week	Chapter 7 Polygons And Polyhedra	Class Work	Technology
1-2	7	Revision: • Naming Angles • Complementary And Supplementary • Triangles, Quadrilaterals And Polygons • Angles In Parallel Lines • Congruent Shapes	Coursebook Exercise 7A - 7E	
3-6		Develop New Concepts: • Similar Shapes • Applications Of Similar Triangles • Drawing 3d Shapes	Coursebook Exercise 7F -7I Exercise 7J -7K Puzzles P 202	Companion Website Quicktime Movies Nets Of Polyheda
7	8	Applications Of Polygons And Polyhedra:	Coursebook Applications P 204 • Tetrominoes • Pentominoes • Exterior Angles Of A Polygon • Patchwork Extensions P 206 • Vertex Angles In Polygons • Pizza Cuts	Companion Website Technology Applications • Nets For Polyhedra • Maths Terms Puzzle • Recognising 3d Shapes • Recognising Plane Shapes • Finding The Size Of Angles: 1,2,3 • Finding Lengths In Similar Figures • Types Of Angles • Properties Of 2d Shapes
8		Revision	Coursebook Revision Questions P 208	Companion Website Review Questions

9		Assessment Task 7 (CS)	Teacher's Resource Chapter Test 7	
Lesson	Week	Chapter 8 Transformations And Location	Class Work	Technology
1-4	9	Revision: • Transformations • Enlargements • Scale Factors And Maps	Coursebook Exercise 8A -8G	
5-6		Develop New Concepts: • Networks • Using Networks	Coursebook Exercise 8H -8I Puzzles P 228	Companion Website Quick Time Movies • Transformation • Geometry In Architecture
7	10	Applications Of Transformations And Location:	Coursebook Applications P 230 • Transformation Patterns • Planes Of Symmetry • Maps Extensions P 232 • Networks • Critical Paths	Companion Website Technology Applications • Transformations Worksheet • Maths Terms Puzzle
8		Revision	Coursebook Revision Questions P 234	Companion Website Review Questions
9		Assessment Task 8 (GP)	Teacher's Resource Chapter Test 8	

PROGRAM – TERM 3 - 2008

Lesson	Week	Chapter 9 Algebra And Number Patterns	Class Work	Technology
1-5	1	Revision: - Algebraic Expressions - Collecting Like Terms - Substitution - Formulas	Coursebook Exercise 9A – 9E	
6-13	2-3	Develop New Concepts: - Expanding Brackets - Factorisation - Index Numbers - Index Laws - Scientific Notation	Coursebook Exercise 9F To 9O Puzzles P 268	
14-16	4	Applications Of Algebra And Number Patterns:	Coursebook Applications P 270 - Chessboard Rewards - Triads - Balls Extensions P 272 - Negative Indices - Index Equations	Companion Website Technology Applications - Magic Squares - Substitution Puzzle - Algebraic Abbreviations - Substitution Into Formulae - Simplifying Algebraic Expressions A , B - Making Sense Of Algebra
17		Revision	Coursebook Revision Questions P 274	Companion Website Review Questions
18		Assessment Task 9 (DA)	Teacher's Resource Chapter Test 9	
Lesson	Week	Chapter 10 Solving Linear Equations	Class Work	Technology
1-4	5	Revision: Simple Equations	Coursebook Exercise 10A	
5-14	6-7	Develop New Concepts: - Solving Equations Using Flow Charts - Inverse Operations - Solving Equations With Brackets - Graphing Simultaneous Equations - Substitution Method - Elimination Method	Coursebook Exercise 10B – 10J Puzzles P 298	

15-16	8	Applications Of Solving Linear Equations:	Coursebook Applications P 300 - Break Even Analysis Extensions P 302 - Solving Equations With Algebraic Fractions Using Backtracking And Flow Charts	Companion Website Technology Applications - Flowcharts - Maths Terms - Solving Equations
17		Revision	Coursebook Revision Questions P 304	Companion Website Review Questions
18		Assessment Task 10 (CS)	Teacher's Resource Chapter Test 10	
Lesson	Week	Chapter 11 Linear Graphs	Class Work	Technology
1-2	9	Revision: Plotting Points	Coursebook Exercise 11A	
3-6		Develop New Concepts: - Linear Patterns And Simple Rules - Plotting Points From Rules - Horizontal And Vertical Lines - Gradients Of Straight Lines - Finding Equations Of Lines - The Gradient And Y-Intercept	Coursebook Exercise 11B -11I Puzzles P 328	
7	10	Applications Of Linear Graphs:	Coursebook Applications P 330 - Web Page Costs - Reflections - Jumping Castle Hire Extensions P 332 - Linear Relations - Simultaneous Equations - Plotting Parabolas	Companion Website Technology Applications - Points On A Line - Plotting Co-Ordinates - Lingraph Animation
8		Revision	Coursebook Revision Questions P 334	Companion Website Review Questions
9		Assessment Task 11 (GP)	Teacher's Resource Chapter Test 11	

PROGRAM – TERM 4 - 2008

Lesson	Week	Chapter 12 Quadratic Functions	Class Work	Technology
1-9	1-2	Develop New Concepts: - Solving Quadratic Equations - Worded Problems - Sketching Parabolas	Coursebook Exercise 12A –12J Puzzles P 354	Companion Website Quick Time Movies Parabolas In Headlights And Satellites
10-12	3	Applications Of Quadratic Functions:	Coursebook Applications P 356 - Circle Regions - Handshakes - Optimisation - Curve Stitching Extensions P 358 - Algebraic Fractions - Factorising More Difficult Quadratics	Companion Website Technology Applications - Quadratics - Quadratic Functions Puzzle
13		Revision	Coursebook Revision Questions P 360	Companion Website Review Questions
14		Assessment Task 12 (DA)	Teacher's Resource Chapter Test 12	
Lesson	Week	Chapter 13 Chance	Class Work	Technology
1-5	4	Develop New Concepts: - Sample Space Grids - Tree Diagrams - Simulations - Using Sampling Extension: - Set Notation And Venn Diagrams - Theoretical Probability	Coursebook Exercise 13A – 13F Puzzles P 382 Exercise 13G - H	

6-7	4/5	Applications Of Chance:	Coursebook Applications P 384 • Multiplication Bingo • Colour Combinations • Flags Of The World Extensions P 386 • The Problem Of Points • Mazes	Companion Website Technology Applications • Two Dice • Maths Terms • Spinners Puzzle • Probability Of Simple Events
8		Revision	Coursebook Revision Questions P 390	Companion Website Review Questions
9		Assessment Task 13 (CS)	Teacher's Resource Chapter Test 13	
Lesson	Week	Chapter 14 Statistics	Class Work	Technology
1-4	5/6	Revision: • Collecting Data • Column Graphs And Histograms	Coursebook Exercise 14A -14B	
5-10	6	Develop New Concepts: • The Interquartile Range • Stem And Leaf Plots • Mean And Median • Line Graphs • Scattergraphs • Using A Graphics Calculator	Coursebook Exercise 14C – 14H Puzzles P 416	

11	7	Applications Of Statistics:	Coursebook Applications P 418 • Time Series Data • House Prices • Random Numbers Using Pi • Sampling Extensions P 420 • Temperatures • Grouped Frequency Tables • Boxplots •	Companion Website Technology Applications • World Temperatures • Types Of Graphs • Table Types Puzzle • Maths Terms Puzzle
12		Revision	Coursebook Revision Questions P 422	Companion Website Review Questions
13		Assessment Task 14 (GP)	Teacher's Resource Chapter Test 14	
	8	Year 9 Camp Final Awards Assembly		