

## Key Stage 3



**Subject: Mathematics**

**Year Group: 7** (*Foundation – Set 4*)

### Course Summary

Mathematics is taught in accordance with the National Curriculum. Students study Number, Algebra, Shape and Space and Data Handling and Probability.

The syllabus is taught in 10 units. Each unit is followed by an assessment task, to enable students and teachers to identify strengths and areas for further practice. A 1 hour exam is taken at the end of each term.

Students are encouraged to help each other and use resources within the classroom to promote independent learning.

<b>Autumn Term</b>
1. Analysing and displaying data – Finding information in a table or chart, use a tally chart and frequency table and find mean, median, mode and range from a list of data
2. Core Number Skills – Applying the four rules of numbers, understand and use negative numbers, multiplying and dividing by 10, 100 and 1000
3. Equations, expressions and Formulae – Using and writing function machines, simplifying and writing expressions and using and applying formulae
4. Graphs – Reading and writing co-ordinates, plot graphs of simple functions and use real life graphs
<b>Spring Term</b>
1. Factors and Multiples – BIDMAS, recognise and find factors, multiples and primes and HCF and LCM
2. Decimals and Measures – Estimating, multiplying and dividing with decimals, metric units and reading scales
3. Angles and Lines – Recognise amounts of turn, key names of angles, drawing and estimating angles and putting angles together
<b>Summer Term</b>
1. Measuring and Shapes – Recognising 2D shapes names and their properties, symmetry of shapes and finding perimeter and area
2. Fractions, decimals and percentages – Comparing and finding equivalent fractions, adding and subtracting fractions and introducing percentages
3. Transformations – rotate, reflect and translate shapes, introducing congruency and properties of special quadrilaterals

# Key Stage 3



**Subject: Mathematics**

**Year Group: 7** (*Foundation – Set 2 & 3*)

## Course Summary

Mathematics is taught in accordance with the National Curriculum. Students study Number, Algebra, Shape and Space and Data Handling and Probability.

The syllabus is taught in 10 units. Each unit is followed by an assessment task, to enable students and teachers to identify strengths and areas for further practice. A one hour exam is taken at the end of each term.

Students are encouraged to help each other and use resources within the classroom to promote independent learning.

<b>Autumn Term</b>
1. Analysing and displaying data – Find mode, median, mean and range from a list of data, group data into frequency tables, compare data using averages and construct charts
2. Core Number Skills – Apply the four rules, understand and use negative numbers, multiply and divide by 10, 100 and 1000 and know and use factors, multiples, primes, square and triangle numbers
3. Equations, expressions and Formulae – Using and writing function machines, simplifying and writing expressions and using and applying formulae
4. Decimals and Measures – Decimals and rounding, length, mass and capacity, scales and co-ordinates and perimeter and area
<b>Spring Term</b>
1. Fractions – Comparing, simplifying and working with fractions, equivalence between fractions, decimals and percentages and working with percentages
2. Probability – use the language of probability, calculating with probability and expected probability
3. Ratio and Proportion – Writing and using ratios, scales and measures and direct proportion
<b>Summer Term</b>
1. Lines and angles – Estimating, drawing and working with angles, angles in triangles and quadrilaterals and accurate construction of triangles
2. Sequences and Graphs – Continuing and finding rules of a sequence(number and pattern), straight line graphs and co-ordinates
3. Transformations – Rotation, reflection, translation and enlargement, congruency and combined transformations

# Key Stage 3



**Subject: Mathematics**

**Year Group: 7** (*Higher -Set 1*)

## Course Summary

Mathematics is taught in accordance with the National Curriculum. Students study Number, Algebra, Shape and Space and Data Handling and Probability.

The syllabus is taught in 10 units. Each unit is followed by an assessment task, to enable students and teachers to identify strengths and areas for further practice. A 1 hour exam is taken at the end of each term.

Students are encouraged to help each other and use resources within the classroom to promote independent learning.

