## Year 8

### 1. Number: Integers and Decimals
- multiply and divide numbers by 10, 100 and 1000
- understand place value to three decimal places
- read, write, compare and order integers (positive and negative) and decimals (up to 3dp)
- round to the nearest whole number, ten, hundred, thousand
- round to a given number of decimal places
- estimate answers
- check calculations using approximation and estimation
- check calculations by applying inverse operations
- written addition, subtraction, multiplication and division of positive and negative integers and decimals (with and without a calculator)
- understand and use negative numbers in practical situations, e.g. temperature, debt

### 2. Number: Powers, Multiples, Factors and Primes
- find square numbers, positive and negative square roots, cube numbers and cube roots
- use index notation for squares, cubes and powers of 10
- find the factors and multiples of a number
- understand prime numbers
- use prime factor decomposition to write any number as a product of its prime factors
- find the highest common factor (HCF) and least (lowest) common multiple (LCM) of two numbers

### 3. Algebra: Algebraic Expressions
- interpret simple expressions as function machines with inputs and outputs
- simplify expressions by collecting like terms
- multiply a constant over a bracket/expand brackets

### 4. Shape, Space and Measures: Angles and Shapes
- understand the terms parallel, perpendicular, polygons and regular polygons
- polygons with reflection and/or rotation symmetries
- label the sides and angles of shapes using correct the mathematical notation
- apply the angles facts: angles at a point, angles on a straight line, vertically opposite angles, etc.
- understand and use alternate and corresponding angles on parallel lines
- estimate, measure, draw and label angles up to 360 degrees

### 5. Shape, Space and Measures: 2D and 3D Shapes
- label the parts of a circle: centre, radius, chord, diameter, circumference
- apply the properties and definitions of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles
- identify the faces, edges and vertices of 3D shapes, including cubes, cuboids, prisms, cylinders, pyramids, cones and spheres
- tessellate 2D shapes
- reflect 2-D shapes in a line