Stage 1 Essential Mathematics – Semester 1 – Trade focus

Topic 1: Calculations, Time and Ratio, Topic 2: Earning and Spending, and Topic 3: Geometry

|  | **Lesson 1 – Single Lesson** | **Lesson 2 – Single Lesson** | **Lesson 3 – Double Lesson** |
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| **Term One****Week 1** | **Course Overview and Expectations** * Including what to bring to class
 | **TOPIC ONE: CALCULATIONS, TIME AND RATIO**Revision of rounding  | Addition and subtraction including fractions, decimals, square roots (perfect squares only) and basic indices without technology |
| **Week 2** | Multiplication including fractions, decimals, square roots (perfect squares only) and basic indices without technology | Division including fractions and decimals without technology (including long division if applicable to students) | Using estimation strategies to come up with approximate solutions (for self-checking and predicting etc.)Non-calculator Activity (15 mins) |
| **Week 3** | BODMAS Revision – Multistep calculations without technology | Solving problems using a calculator – including multistep calculation | Using a calculator to convert fractions to decimalsReview of scientific notationMultiplication and division by multiples of 10 |
| **Week 4** | What units do we use for time? Conversion between fractional, digital and decimal representation | Representing time using both 12 hour and 24 hour clocksCalculating time intervals (including time between, time ahead, time behind | Non-calculator Activity (15 mins) and Revision time for SAT 1Rates Introduction – Units and converting between unitsComparing rates |
| **Week 5** | **SAT ONE – Subtopics 1.1 and 1.2 (time)**Part A: Non-calculator (30 mins)Part B: Calculator (15 mins) | Solving practical problems involving rates, including interpreting rate graphs | **FOLIO ONE****Filling containers task – an investigation of water level changes in containers when water is added at a constant rate, and their representation as height vs volume graphs** |
| **Week 6** | **FOLIO ONE continued** | Seeing the connection between fractions and ratios and how ratios are expressed* Ratios in the simplest form
 | Using ratio to solve problems* Finding the ratio of two quantities
* Dividing a quantity into a given ratio
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| **Week 7** | **FOLIO ONE continued** | Scale* Why do we use scales?
* Where do we see scales?
* Reading maps and diagrams that have scales to answer questions
 | **Practical activity** - Creating a scaled diagram of part of the school groundsFocus on: * Scales in ratio
* Indication of dimensions
* Appropriate labelling
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| **Week 8** | **Practical Activity** continued | **Practical Activity** extensionVerify measurements taken from the scaled diagram created in previous lesson (and homework) by comparing with actual measurements | **TOPIC TWO: EARNING AND SPENDING** Types of ways we earn money and what additional entitlements we may haveQandA Forum: *Guest speakers (tradesperson, fitness coach to talk about the way they earn money, or alternatively a local employer who makes payments to staff using different payment methods).*(30 mins) |
| **Week 9** | Calculating weekly and fortnightly wages (including consideration of overtime rates) | Calculating annual gross income for wages including consideration of annual leave loading, allowances and bonuses | Calculating remuneration for income earned by* Piecework
* Contracts
* Commission

Use and construct spreadsheets to carry out repetitive remuneration calculations more efficiently |
| **Week 10** | Calculating fortnightly or weekly income from a salary | Introduction to tax and types of deductions employees may have* Personal taxation
* Medicare Levy
* Other deductions

Calculating taxable income (deductions) | Calculating Medicare Levy and tax payable Further tax payable calculations and checking with confirmation from a website calculator such as http://www.paycalculator.com.au/ |
| **Week 11** | Final tax owing or tax refund due for given scenarios | **SAT TWO****Guided investigation on remuneration for a variety of jobs**(Students investigate current minimum wage information, and then are provide links and structure for two jobs, and investigate a third individually)\*access to internet required for research of pay rates | **SAT TWO****Guided investigation - continued** |
| Term Two**Week 1** | Introduction to where we spend money. What are the costs associated with the way we spend money (e.g. cash, credit, lay-by, purchase on terms and hire purchase) | Review of percentage to decimal and percentage to fractions | Calculating Percentage Increase / Decrease / Mark up / Discount / GST Calculating trade discounts |
| **Week 2** | Calculating series discounts | Introduction to personal budgets, their importance and what is included in themCreating budgets by hand and using excel | Creating budgets in excelExcel budget Activity (30 mins) |
| **Week 3** | Business budgets, their importance and what may be included in them | **TOPIC THREE: GEOMETRY**2D Shapes and their properties* Regular/irregular
* Circle representations
 | Continuing 2D Shapes and their properties.* Types of triangles

Where possible, use interactive methods to develop these concepts<http://www.mathsisfun.com/geometry/triangles-interactive.html> Measuring and naming angles: acute, right, obtuse, straight, reflex and revolution |
| **Week 4** | Measuring and naming angles: acute, right, obtuse, straight, reflex and revolution | **Practical activity** - Construction of lines and angles using compass and straight edgehttp://www.mathopenref.com/constructions.html | Non-calculator Activity (15 mins)**Practical activity** - Construction of circles and polygons using compass and straight edgehttp://www.mathopenref.com/constructions.html |
| **Week 5** | **Practical activity** - Construction of circles and polygons continuedhttp://www.mathopenref.com/constructions.html | 3D Shapes and their properties3D Nets**Practical activity** - Have a range of solid shapes available, and a wide range of descriptor cards (e.g. has at least one triangular face). Shapes are grouped according to descriptors, and then named according to properties. | 3D Shapes 3D Nets continued – using a net to construct a basic solid such as a cube.**FOLIO TWO** Investigate the construction of existing novelty packaging for sweets or other foodstuffs. By examining the packaging, students understand how the nets are designed.  |
| **Week 6** | **FOLIO TWO continued**Students create their own design for a novelty container. They make the net using construction techniques and present the finished model. | Complementary and supplementary angles<https://interactivemaths.wikispaces.com/2D#int_2d>Select 2D interactive activities, angle activities | **FOLIO TWO**Continued |
| **Week 7** | Parallel line rules – Use interactive applets to determine the relationships between:* Corresponding angles
* Alternate angles
* Vertically opposite angles
* Co-interior angles

<http://www.saltire.com/applets/geometry.htm> | **FOLIO TWO**Continued | Solve a range of problems* Complementary and supplementary angles
* Parallel line rules
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| **Week 8** | Non-calculator Activity  | Flexibility in schedule | Flexibility in schedule |