Unit 1 – Number 1

Multiples and Factors

- Use the concepts and vocabulary of factor, multiple, common factor, common multiple and prime ***(M1)***
- Use the concepts and vocabulary of divisor, highest common factor, least (lowest) common multiple and prime factor decomposition ***(M2)***

Indices, Powers and Roots

- Use index notation for squares, cubes and powers of ten ***(M1)***
- Use the terms square, positive and negative square root, cube and cube root ***(M1)***
- Use index notation and index laws for positive, whole number powers ***(M2)***

Accuracy and Bounds

- Round to a specified or appropriate degree of accuracy, number of decimal places, or 1 significant figure, including a given power of 10 ***(M1)***
- Round to a specified or appropriate number of significant figures ***(M2)***

Growth and Decay

- Use percentage and repeated proportional change ***(M2)***

Unit 2 – Algebra 2

The Language of Algebra

- Distinguish the different roles that letter symbols play in algebra, using the correct notation ***(M1)***
- Understand and use the concepts and vocabulary of expressions, equations, formulae, inequalities, terms and factors ***(M1)***

Expressions

- Manipulate algebraic expressions by taking out common factors that are constants ***(M1)***
- Simplify and manipulate algebraic expressions by collecting like terms and multiplying a constant over a bracket ***(M1)***
- Simplify and manipulate algebraic expressions by multiplying a single term over a bracket ***(M2)***
- Manipulate algebraic expressions by taking out common factors that are terms ***(M2)***

Expressions and Formulae

- Interpret simple expressions as functions with inputs and outputs ***(M1)***
- Write simple formulae and expressions from real life contexts ***(M1)***
- Substitute numbers into formulae (which may be expressed in words or algebraically) and expressions ***(M1)***
- Use standard formulae ***(M1)***

Equations

- Set up and solve linear equations in one unknown ***(M1)***
- Set up and solve linear equations in one unknown, including those with the unknown on both sides of the equation and equations of the form $x/4 + 3 = 7$ ***(M2)***

Unit 3 - Geometry and Measures 1

Perimeter

- Calculate perimeters of triangles and rectangles and simple compound shapes made from triangles and rectangles ***(M1)***
- Calculate circumferences of circles ***(M1)***
- Calculate perimeters of kite, parallelogram, rhombus and trapezium ***(M2)***
- Calculate perimeters of composite shapes ***(M2)***

Area

- Calculate areas of triangles and rectangles and simple compound shapes made from triangles and rectangles ***(M1)***
- Calculate areas of circles ***(M1)***
- Calculate surface area of cubes and cuboids ***(M1)***
- Calculate areas of kite, parallelogram, rhombus and trapezium ***(M2)***
- Calculate areas of composite shapes ***(M2)***

Volume

- Calculate volumes of cubes and cuboids ***(M1)***
- Calculate volumes of right prisms ***(M2)***

Pythagoras and Trigonometry

- Use Pythagoras' theorem in 2D problems ***(M2)***

Unit 4 – Number 2

Working With Place Value

- Understand place value and decimal places ***(M1)***
- Read, write and compare decimals up to three decimal places ***(M1)***

Working With Numbers

- Use the four operations applied to positive and negative integers, including efficient written methods ***(M1)***
- Order positive and negative integers, decimals and fractions ***(M1)***
- Use symbols =, ≠, <, >, ≤, ≥ ***(M1)***
- Use calculators effectively and efficiently ***(M1)***
- Understand and use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals ***(M1)***
- Recognise and use relationships between operations, including inverse operations ***(M1)***

Working With Percentages

- Calculate a percentage of a quantity ***(M1)***
- Express one quantity as a percentage of another ***(M1)***
- Calculate percentage increase/decrease ***(M1)***

Working With Money

- Use correct decimal notation when working with money ***(M1)***
- Calculate with money and solve simple problems in the context of finance, for example profit and loss, discount, wages and salaries, bank accounts, simple interest, budgeting, debt, APR and AER ***(M1)***
- Calculate with money and solve problems in a financial context for example compound interest, insurance, taxation, mortgages and investments ***(M2)***

Working With Fractions

- Add and subtract simple fractions and simple mixed numbers ***(M1)***
- Calculate a fraction of a quantity ***(M1)***
- Express one quantity as a fraction of another ***(M1)***
- Add, subtract, multiply and divide fractions, including mixed number ***(M2)***

Working With Decimals

- Add, subtract, multiply and divide decimals up to 3 decimal places ***(M1)***
- Add, subtract, multiply and divide decimals of any size ***(M2)***

