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** |
| --- | --- | --- | --- | --- |
| **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 decimals  Review of scientific notation  Multiplication 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 clocks  Calculating time intervals (including time between, time ahead, time behind | Non-calculator Activity (15 mins) and Revision time for SAT 1  Rates Introduction – Units and converting between units  Comparing 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 |
| **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 grounds  Focus on:   * Scales in ratio * Indication of dimensions * Appropriate labelling |
| **Week 8** | **Practical Activity** continued | | **Practical Activity** extension  Verify 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 have  QandA 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 them  Creating budgets by hand and using excel | Creating budgets in excel  Excel 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 edge  http://www.mathopenref.com/constructions.html | Non-calculator Activity (15 mins)  **Practical activity** - Construction of circles and polygons using compass and straight edge  http://www.mathopenref.com/constructions.html |
| **Week 5** | **Practical activity** - Construction of circles and polygons continued  http://www.mathopenref.com/constructions.html | | 3D Shapes and their properties  3D 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 |
| **Week 8** | Non-calculator Activity | | Flexibility in schedule | Flexibility in schedule |