



MATHEMATICS TOPICS OF STUDY

AUTUMN

SPRING

SUMMER

RECEPTION	<p>Exploring and consolidating numbers to 10 - ordering, counting, sorting, formation etc. Measuring (length) - comparisons e.g. short, tall, long, medium, big, small Weighing – balancing, heavy, light Shape – 2D Addition Money – recognition of coins Time – Seasons, Days</p>	<p>Exploring numbers to 10/20 - ordering, counting, sorting, formation Measuring (length) - comparisons e.g. short, tall, long, medium, big, small Weighing – balancing, heavy, light Shape – consolidate 2D, introduce 3D Revise addition Introduce subtraction Money – revise coin recognition, begin adding coins Time – Seasons, Months, Days</p>	<p>Exploring numbers to 20 and beyond - ordering, counting, sorting, formation Shape – consolidate 2D & 3D Addition and subtraction revised Money – revise coin recognition, adding (subtracting) coins Time – Seasons, Months, Days Revise clocks and related vocabulary Estimation Problem solving activities</p>
YEAR 1	<p>Number: Counting, reading & writing 1 – 20, counting in 2s, number bonds to 10 and 20, place value, addition and subtraction up to 20, problem solving, mathematical vocabulary (equal to, more than, less than, most, least) Topic: Recognising and naming common 2D and 3D shapes, Properties of shapes</p>	<p>Number: Counting, reading & writing 1-50; counting in 2s and understand odds and evens, count in 5s and 10s; number bonds to 10 & 20; place value; add and subtract two digit and one digit numbers within 20 and solve one step problems Topic: Time: ordering days of the week and months of the year, tell the time to the hour and half past the hour, solve practical problems for time. Measurement: Length & mass Fractions: To recognise, find & name a half & a quarter as one part of 2 or 4 equal part</p>	<p>Number: Counting, reading, writing & identifying 1-100; counting from a given number in 1s, 2s, 5s, 10s; number bonds to 10 & 20; place value; doubling & halving. Topic: Measure: compare, describe, measure, record & solve practical problems for: length/height, mass/weight, capacity/volume Data handling: To be able to recognise and record data in a tally chart & bar graph. Co-ordinates: To understand how to find a specific point on a map using co-ordinates. Symmetry: To understand what a mirror image is. Money: Recognise & value coins/notes</p>

YEAR 2	<p>Number: Numbers to 100 including: ordering, number bonds, odd and even, place value, and comparing numbers. Addition and subtraction to 20 and beyond, number problems, number sentences and families, and multiplication and division facts for 2 times tables.</p> <p>Topic: Money – symbols for pounds and pence, different ways of making amounts and giving change, and money problems.</p>	<p>Number: Multiplication and division facts for the 2, 5 and 10 times tables. Recognise, find and write fractions of length, shape and objects.</p> <p>Topic: Interpret and construct simple pictograms, tally charts and block diagrams.</p> <p>Identify and describe the properties of 2D and 3D shapes. Choose, use and compare appropriate units to estimate and measure length, height, weight, capacity and temperature.</p>	<p>Position and direction, problem solving and efficient methods, measurement – times, mass, capacity and temperature and investigations.</p>
YEAR 3	<p>Place Value of numbers up to 1000</p> <p>Rounding numbers to the nearest 10 and 100</p> <p>Negative numbers (introduction)</p> <p>Addition and subtraction (3 digit numbers)</p> <p>Problem solving (one-step)</p> <p>Drawing and making 2D & 3D shapes</p> <p>Multiplication (partitioning methods and then grid method)</p> <p>Division facts</p> <p>Money</p> <p>Fractions (recognising)</p> <p>Introducing decimals</p> <p>2, 5, 10, 9, 3, 4 times tables</p>	<p>Written methods (addition, subtraction, multiplication)</p> <p>Problem solving</p> <p>Telling the time</p> <p>Comparing & estimating</p> <p>Fractions (compare and order)</p> <p>Measurement (mass, volume/capacity_)</p> <p>Area and perimeter</p> <p>Tally charts</p> <p>Collating data</p> <p>Symmetry</p> <p>6, 7, 8, 11 times tables</p>	<p>Problem solving</p> <p>Recognising angles</p> <p>Horizontal and vertical</p> <p>Money problems (calculating change)</p> <p>Time (to the nearest minute)</p> <p>Equivalent fractions (pictorially)</p> <p>Adding and subtracting fractions (same denominator)</p> <p>Interpreting data (bar charts, pictograms and tables)</p> <p>Times tables facts</p>
YEAR 4	<p>Place Value of numbers up to 10000</p> <p>Roman Numerals</p> <p>Rounding numbers (to the nearest 10, 100 and 1000)</p> <p>Ordering and comparing (to beyond 1000)</p> <p>Addition and subtraction (column method using borrowing and carrying)</p>	<p>Multiplication (Grid Method)</p> <p>Division (Short Method)</p> <p>Money problems (Using the £ sign and with 2 decimal places)</p> <p>Understanding fractions (identifying and simple equivalents using the bar model)</p> <p>Adding and subtracting fractions with the same denominator</p>	<p>Problem solving</p> <p>Regular and irregular polygons</p> <p>Types of triangle</p> <p>Fractions of quantity</p> <p>Fractions and decimals (tenths and hundredths)</p> <p>Time (12hr and 24hr clock; time differences)</p>

Properties of 3D shapes
 Types of angle
 Symmetry (shapes in different orientations)
 Multiplication and division (understanding using arrays and grouping)
 Measuring length
 Problem solving
 Times tables facts

Capacity and mass
 Metric conversions
 Area and perimeter (rectilinear shapes)
 Time (digital and analogue)
 Times tables facts

Graphs and charts (tallying, frequency tables, bar graphs, pictograms)
 Coordinates (one quadrant; translation)

YEAR 5

Place Value of numbers up to 1 000 000
 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
 Tests of divisibility
 Multiples and Factors

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)
 Fractions of quantities
 Money: applying the four operations to money problems

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

(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-

Fractions (adding and subtracting with different denominators and mixed numbers)

Circles (terminology)
 Area and perimeter (all triangles and parallelograms)

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

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

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

Ratio

Pie charts and Line Graphs
(interpretation)

Mean as an average.

YEAR 7

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)

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

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

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

YEAR 8

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

Revision of all topics

Revision

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

