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| <b>St Stephen's School</b><br><b>YEAR 11 MAT 1B/1C     Weaver/Key</b><br><b>PROGRAMME 2009</b> |
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**Text:** MAWA Burfitt, Cowey & Jeffery (1B/1C)

| Week     | Curriculum Council Objective and Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Ref | Assessment                                                                                                                                                      |
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| 1.1 -1.3 | <b>Unit 1B</b><br><b>1.1 Number Skills</b><br>1.1.1 read, write, say and use:<br>– whole numbers into the millions<br>– decimals to 3 decimal places<br>– common fractions denominators 2, 3, 4, 5, 6, 8 and 10<br>– common percentages including 10%, 20%, 25%.<br>1.1.2 recognise place value for whole numbers and decimals<br><br><b>1.2 Estimation &amp; Calculations</b><br>1.2.1 use addition facts to $10 + 10$ and multiplication facts to $10 \times 10$ in mental computation, including for inverse calculation of subtraction and division<br>1.2.2 estimate sums, differences, products and quotients by rounding to single digit numbers or multiples of 10<br>1.2.3 calculate fractions, decimals and percentages in contexts such as the fraction/decimal/percentage of the class owning a hand-held computer game<br>1.2.4 write simple fractional equivalences<br>1.2.5 order and record on the number line fractions that are easily visualised<br>1.2.6 add and subtract decimals with written methods<br>1.2.7 order and record on the number line decimals with the same number of decimal places |     | Skills Test Number Skills<br><br>Mathematics (calculator free) (5%)<br><br>Week 2<br><br><br>Investigation/Validation<br><br>Football Ladder (5%)<br><br>Week 3 |
| 1.4-1.5  | <b>1.4 Finance</b><br>1.4.1 budget for personal use:<br>– identify income and expenditure<br>– make budget estimates<br>– follow budgets for a period of time.<br>1.4.2 use mathematics in personal banking:<br>– understand the concept of interest on savings and loans, such as on term deposits, store cards, credit card debit balances, cash advances and personal loans<br>– calculate simple interest, repayments and balance amount.<br>1.4.3 use mathematics in shopping:<br>– calculate discount and price after discount<br>– interpret advertising specials and discounts<br>– calculate unit cost given the price of several items e.g. \$3.50 for 5 items.                                                                                                                                                                                                                                                                                                                                                                                                                                                |     | Skills Test Finance<br><br>Mathematics (1 page of notes) (7.5%)<br><br>Week 5                                                                                   |

