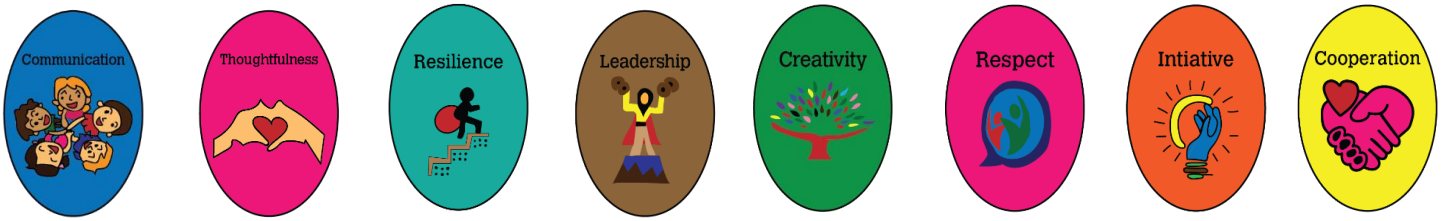


# KS3 Mathematics

## Introduction

Our KS3 math curriculum focuses more on Number skills while providing a comprehensive coverage of the Cambridge Lower Secondary math curriculum framework. The three-year program builds a strong foundation in developing some specific skills such as critical thinking, creativity, and problem-solving skills. KS3 is a very critical stage in learning mathematics since we try to have a very smooth transition from primary to higher secondary and prepare students for the first big challenge in their life as a secondary learner which are the IGCSE exams. Our centre of attention is on bridging all the possible gaps to make sure the mathematical foundation needed in higher secondary is fully consolidated with all students. The math curriculum and our teaching strategies encourage independent learning, provides differentiation and assessment for learning opportunities with the aim to help students achieve their potential and start being a life-long learner.

## Year 7

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| Term 1 | **Topics:**<br>Integers / Multiplying and dividing by powers of 10 / Factors, primes and powers / Rounding larger numbers / Interpreting scales / The metric system / Angles / Planning and collecting data |
| | **Scope:**<br>Using negative numbers<br>Adding and subtracting negative numbers Multiples<br>Factors and tests for divisibility<br>Prime numbers<br>Squares and square roots<br>Understanding decimals<br>Multiplying and dividing by 10, 100 and 1000<br>Ordering decimals<br>Rounding<br>Adding and subtracting decimals<br>Multiplying decimals<br>Dividing decimals<br>Estimating and approximating<br>Knowing metric units<br>Choosing suitable units<br>Reading scales<br>Labelling and estimating angles<br>Drawing and measuring angles<br>Calculating angles |

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| | Solving angle problems |
| Term 2 | **Topics:**<br>Sequences, expressions and formulae / Symmetry/ Expressions and equations/ Average/ Percentages/ Construction/ Graphs/ Ratio and proportion/ Time |
| | **Scope:**<br>Generating sequences<br>Representing simple functions<br>Constructing expressions D<br>retrieving and using formulae<br>Recognising and describing 2D shapes and solids<br>Recognising line symmetry<br>Recognising rotational symmetry<br>Symmetry properties of triangles, special quadrilaterals and polygons<br>Collecting like terms<br>Expanding brackets<br>Constructing and solving equations<br>Average and range<br>The mean<br>Comparing distributions<br>Simple percentages<br>Calculating percentages<br>Comparing quantities<br>Measuring and drawing lines<br>Drawing perpendicular and parallel lines<br>Constructing triangles<br>Constructing squares, rectangles and polygons<br>Plotting coordinates<br>Lines parallel to the axes<br>Other straight lines<br>Simplifying ratios<br>Sharing in a ratio<br>Using direct proportion<br>The 12-hour and 24-hour clock<br>Timetables 146 15.3 Real-life graphs |
| Term 3 | **Topics:**<br>Probability / Position and movement/ Area, perimeter and volume/ Interpreting and discussing results/ Revision |
| | **Scope:**<br>The probability scales<br>Equally likely outcomes<br>Mutually exclusive outcomes<br>Estimating probabilities<br>Reflecting shapes<br>Rotating shapes<br>Translating shapes<br>Converting between units for area<br>Calculating the area and perimeter of rectangles<br>Calculating the area and perimeter of compound shapes<br>Calculating the volume of cuboids<br>Calculating the surface area of cubes and cuboids |

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| | Interpreting and drawing pictograms, bar charts, bar-line graphs and frequency diagrams<br>Interpreting and drawing pie charts<br>Drawing conclusions |
| How are Students Assessed | Written exams (formative/ summative)<br>Dr. Frost Maths tasks<br>Projects |
| **Year 8** | |
| Term 1 | **Topics:**<br>Order of operations (BEDMAS) / Linear sequences / Types of quadrilaterals / Angles and parallel lines / Integers, powers, and roots / Place value, ordering, and rounding / Length, mass, and capacity / Planning and collecting data / Fractions |
| | **Scope:**<br>Arithmetic with integers<br>Multiples, factors and primes<br>More about prime numbers<br>Powers and roots<br>Multiplying and dividing by 0.1 and 0.01<br>Ordering decimals<br>Rounding<br>Adding and subtracting decimals<br>Dividing decimals<br>Multiplying by decimals<br>Dividing by decimals<br>Estimating and approximating<br>Choosing suitable units<br>Kilometres and miles<br>Collecting data<br>Types of data<br>Using frequency tables<br>Finding equivalent fractions, decimals and percentages<br>Converting fractions to decimals<br>Ordering fractions<br>Adding and subtracting fractions<br>Finding fractions of a quantity<br>Multiplying an integer by a fraction<br>Dividing an integer by a fraction<br>Multiplying and dividing fractions |
| Term 2 | **Topics:**<br>Shapes and geometric reasoning / simplifying expressions and solving equations / Processing and presenting data / Percentages / Constructions / Graphs / Ratio and proportion / Probability |
| | **Scope:**<br>Recognising congruent shapes<br>Identifying symmetry of 2D shapes<br>Classifying quadrilaterals<br>Drawing nets of solids<br>Making scale drawings<br>Collecting like terms |