<b>Autumn Term</b>
1. Analysing and displaying data – Primary and Secondary data, two-way tables and bar charts, finding averages, group data into frequency tables and draw pie charts, line graphs and scatter graphs
2. Core Number Skills – Apply the four rules, understand and use negative numbers and know and use factors, multiples, primes, square, square roots, cube, cube roots and triangle numbers
3. Equations, expressions and Formulae – Simplifying and writing expressions, using and applying formulae and factorise and expand expressions
4. Fractions – Comparing, simplifying and working with fractions, equivalence between fractions, decimals and percentages and working with percentages
<b>Spring Term</b>
1. Angles and Shapes – Work out angles in parallel lines, triangle and quadrilateral properties and polygon angles
2. Decimals – Ordering, rounding and four rules with decimals, equivalence between fractions, decimals and percentages
3. Equations – Solving one and two step equations and trial and improvement
<b>Summer Term</b>
1. Multiplicative Reasoning – Metric and imperial unit conversions, ratio and proportion
2. Perimeter, area and volume – Perimeter of shapes, area of 2d shapes including compound shapes, 3D shapes (volume and surface area)
3. Sequences and Graphs – Continuing and finding rules of a sequence(number and pattern), straight line graphs and co-ordinates including mid-point

# Key Stage 3



**Subject: Mathematics**

**Year Group: 8** (*Foundation – Set 4*)

## Course Summary

Mathematics is taught in accordance with the National Curriculum. Students study Number, Algebra, Shape and Space and Data Handling and Probability.

The syllabus is taught in 10 units. Each unit is followed by an assessment task, to enable students and teachers to identify strengths and areas for further practice. A 1 hour exam is taken at the end of each term.

Students are encouraged to help each other and use resources within the classroom to promote independent learning.

<b>Autumn Term</b>
1. Number Properties and Calculations – Four operations with larger numbers, negative number operations, problem solving with ratios and using proportion
2. Shapes and Measures in 3D – Recognise 3D shapes, faces, edges and vertices, nets and surface area and volume and solving problems involving length, capacity and area
3. Statistics – Plan and collect data in a data collection sheet, draw and interpret complex bar charts and interpret pie charts
4. Expressions and Equations – Simplify expressions, find input and output from function machines and solve equations including brackets
<b>Spring Term</b>
1. Decimal Calculations – Four operations with decimals, rounding and ordering with decimals and problem solving with decimals
2. Angles – Drawing and measuring angles, use vertically opposite and angles in a triangle
3. Number Properties – Recognise square, cube and roots of numbers, use index notation, find factors, multiples, HCF and LCM of numbers, use prime factor decomposition
<b>Summer Term</b>
1. Sequences – Generating and extending sequences, recognising special sequences and finding 'nth' term
2. Fractions and Percentages – Comparing fractions, adding and subtracting fractions, fractions of amounts and the link between percentages
3. Probability – Understanding the language of probability, listing outcomes, calculating the probability of an event/s and find probability from experiments

## Key Stage 3

**Subject: Mathematics**



**Year Group: 8** (*Foundation – Sets 2 & 3*)

### Course Summary

Mathematics is taught in accordance with the National Curriculum. Students study Number, Algebra, Shape and Space and Data Handling and Probability.

The syllabus is taught in 10 units. Each unit is followed by an assessment task, to enable students and teachers to identify strengths and areas for further practice. A 1 hour exam is taken at the end of each term.

Students are encouraged to help each other and use resources within the classroom to promote independent learning.

<b>Autumn Term</b>
1. Number – Add and subtract with decimals, calculating with negative numbers, powers, roots and brackets and substituting into expressions
2. Area and Volume – Area of triangle, parallelogram and trapezium, volume and surface area of cubes and cuboids and nets
3. Expressions and Equations – Use index laws, expand brackets, substitution, factorising, solving one and two step equations
4. Real-life Graphs – Draw and interpret conversion graphs, distance-time graphs and line graphs
<b>Spring Term</b>
1. Decimals and Ratio – Ordering and rounding decimals, calculating with decimals and using ratio
2. Lines and Angles – Quadrilateral properties, alternate, corresponding, interior and exterior angles
3. Calculating with Fractions – Four operations with fractions, mixed numbers and fraction to decimal conversions (reciprocals)
<b>Summer Term</b>
1. Straight line Graphs – Plotting straight line graphs, finding midpoints and gradients
2. Percentages, Decimals and Fractions – Terminating and recurring decimals, equivalence between $f$ , $d$ and $p$ , writing percentages and percentages of amounts (increase and decrease)
3. Statistics, Graphs and Charts – Planning a survey, questionnaires, drawing and interpreting pie charts, stem and leaf diagrams and scatter graphs

# Key Stage 3



## Subject: Mathematics

**Year Group: 8** (*Higher – Set 1*)

### Course Summary

Mathematics is taught in accordance with the National Curriculum. Students study Number, Algebra, Shape and Space and Data Handling and Probability.

The syllabus is taught in 10 units. Each unit is followed by an assessment task, to enable students and teachers to identify strengths and areas for further practice. A 1 hour exam is taken at the end of each term.

Students are encouraged to help each other and use resources within the classroom to promote independent learning.