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| 1.5-1.10  | <b>2.2 Length, area, mass, volume and capacity, angle</b><br>2.2.1 estimate, measure, order and compare length and mass using metric units<br>2.2.2 read labelled and unlabelled calibrations on whole number scales on a variety of instruments<br>2.2.3 use metric prefixes e.g. kilo and abbreviations e.g. <i>kg</i><br>2.2.4 measure and calculate perimeters of polygons and other shapes<br>2.2.5 generate shapes with specific perimeters<br>2.2.6 estimate and measure areas of polygons and other shapes by counting squares<br>2.2.7 demonstrate and use: <i>area of a rectangle = length × breadth</i><br>2.2.8 compare angles directly and order them by size<br>2.2.9 measure, draw and estimate angles in degrees<br>2.2.10 classify angles as acute, right, obtuse, straight and reflex |  | Project<br><br>Home Decoration (15%)<br><br>Week 9<br><br><br><br><br><br><br><br>Skills Test Space & Measurement<br><br>Mathematics (5%)<br><br>Week 10                              |
| 1.11-1.15 | <b>2.1 Time</b><br>2.1.1 estimate, measure, order and compare time using:<br>– standard units<br>– 12 and 24-hour time.<br>2.1.2 record time on time sheets to the nearest quarter of an hour and calculate hours worked<br>2.1.3 interpret everyday timetables and programs with 12- and 24-hour time.<br><br><b>3.1 Collect and organise data</b><br>3.1.1 plan the collection of data from repeated measurement of a quantity<br>3.1.2 plan recording sheets, organising data in tables<br>3.1.3 record data and check and edit the record<br>3.1.4 group data involving whole numbers into equal-sized class intervals, with guidance.                                                                                                                                                              |  | Investigation/Validation<br><br>Pedestrian Deaths (in class assessment open book) (7.5%)<br><br>Week 14<br><br><br><br>Skills Test Time & Data<br><br>Mathematics (5%)<br><br>Week 15 |
| 1.18      | <b>UNIT 1C</b><br><b>2.2 Location</b><br>2.2.1 use whole-number scales on maps e.g. 1 cm represents 10 km<br>2.2.2 use map coordinates and whole-number scales to interpret maps and plans<br>2.2.3 make maps and plans with whole number scales, showing key features.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                       |
| 1.19-1.20 | <b>1.1 Estimation and calculation</b><br>1.1.1 use the rule of order with +, −, ×, ÷ and brackets when calculating with whole numbers and decimals<br>1.1.2 round to the nearest whole number and one decimal<br>1.1.3 distinguish factors from multiples and write numbers as products of factors<br>1.1.4 use mental/written computation with fractions to:<br>– calculate fractions of whole numbers e.g. $\frac{3}{4}$ of 12<br>– add and subtract fractions with the same denominator<br>– divide whole numbers by unit fractions. e.g. the number of quarters in 10 oranges<br>1.1.5 calculate simple decimal quantities with mental/written computation e.g. 0.5 of 3 kg<br>1.1.6 estimate common percentages of quantities with mental/written computations e.g. 20% of \$16                    |  | Skills Test Calculations<br><br>Mathematics (5%)<br><br>Week 20                                                                                                                       |

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|         | <p>1.1.7 use a calculator to calculate fractions, decimals and percentages of quantities</p> <p>1.1.8 use diagrams to show simple ratios e.g. 1 to 4</p> <p>1.1.9 calculate ratios in contexts e.g. the ratio of sugar to butter in recipes</p> <p>1.1.10 partition quantities according to simple ratios e.g. share \$12 in the ratio 1 to 2</p> <p>1.1.11 describe simple ratios with percentages and fractions</p> <p>1.1.12 calculate with unit rates in contexts including hourly rate of pay, kilometres per hour.</p>                                                   |  |                                                                                                                                                                            |
| 2.1-2.2 | <p><b>1.4 Finance</b></p> <p>1.4.1 use mathematics in the workplace:</p> <ul style="list-style-type: none"> <li>– calculate weekly/fortnightly pay from hourly rate</li> <li>– calculate pay for different conditions including retainer and commission, salary, base pay and overtime</li> <li>– compare the advantages and disadvantages of casual, part-time, full-time, temporary and permanent conditions</li> <li>– calculate employer superannuation contributions</li> <li>– complete personal tax returns</li> <li>– calculate income tax from tax tables.</li> </ul> |  | <p>Skills Test Finance</p> <p>Written Test (5%)</p> <p>Week 2</p> <p>Investigation/Validation</p> <p>Tax Return (7.5%)</p> <p>Week 3</p>                                   |
| 2.3     | <p><b>3.3 Interpret Chance</b></p> <p>3.3.4 order outcomes from least likely to most likely, using simple ratios, fractions and percentages</p> <p>3.3.5 explain numerical values for likelihood in terms of contexts</p> <p>3.3.6 identify real world events with given chance (0, <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math> and 1)</p>                                                                                                                                                                                                    |  | <p>Skills Test Mix &amp; Recipe</p> <p>Written Test (2.5%)</p> <p>Week 3</p>                                                                                               |
| 2.4-2.6 | <p><b>2.1 Length, area, mass, volume and capacity, angle</b></p> <p>2.1.1 derive and use area formulas for squares, rectangles, triangles, parallelograms</p> <p>2.1.2 measure the volume of rectangular prisms by counting cubes</p> <p>2.1.3 demonstrate and use volume formulas for cubes and right rectangular prisms (<i>volume of prism = area of base <math>\times</math> perpendicular height</i>)</p> <p>2.1.4 use ratios to describe concentrations and to interpret information on food labels</p> <p>2.1.5 convert between units of length.</p>                    |  | <p>Investigation/Validation</p> <p>Packaging (in class assessment open book) (7.5%)</p> <p>Week 5</p> <p>Skills Test</p> <p>Space &amp; Measurement (5%)</p> <p>Week 6</p> |
| 2.7-2.8 | <p><b>3.5 Represent Data</b></p> <p>3.3.3 <i>reason about the number of trials needed for reliable conclusions about the likelihood of a result, basing reasoning on experimental data</i></p> <p>3.3.7 <i>identify factors that could affect the chance of an</i></p>                                                                                                                                                                                                                                                                                                         |  | <p>Skills Test</p> <p>Pedestrian Road Deaths (2.5%)</p>                                                                                                                    |

