

Topics of Study : Maths Department

This is a brief outline of the topics covered.

Topics might not always be taught sequentially and they might run into the next term.

Problem solving is applied to all topics

Year 5

Autumn Term

- Place Value of numbers up to 1 000 000
- Roman Numerals
- Rounding numbers to the nearest 10, 100, 1 000, 10 000 and 100 000
- Negative numbers (in context)
- Addition and subtraction (column method using borrowing and carrying)
- Lines and angles
- Multiples and Factors
- Multiplication and division (short, using formal methods)
- Money (applying all four operations to money problems)
- 2-D and 3-D shapes
- Function boxes
- Tests of divisibility
- Prime numbers
- Square and cube numbers and square roots
- Coordinates (1st quadrant)
- Symmetry, reflection and translation
- Fractions (equivalent, simplifying, comparing, ordering, adding & subtracting fractions with the same denominator or multiples of the same number)

Spring Term

- Time (12-hour and 24-hour, analogue and digital)
- Timetables
- Fractions (multiply a fraction by a mixed number)
- Long multiplication
- Decimals (place value, ordering, written calculations)
- Percentages (write as a fraction over 100 and as a decimal)
- Converting common fractions, decimals and percentages (e.g. $\frac{1}{2}$; $\frac{1}{4}$; $\frac{3}{4}$; $\frac{1}{5}$; $\frac{3}{5}$; $\frac{4}{5}$; $\frac{7}{10}$)

- Metric conversions (e.g. 7mm = 0.7cm)
- Calculations with measures (+ - x ÷)
- Fractions of quantities
- Area and perimeter (rectangles, squares and composite shapes)

Summer Term

- Percentages of quantities (25%, 50%, 75%, multiples of 10%, 1%, 5%)
- Tables for data (tallying, frequency tables, bar graphs, pictograms, time graphs)
- Line graphs
- Volume of cubes and cuboids by counting cubes
- Drawing 2-D shapes and nets of 3-D shapes

Year 6

Autumn Term *(several Year 5 topics are consolidated and extended during this term)*

Some of these topics consolidate Year 5 work in preparation for the CE 11+ pre-tests. By the end of this term, work for these pre-tests will have been covered.

- Place value of numbers up to 10 000 000
- Estimation (in the context of a problem, to an appropriate degree of accuracy)
- Negative numbers (adding and subtracting; temperature difference)
- Addition and subtraction (including multi-step problems)
- Missing angles in triangles and rectangles
- Long multiplication (revision)
- Division (numbers up to 4 digits by 12 and by multiples of 10 using short division)
- Converting metric measures
- Volume
- Mixed operations and order of operations
- Common factors and multiples
- Prime numbers
- Properties of 2-D shapes
- Fractions (ordering, adding and subtracting where denominators are multiples of the same number, multiplying simple pairs of proper fractions)
- Decimals : multiplying
- Fractions, decimals, percentages (equivalences)
- Percentages of amounts (extend to $12\frac{1}{2}\%$, 72%, etc)
- Area and Perimeter of rectangles, squares and right-angled triangles
- Ratio
- Pie charts and Line Graphs (interpretation)

- Mean as an average.

Spring Term

- Fractions (adding and subtracting with different denominators and mixed numbers)
- Multiplying and dividing decimals by 10, 100, 1000
- Dividing decimals by whole numbers
- Volume (calculate, using the formula)
- Fractions (multiply and divide)
- Fractions, decimals, percentages (more advanced equivalences e.g. $\frac{9}{20}$, $\frac{1}{3}$)
- Ordering a mixture of decimals, fractions, percentages
- Long division (or division by factors)
- Ratio and scale (problem solving)
- Algebra introduction (rules for sequences, missing number problems, simple equations)
- Angles (at a point, straight line, vertically opposite)
- Converting measures (problem solving)
- Coordinates in all four quadrants
- Translation, reflection, rotation of shapes.
- Pie Charts : Construct

Summer Term

- Circles (terminology)
- Area and perimeter (all triangles and parallelograms)
- Prime factorisation
- Highest common factor and lowest common multiple
- Speed (solve problems involving, for example, miles per hour; km per hour)
- 3-D shapes (recognise, describe and build)
- Revision of all topics

Year 7

Autumn Term

- Decimals (revise place value)
- Ordering integers, decimals and fractions.
- Prime factorisation including index notation
- Highest common factor, lowest common multiple, square numbers and roots (derived from prime factorisation)
- Estimation (approximation through rounding to estimate answers)
- Calculations : apply the 4 operations , using formal written methods, to integers and decimals.

- Angles and parallel lines
- Fraction calculations : apply the 4 operations and include mixed numbers
- Algebra introduction (using and interpreting algebraic notation)
- Negative numbers (applying the rules to all four operations)
- Substitution into formulae and expressions
- Simplifying expressions
- Index numbers and brackets : know and apply the rules for indices
- Calculator skills
- Percentages of amounts (with and without a calculator)
- Approximation : significant figures and rounding
- Circles : pi, area and circumference
- Construction: triangle, rhombus, parallelogram, bisecting a line, bisecting an angle, dropping a perpendicular from a point to a line

Spring Term

- Units and measurement : use units of mass, length, time, money and include decimal quantities.
- Equations : using one variable
- Forming equations to solve problems
- Perimeter and area (triangles, parallelograms and composite shapes)
- Volume : apply the formula to problems involving volume of cubes and cuboids
- Graphs : line graphs / equation of a line
- Polygon angles
- Three-figure bearings
- Sequences and the n^{th} term
- Percentage change
- Translations, rotations, reflections

Summer Term

- Ratio
- Data Handling : range; mean; median; frequency; mode
: frequency tables and diagrams
- Data charts : construct and interpret bar charts and pie charts
- Enlargement
- Properties of cubes, cuboids, prisms, pyramids, cylinders : include problem solving, nets, surface area

Year 8

The ISEB syllabus will be completed during the Autumn Term and revision of all topics will start in the Spring Term.

Autumn Term

- Probability
- Speed, distance, time
- Scatter graphs
- Proportion
- Constructions : perpendicular bisector of a line segment
: perpendicular to a given line from/at a point
: bisect an angle
- Conversion and distance-time graphs
- Finding the subject of formulae using substitution

Level 3 to include :

- Pythagoras
- Standard form
- Simultaneous equations
- Inequalities
- Quadratic equations