Mathematics

Year 10 Foundation
Curriculum Overview

THE HART SCHOOL
Creative Education Trust

Intent: During year 10, students will continue to build on learning from KS3 and then develop this into the next stages further. Students will embed skills by practise and learn new aspects of maths which they will continue to build upon in key stage 4. Building deeper connections between topics is key and students will begin during year 10 to embed the links between mathematical concepts.

Foundation	**Unit 1: Integer Securing Number**	**Unit 2: Introducing Algebra**	**Unit 3: Numerical Representations**	**Unit 4: Ratio and Proportion**	**Unit 5: Probability**	**Unit6: Standard Form**	**Unit 7: Function and Graphs**	**Unit 8: Angles and Transformations**
	7 Weeks	**5 Weeks**	**5 Weeks**	**3 Weeks**	**3 Weeks**	**3 Weeks**	**4 Weeks**	**3 Weeks**
Core Course Topic: These topics are taught through the identified terms. They are taught in small bitesize chunks and revisited regularly.	• The 4 operations • Powers • Directed numbers • LCM and HCF • Rounding	• Expanding and factorising • Substitution • Linear equations • Simultaneous equations • Inequalities	• Fractions • Percentages	• Simplifying a ratio • Sharing in a ratio • Ratio and fractions	• Single and combines events • Two-way tables • Tree diagrams • Venn diagram • Expected outcomes Relative frequency	• Calculate index laws and use of powers • Convert number to standard form • Convert from standard form to ordinary numbers • Calculations with standard form.	• Linear graphs • Non-linear graphs • Kinematic graphs • Graphical solutions	• Transform shape by a given translation • Understand vectors and use them effectively • Calculate real world answers to geometric problems
Additional support links:	Sparx maths is a platform which students use to complete their mathematics homework. There is also independent practise on there for the students to complete. Students will be supported with revision lists for all assessments, through the module introduction sheet or revision guide for larger assessments. The mathematics team also assist with homework club as well as the whole school Homework Club.							
Knowledge: Included here is the specific knowledge your child will learn in detail	All students will learn to • Calculate sums • Solve problems with negatives • Find LCM and HCF of numbers • Estimate and round numbers • Link knowledge of number to solve problems	All students will learn to • Expand and factorise two or more binomials • Substitute into formula • Solve linear equations • Solve linear equations with x on both sides • Solve simultaneous equations • Solve inequalities	All students will learn to • Use the four operations with fractions and mixed numbers • Find fractions of amounts • Find percentages of amounts • Increase/decrease by a percentage • Compound interest • Use reverse percentages to find original amounts	All students will learn to • Simplify ratio • Solve ratio problems • Write ratio and fractions Combine ratio • Convert units • Solve direct and inverse proportion word problems • Represent direct and inverse proportion using algebra Solve growth and decay problems	All students will learn to • Find the probability of an event • Represent two events using two way tables • Represent events using tree diagrams • Draw and read Venn diagrams • Use experimental probability	All students will learn to Students will explore standard form and be able to convert into and out of it. They will calculate with standard form and see the links to the laws of indices and commutativity.	All students will learn to • Plot straight line graphs • Plot quadratic graphs • Plot real life distance time graphs • Plot conversion graphs • Solve equations using graphs	All students will learn to • Add and subtracting column vectors • Multiplying column vectors by a scalar • Identifying parallel vectors • Solving geometric problems using vectors • Translation • Reflection • Rotation • Enlargement by a positive scale factor

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Common Lexicon: These are the key words and terms learnt. These can be found on knowledge organisers.	Order of operations, power, root, LCM and HCF, rounding, truncation, error interval, inequality	Equations, inequalities, substitute, simultaneous, equals, term, factor	Numerator, denominator, compound, multiplier, simple, terminate, recurring	Ratio, proportion, sharing, unitary method, fraction, equal, direct, inverse, scale factor, constant of proportionality, unitary method	Probability, chance, independent, exhaustive, mutually exclusive, tree diagram, Venn diagram, two-way table	Base, index, power, commutativity, scale	Function, graph, linear, non-linear, kinematic	Translation, Reflection, Rotation, Enlargement, Scale Factor, Vector, Magnitude,
Ambition Curriculum	**Real World: Life Skills** Historical and cultural links to number systems taught: History of negatives Other number systems from history link Origin of the number 1 Video link Fermi- estimation Video link Spending habits, payslips and budgeting. link	**Real World: Life Skills** The HM Revenue & Customs website uses complex calculations involving brackets to work out how much tax a person owes. Linear programming, finance, comparisons, computer programming. Where does River water go? Geography link- reference to Ocean Clean up Video			**Real World: Life Skills** Link to probability of contextual events happening and how companies use this to predict trends. Monty Hall problem Link			**Real World: Life Skills** Vectors are used in navigation and game production. Architects use reflection and translation is designing housing estates and commercials buildings.