Working With Equivalences

- Understand and use equivalent fractions ***(M1)***
- Understand that percentage means number of parts per hundred ***(M1)***
- Use equivalences between fractions, decimals and percentages in a variety of contexts ***(M1)***

Fractions and Decimals

- Write a simple fraction as a terminating decimal ***(M1)***
- Recognise that recurring decimals are exact fractions and that some exact fractions are recurring decimals ***(M2)***

Unit 5 – Geometry and Measures 2

Shape Properties

- Apply the properties and definitions of triangles including, right-angled, scalene, isosceles and equilateral ***(M1)***
- Apply the properties and definitions of quadrilaterals, including square, rectangle, parallelogram, trapezium, triangles, kite and rhombus ***(M1)***
- Identify and apply circle definitions and properties, including centre, radius, chord, diameter and circumference ***(M1)***

Working with 2D Shapes

- Use conventional terms and notations such as points, lines, vertices, edges, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotational symmetries ***(M1)***
- Use the standard conventions for labelling and referring to the sides and angles of shapes ***(M1)***

Working With 3D Shapes

- Identify properties of faces, surfaces, edges, and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres ***(M1)***
- Draw and interpret 2D representations of 3D shapes, for example nets, plans and elevations ***(M1)***

Angle Properties, Circle Theorems

- Apply the properties of angles: at a point, at a point on a straight line and vertically opposite ***(M1)***
- Understand and use alternate and corresponding angles on parallel lines ***(M1)***

Unit 6 – Handlng Data 1

Mean, Mode, Median and Range

- Find mean, median, mode and range for ungrouped data and understand their uses ***(M1)***
- Calculate mean from an ungrouped frequency table and identify the mode and median ***(M1)***
- Estimate mean from a grouped frequency distribution ***(M2)***
- Identify the modal class and the median class from a grouped frequency distribution ***(M2)***

Data Handling Cycle

- Understand and use the handling data cycle to solve problems ***(M1)***
- Design an experiment or survey to test hypotheses ***(M1)***
- Design data collection sheets, distinguishing between different types of data ***(M1)***
- Look at data to find patterns and exceptions ***(M1)***
- Compare distributions and make inferences ***(M1)***

Sampling

- Understand what is meant by a sample and a population ***(M1)***
- Understand simple random sampling and the effect of sample size on the reliability of conclusions ***(M1)***
- Identify possible sources of bias ***(M1)***

Scatter Graphs

- Plot and interpret scatter diagrams and recognise correlation ***(M1)***
- Draw and/or use lines of best fit by eye, understanding what these lines represent ***(M2)***
- Draw conclusion from scatter diagrams ***(M2)***

Using Statistical Diagrams

- Sort, classify and tabulate qualitative (categorical) data and discrete or continuous quantitative data, including the use of 2 circle Venn diagrams to sort data ***(M1)***
- Extract data from printed tables and lists ***(M1)***
- Design and use twoway tables for discrete and grouped data ***(M1)***
- Construct and interpret a wide range of graphs and diagrams including frequency tables and diagrams, pictograms, bar charts, pie charts, line graphs, frequency trees and flow charts, and draw conclusions, recognising that graphs maybe misleading ***(M1)***
- Use 3 circle Venn diagrams to sort data ***(M2)***

Unit 7 – Algebra 2

Co-Ordinate Geometry

- Work with coordinates in all four quadrants ***(M1)***
- Find the midpoint and length of a line in 2D co-ordinates ***(M2)***

Graphs and Gradients

- Recognise and plot equations that correspond to straight line graphs in the coordinate plane ***(M1)***
- Find and interpret gradients and intercepts of linear graphs, for example plot and interpret the graph of hiring a car at £40 per day plus a cost of 20p per mile ***(M2)***

Working With Graphs

- Construct and interpret linear graphs in real world contexts ***(M1)***

Unit 8 – Geometry and Measures 3

Working with Measures

- Understand and use metric units of measurement ***(M1)***
- Make sensible estimates of a range of measures. Convert metric measurements from one unit to another ***(M1)***
- Solve problems involving length, area, volume/capacity, mass, time and temperature ***(M1)***

Drawings

- Draw diagrams from a written description ***(M1)***
- Measure line segments and angles in geometric figures ***(M1)***

Compound Mesures and Units

- Use compound measures and units such as speed, heart beats per minute and miles per gallon ***(M1)***
- Use compound measures and units such as density and kg/m3 ***(M2)***