**Term 1a**

|  |
| --- |
| **Number** |
| ***Grade*** | **Objective** |
| **4** | Find prime factors, lowest common multiples (LCM) and highest common factors (HCF). |
| **2-4** | Long multiplication, Long Division, Arithmetic with decimal numbers, Multiplying and dividing with negative numbers. |

**Mini review (1a.1)**

|  |
| --- |
| **Percentage and Equivalence** |
| ***Grade*** | **Objective** |
| **3-7** | Use the equivalence of fraction, decimals and percentages to compare proportions. (Including recurring decimals into their corresponding fractions and vice versa). |
| **3** | Expressing one quantity as a percentage of another quantity |
| **4** | Calculate a percentage and find the outcome of a given percentage increase or decrease. |
| **5-6** | Solve problems involving compound interest. |
| **7** | Solve problems involving percentage change and reverse percentages |

**Open Book Test**

|  |
| --- |
| **nth term**  |
| ***Grade*** | **Objective** |
| **4-6** | Recognise and use sequences of triangular, square and cube numbers and simple arithmetic progressions.  |
| **3-4** | Use the nth term to find numbers in a sequence.  |
| **4-8** | Finding the nth term in a sequence and a quadratic sequences. |

**Mini Review (1a.2)**

|  |
| --- |
| **Algebra expanding, factorise,**  |
| ***Grade*** | **Objective** |
| **3** | Know the difference between an equation, formula, expression and an identity.  |
| **3-7** | Expand and simplify brackets, factorise expressions with more than one factor. Factorise, and solve, quadratic equations. Factorise non unitary quadratic equations. |
| **3-5** | Substitute numbers into expressions, including square numbers. |
| **3-4** | Use formulae from maths and other subjects; substitute numbers into expressions and formulae.  |
| **5-6** | Expand products of twoor morebinomials |

**Mini Review (1a.3)**

|  |
| --- |
| **Solving linear equations** |
| ***Grade*** | **Objective** |
| ***3-4*** | Construct and solve linear equations, including equations with brackets and variables on both sides. |
| ***4-7*** | Change the subject of a formula including formula where the subject occurs more than once. |

**Open Book Test**

**Term 1b**

|  |
| --- |
| **Number** |
| ***Grade*** | **Objective** |
| **3** | Round numbers to a given number of decimal places or significant figures. Use approximation to make calculations |
| **5** | Use inequality notation to specify simple error intervals dues to truncation or rounding. |
| **6-7** | Use limits of accuracy in calculations |

**Mini Review**

|  |
| --- |
| **Fractions**  |
| ***Grade*** | **Objective** |
| **3** | Reduce a fraction to its simplest form and use equivalence between fractions and order fractions and decimals. |
| **3** | Add and subtract fractions by writing them with a common denominator, calculate fraction quantities, multiple and divide an integer by a fraction. |
| **4** | Multiply and divide fractions by fractions including mixed numbers. |
| **6** | Simplify algebraic fractions including factorising, multiplying and dividing. |

**Open Book Test/Mini Review**

|  |
| --- |
| **Area Perimeter and circumference** |
| **Grade** | **Objective** |
| **2** | Use standard units of measure and related concepts (length, area,) |
| **2-4** | Use the formula to find the area and perimeter of squares and rectangles. Use the formula to find missing sides when given the area or perimeter. Find the area and perimeter of squares and rectangles after the sides have been increased by a given percentage. Use algebra when it has been given as a side length to determine perimeter and area (including creating an equation to solve problems) |
| **3** | Deduce and use the formulae for the area of a triangle, parallelogram, trapezium and using these to find the area of compound shapes. |
| **4** | Find the area and circumference of circles leaving answers in terms of pi when required. Using the formula to find the radius/diameter when given the area or circumference of a circle. |
| **5** | Calculate arc lengths, angles and areas of sectors of circles |

**Open Book Test/ Mini Review**

**Term 2a**

|  |
| --- |
| **Ratio and proportion**  |
| ***Grade*** | **Objective** |
| **4** | Simplify a ratio and express a ratio as a fraction. |
| **4** | Divide amounts into a given ratio and complete calculations from a given ratio and partial information. |
| **3-4** | Apply ratio to real life contexts and problems such as those involving conversion, comparison, scaling and mixing concentrations. |

|  |
| --- |
| **Solving simultaneous equations** |
| ***Grade*** | **Objective** |
| ***5-6*** | Solve simultaneous equations (linear) |
|  |  |