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|           | <p><i>event happening.</i></p> <p>3.5.1 plot points and construct line graphs for time-series data using scales where not all calibrations are labelled</p> <p>3.5.2 describe trend as increasing or decreasing for time series data with a one-to-one correspondence between time and the dependent variable.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <p>Week 7</p> <p>Skills Test</p> <p>Road Fatalities (5%)</p> <p>Week 8</p>                                 |
| 2.9-2.10  | <p><b>3.2 Represent Data</b></p> <p>3.2.4 construct dot frequency plots</p> <p>3.2.5 construct column and horizontal bar graphs showing frequencies for whole-number data grouped in intervals, treating intervals as categories, and using scales calibrated with whole numbers but not all calibrations are labelled</p> <p>3.2.6 calculate mean, median, and mode for listed data and ungrouped frequency data</p> <p>3.2.7 choose averages to suit the contexts of data</p> <p>3.2.8 describe spread in terms of lowest and highest scores and range</p> <p>3.2.9 calculate proportions of data in simple fractional and percentage forms.</p> <p><b>3.3 Interpret Data</b></p> <p>3.3.3 compare individual data using group characteristics (rank data in order of magnitude, and select lowest, highest and middle scores)</p> <p>3.3.4 compare proportions of data satisfying criteria</p> <p>3.3.5 compare datasets using mean/median and spread indicated by lowest and highest scores and range</p> <p>3.3.6 calculate sum of scores from the mean and numbers of data in categories from simple proportions</p> <p>3.3.7 link spread to accuracy in repeated measurement and natural variation in phenomena, and link mean, median, mode to true measurement and typical values</p> <p>3.3.8 report on collected data, including describing the collection and explaining what data and graphs show.</p> |  | <p>Project/Validation</p> <p>Football Statistics (7.5%)</p> <p>Week 10</p>                                 |
| 2.12-2.14 | <p><b>1.3 Patterns</b></p> <p>1.3.1 create tables to show position numbers and elements in a number pattern</p> <p>1.3.2 describe in words:</p> <ul style="list-style-type: none"> <li>– one-step recursive rules for patterns with a given starting number</li> <li>– two-step rules that link each element in a number pattern to position.</li> </ul> <p>1.3.3 write algebraic rules that relate each element of a pattern to its position in the pattern e.g. <math>b = 2 \times n + 1</math></p> <p>1.3.4 support or refute conjectured rules for number patterns by testing cases</p> <p>1.3.5 use rules to continue number patterns and generate terms from rules.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | <p>Investigation/Validation</p> <p>Square Numbers (in class assessment open book) (2.5%)</p> <p>Week 4</p> |
| 2.14      | Catch Up/Exam Revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                            |

**Assessment Schedule**

| Type           | Number | Weightings %         | Total % |
|----------------|--------|----------------------|---------|
| Investigations | 4      | 5,7.5,7.5,7.5,2.5    | 30      |
| Tests          | 4      | 5,5,5,5,2.5,5,2.5,5, | 47.5    |
| Projects       | 2      | 15, 7.5              | 22.5    |

Full details of the Calculus syllabus is found at the Curriculum Council website at [www.curriculum.wa.edu.au](http://www.curriculum.wa.edu.au)