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| | Expanding brackets<br>Constructing and solving equations<br>Calculating statistics from discrete data<br>Calculating statistics from grouped or continuous data<br>Using statistics to compare two distributions<br>Calculating percentages<br>Percentage increases and decreases<br>Finding percentages<br>Using percentages<br>Drawing circles and arcs<br>Drawing a perpendicular bisector<br>Drawing an angle bisector<br>Constructing triangles<br>Drawing graphs of equations<br>Equations of the form y = mx + c<br>The midpoint of a line segment<br>Graphs in real-life contexts<br>Simplifying ratios<br>Sharing in a ratio<br>Solving problems<br>The probability that an outcome does not happen<br>Equally likely outcomes<br>Listing all possible outcomes<br>Experimental and theoretical probabilities |
| Term 3 | **Topics:**<br>Position and movement / Area, perimeter and volume / Interpreting and discussing results |
| | **Scope:**<br>Transforming shapes<br>Enlarging shapes<br>The area of a triangle<br>The areas of a parallelogram and trapezium<br>The area and circumference of a circle<br>The areas of compound shapes<br>The volumes and surface areas of cuboids<br>Using nets of solids to work out surface areas<br>Interpreting and drawing frequency diagrams<br>Interpreting and drawing pie charts<br>Interpreting and drawing line graphs<br>Interpreting and drawing stem-and-leaf diagrams<br>Drawing conclusions |
| How are Students Assessed | Written exams (formative/ summative)<br>Dr. Frost Maths tasks<br>Projects |
| **Year 9** | |
| Term 1 | **Topics:** |

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| | Number concepts / Making sense of algebra / Lines, angles and shapes / Collecting, organising and displaying data / Fractions and Standard form/ Equations and rearranging formulae |
| | **Scope:**<br>Different types of numbers, Multiples and factors, Prime numbers, Powers and roots, working with directed numbers, Order of operations, Rounding numbers<br>Using letters to represent unknown values, Substitution, simplifying expressions, Working with brackets, Indices<br>Lines and angles, Triangles, Quadrilaterals, Polygons, Circles, Construction<br>Collecting and classifying data, organising data, using charts to display data<br>Equivalent fractions, Operations on fractions, Percentages, Standard form, Your calculator and standard form, Estimation<br>Further expansions of brackets, solving linear equations, Factorising algebraic expressions, Rearrangement of a formula |
| Term 2 | **Topics:**<br>Perimeter, area and volume / Introduction to probability /Sequences and sets / Straight lines and quadratics / Pythagoras' theorem and similar shapes |
| | Scope:<br>9Ma1 and 9Ma2:<br>Perimeter and area in two dimensions<br>Three dimensional objects<br>Surface areas and volumes of solids<br>Basic and theoretical probability<br>The probability that an event doesn't happen<br>Possibility diagrams<br>Combining independent and mutually exclusive events<br>Sequences<br>Rational and irrational numbers<br>Sets<br>Equations of Straight lines<br>Quadratics and other expressions<br>Pythagoras' theorem<br>Understanding similar triangles, shapes and congruence<br><br>9Ma3:<br>Collecting, classifying and organising data<br>Using charts to display data<br>Equivalent fractions and operations on fractions<br>Percentages<br>Standard form<br>Using a calculator<br>Estimation<br>Further expansions of brackets<br>Solving linear equations<br>Factorising algebraic expressions<br>Rearrangement of a formula<br>Perimeter and area in two dimensions<br>Three dimensional objects<br>Surface areas and volumes of solids |

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| **Term 3** | **Topics:**<br>Averages and measures of spread / Understanding measurement / Further solving of equations and inequalities |
| | **Scope:**<br>9Ma1 and 9Ma2:<br>Equations of Straight lines<br>Quadratics and other expressions<br>Pythagoras' theorem<br>Understanding similar triangles, shapes and congruence<br>Different types of average<br>Making comparisons using averages and range<br>Calculating averages and ranges for frequency data and grouped data<br>Percentiles and quartiles<br>Box and whisker plots<br>Understanding units and time<br>Upper and lower bounds<br>Conversion graphs and money<br>Simultaneous linear equations<br>Linear inequalities<br>Regions in a plane and linear programming<br>Completing the square<br>Quadratic formula<br>Factorising quadratics (coefficient of x is not 1)<br>Algebraic fractions<br><br>9Ma3:<br>Basic and theoretical probability<br>The probability that an event doesn't happen<br>Possibility diagrams<br>Combining independent and mutually exclusive events<br>Sequences<br>Rational and irrational numbers<br>Sets<br>Equations of Straight lines<br>Quadratics and other expressions<br>Pythagoras' theorem<br>Understanding similar triangles, shapes and congruence |
| How are Students Assessed | Written exams (formative/ summative)<br>Dr. Frost Maths tasks<br>IGCSE past papers |