<b>Autumn Term</b>
1. Factors and Powers – Prime factor decomposition, index laws, rounding and estimating
2. Working with Powers – Simplifying expressions involving powers, expanding brackets and substituting into expressions
3. 2D Shapes and 3D Solids – Plans and elevations, volume and surface area of prisms and circumference and area of circles, cylinders and Pythagoras' theorem
4. Real-life Graphs – Direct proportion, interpreting financial graphs and distance- time graphs
<b>Spring Term</b>
1. Transformations – Rotating, reflecting, translating and enlarging and combining transformations
2. Fractions, Decimals and Percentages – Recurring decimals, Percentages finding original amount and calculating percentage change
3. Constructions and Loci – Constructing triangles and perpendicular bisector, bisect a line and an angle and find the locus of an object
<b>Summer Term</b>
1. Probability – Mutually exclusive probability, experimental probability, probability diagrams including tree diagrams
2. Scale Drawings and Measurements – Maps and scales (including ratio), bearings and congruent and similar shapes
3. Graphs – plotting and finding $y=mx+c$ , parallel and perpendicular lines and graphs of non-linear functions

# Key Stage 3

## Subject: Mathematics



### Year Group: 9 (Foundation – Sets 2, 3 & 4)

### Course Summary

Mathematics in Year 9 is where students begin their GCSE Mathematics course. The students will cover eight units over the course of the year and be provided with opportunities to apply the skills and knowledge obtained on problem solving / real world applications and to answer exam type questions to prepare them for the three exams at the end of the 3-year course.

<b>Autumn Term</b>
1. Number operations – ordering with positive and negative numbers and use inverse operations
2. Rounding – Rounding to decimal places, significant figures and estimate calculations
3. Types of numbers – Recognise square and prime numbers, LCM and HCF, understand surd notation
4. Algebra substitution and using formulae – Use index laws, substitute numbers into expressions and formulae
5. Brackets and factorising – Expand expressions with brackets and factorise expressions
<b>Spring Term</b>
1. Frequency Tables – Designing frequency tables and two way tables and interpreting them
2. Graphs and charts – Draw and interpret comparative and composite bar charts, pie charts, time series, stem and leaf and scatter graphs
3. Fractions – Compare, four operations with fractions, fractions to decimals and find one fraction of another
4. Percentages – Fractions to percentages, percentage of amounts, increase and decrease, simple interest
5. Equations, inequalities and sequences – Rearranging equations, solving, introduction to inequalities and generating sequences and finding <i>n</i> th term
<b>Summer Term</b>
1. Angles in shapes – Properties of shapes, interior and exterior angles
2. Angles in lines – parallel lines and geometrical problems
3. Averages – Finding mean, median and mode from a list and a frequency table and compare
4. Perimeter and area – Finding area and perimeter of triangles and quadrilaterals, compound shapes and surface area
5. Volume – find volume of cubes and cuboids and prisms and solve problems involving them

## Key Stage 3

### Subject: Mathematics



### Year Group: 9 (*Higher - Set 1*)

### Course Summary

Mathematics in Year 9 is where students begin their GCSE Mathematics course. The students will cover eight units over the course of the year and be provided with opportunities to apply the skills and knowledge obtained on problem solving/ real world applications and to answer exam type questions to prepare them for the three exams at the end of the 3-year course.

<b>Autumn Term</b>
1. Number Reasoning – Place value, estimation, prime factors and HCF and LCM
2. Indices and Standard Form – Multiply and divide with powers, use negative and fractional indices and write and calculate with numbers in standard form
3. Surds – Understand the difference between rational and irrational numbers, simplify a surd and rationalise the denominators
4. Formulae and Equations – Expanding, factorising, solving equations, quadratics
5. Sequences – Linear and non-linear sequences
<b>Spring Term</b>
1. Interpreting and Representing Data – Stem and Leaf diagrams, time series, scatter graphs, averages and range and two-way tables
2. Fractions and Percentages – Four operations with fractions, percentage increase and decrease and real-life problems involving them
3. Ratio – Unitary method, compare ratios, solve problems involving ratio, use direct proportion
4. Angles – Angles in polygons, interior and exterior angles and solving problems involving them
5. Trigonometry – Find sides and angles using Pythagoras' Theorem and trigonometry
<b>Summer Term</b>
1. Graphs – Draw and interpret linear, quadratic, cubic and reciprocal
2. Area – Compound shapes, max and min values, circles and sectors
3. Volume – Prisms, cylinders, spheres, cones and pyramids
4. Transformations – Reflections, rotations, translations, enlargements and combining them
5. Constructions – Bearing and scale drawings, constructing triangles, bisectors and loci