|  |
| --- |
| **Angles**  |
| **Grade** | **Objective** |
| **2-3** | Solve geometric problems using properties of angles at a point on a straight line and Vertically opposite. Understand and use alternate and corresponding angles on parallel lines to solve problems.  |
| **3-4**  | Derive and apply the properties and definitions of special types ofquadrilaterals, including square, rectangle, parallelogram, trapezium, kiteand rhombus; and triangles and other plane figures using appropriatelanguage |
| **3-4** | Know that the sum of angles in a triangle is 1800 and use this to solve problems in scalene, right angled, isosceles and equilateral triangles.  |
| **3-4**  | Calculate the sum of the internal angles of any polygon using triangles and the formula. Know how to use the formula to find external and internal angles in regular polygons. |
| **3-4**  | Use algebra to construct equations/expressions to solve problems and form proofs on a straight line, around a point, in triangles, quadrilaterals and polygons. |

**Term 2b**

|  |
| --- |
| **Types of data and Sampling**  |
| ***Grade*** | **Objective** |
| **3** | Understand the terms primary, secondary, discrete and continuous data |
| **5** | Infer properties of a population from a sample, whilst knowing the limitations of sampling. |

|  |
| --- |
| **Averages**  |
| ***Grade*** | **Objective** |
| **3** | Understand and use the mean of discrete data and compare two simple distributions, using the range and one of mode, median, or mean. Including consideration of outliers |
| **3** | Find the Mode, Mean and Median from a frequency table. |
| **4** | Estimate the mean, median, and range of a set of grouped data and determine the modal class, selecting the statistic most appropriate to the line of enquiry. |

|  |
| --- |
| **Graphs, pie charts and scatter graphs**  |
| ***Grade*** | **Objective** |
| **2-4** | Interpret and construct tables and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data and know their appropriate use. |
| **4-5** | Use and interpret scatter graphs. Recognise correlation - know that it does not indicate causation - Draw estimated lines of best fit – (make predictions - interpolate and extrapolate apparent trends whilst knowing the dangers of so doing) |

|  |
| --- |
| **Cumulative frequency diagrams and box plots** |
| **Grade** | ***Grade*** | **Objective** |
| **6** | Draw and interpret Cumulative frequency diagrams and box plots. |

**Term 3a**

|  |
| --- |
| **Solving quadratic equations** |
| ***Grade*** | **Objective** |
| **6-7** | Complete quadratic factorising, |
| **6-7** | Solving quadratic equations by factorising,  |
| **7-8** | Solving quadratic equations by completing the square |

|  |
| --- |
| **Algebraic graphs**  |
| ***Grade*** | **Objective** |
| **3** | Plot the graphs of linear functions, where y is given explicitly in terms of x |
| **3-5** | Solve geometrical problems on axis.  |
| **4** | Recognise that equations of the form y = mx + c correspond to straight line graphs. |
| **5-6** | Use Parallel and perpendicular lines to find the equations of a linear graph. |
| **6** | Find the equation of a line through two points or through one point with given gradient. |
| **6** | Use the form y = mx + c to identify perpendicular lines. |

|  |
| --- |
| **Speed and velocity graphs**  |
| **Grade** | **Objective** |
| **3-4** | Plot and interpret graphs and graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration.  |
| **7-8** | Interpret a Velocity time graph, calculating the area under the graph to find the distance travelled and the gradient of the graph to calculate acceleration. |
| **7-8** | Estimate the area under a curve and use this to estimate the distance travelled on a velocity time graph. |
| **7-8** | Draw a tangent on a point of a curve to find the gradient at that point. Applying this to distance time graphs to find velocity and on a velocity time graph to find acceleration. |

**Term 3b**

|  |
| --- |
| **Indices and standard form** |
| ***Grade*** | **Objective** |
| 6 | Estimate powers and roots of any given positive number. |
| 3-7 | Use index notation and index laws for positive, negative and fractional powers. |
| 4-8 | Add, subtract, multiply and divide numbers given in standard index form. **(Including fractional indices).** |
| 3 | Write a number in standard form or write a standard form number as an ordinary number. |
| 5 | Add, subtract, multiply and divide using standard form numbers. |

|  |
| --- |
| **Pythagoras and Trigonometry**  |
| **Grade** | **Objective** |
| **4** | Find the length of sides in a triangle using Pythagoras theorem in 2d. |
| **5** | Know and use trigonometric ratios applying them to solve problems. |

|  |
| --- |
| **Transformations** |
| **Grade** | **Objective** |
| **3-4**  | Identify, describe and construct congruent and similar shapes, including oncoordinate axes, by considering rotation, reflection, translation andenlargement (including fractional and negative scale factors) |
| **6** | Describe the changes achieved by combinations of rotations, reflections and translations.  |