



H3 CURRICULUM MAP



SUBJECT AREA:	Mathematics	YEAR / GROUP:	8	aimed at grade expected standard
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BRIEF SUMMARY OF CURRICULUM INTENT

At H3 our Maths vision is to ensure every pupil feels supported and confident to achieve their maximum potential as we lay the foundations in algebra, number, geometry, and data handling for work at GCSE level. We promote mathematical fluency as an essential life skill and create a positive culture of deep understanding, confidence, independence, and competence. Lessons are carefully planned and sequenced to meet the individual needs of our students with special educational needs, and /or disabilities. 1:1 TA support may be appropriate.

Assessment of progress is made based on the teachers' classroom questioning, the review of pupils' work, and their performances in tests. Feedback is given to pupils orally, in written form in exercise books and as part of analysis of tests. Feedback focuses on positive aspects and corrects misconceptions.

Re-engaging students in Mathematics at H3 will be established by:

- Using the BKSB Functional Skills Baseline Assessment to expose knowledge gaps, attitude, anxieties and development needs towards maths.
- Initially removing formal aspects of Key Stage 3 maths lessons from the learning
- Trusted staff members investigating the student's apprehension towards maths and development needs
- Designing a personalised plan that focuses on building personal and mathematical resilience and targets key skills in the gaps in their knowledge
- Through verbal discussion and maths games highlighting and recording student's strengths
- Developing strategies to access support at H3 and understanding the importance of making mistakes
- A methodical progression of integrating formal aspects of learning back into lessons; a workbook, lesson objectives, assessment terminology

Due to pupils being on a part-time timetable, coverage of this curriculum map will be proportional to the amount of time spent covering the subject and differentiated to meet their SEN needs and best ways of working. Pupils arrive at H3 with significant gaps in their learning and individual learning programmes (often from lower year groups or key stages) are developed to meet their needs.

An induction period of two weeks to precede the curriculum map below.

How SMSC and British Values are delivered in this subject

Spiritual – using maths as a tool to make sense of the world around us. Encourage interest in the power of mathematics in everyday life and use spiritual examples to exemplify this – Rangoli patterns in symmetry and tessellation, Fibonacci sequence and the golden ratio etc.

Moral – teachers provide good role models on how to interact with each other and students are encouraged to value the contributions of other students without judgement. Handouts and worked examples avoid stereotypes regarding gender, race, sexual orientation through the use of OFQUAL approved past papers questions.

Social – students in seating plan to facilitate good working practise, collaboration and the opportunity to work with students from a variety of different backgrounds. Students will learn to support each other with the complexities of maths and provide self and peer reviews. Work within the British values of rule of law, individual liberty and mutual respect of each other.

Cultural – students are taught methods for mathematics from around the world such as the Singapore Bar Method, the Chinese lattice method of multiplication etc. Students learn about the traditional methods of mathematics which their parents/grandparents/carers may have been taught as part of the “teaching for mastery” initiative.

KEY DATES / NOTES

Assessment will be a mixture of on-going formative assessments and summative assessments at the end of specific topics.

Questioning throughout lessons will take place to allow students to gain a deeper understanding of topics through reasoning and discussion, marking will be timely and detailed.

A combination of these, along with teacher judgement, will form a half termly grade for each subject on the assessment tracker and a comment explaining overall progress will be reported back to parents/carers at the end of each term

Assessments will be a combination of Corbett maths past papers questions, Dr Frost Maths Chapter reviews, BKSb assessments and AQA past papers questions.

Timing	Key Skills <i>What pupils are learning to do</i>	Teaching & Learning Themes & Styles <i>Topics, Activities, Learning Styles</i>	Assessment Focus <i>including dates and suggested assessments and methods of assessment</i>	Additional Features <ul style="list-style-type: none"> • Literacy Elements • Curriculum Links • Visits / Events
AUTUMN Half term 1	Number <ul style="list-style-type: none"> • use the concepts and vocabulary of prime numbers, highest common factor, lowest common multiple, prime factorisation, including using product notation 	Teaching & Learning Themes Number <ul style="list-style-type: none"> • Identify and use the prime factorisation of a number • Understand and use standard form • Calculate with negative numbers 	Summative Assessment <ul style="list-style-type: none"> • End of unit tests relevant to the topics covered this half term. 	Literacy Elements <ul style="list-style-type: none"> • Spelling • Definitions • understanding of mathematical vocabulary

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	<p>and the unique factorisation theorem</p> <ul style="list-style-type: none"> • round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures) • interpret standard form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer • apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative • use conventional notation for priority of operations, including brackets, powers, roots and reciprocals <p>Geometry and Measures</p> <ul style="list-style-type: none"> • identify, describe and construct similar shapes, including on coordinate axes, by considering enlargement 	<ul style="list-style-type: none"> • Apply the correct order of operations <p>Geometry and Measures</p> <ul style="list-style-type: none"> • Explore enlargement of 2D shapes <p>Teaching & Learning Styles</p> <ul style="list-style-type: none"> • Teacher led new content, through Modelling and Scaffolding • Visuals and Images • Paired Learning • Group Discussion • Collaborative Learning • Independent Learning • ICT and Online Learning • Game Based Learning • Inquiry Based Learning • Personalised Learning • Repetition and Reinforcement • Differentiated Lessons using multiple intelligences. 	<ul style="list-style-type: none"> • 1:1 discussion following the completion of an end of topic assessment. • Written Feedback following the completion of an end of topic assessment. <p>Formative Assessment</p> <ul style="list-style-type: none"> • Paired and small group assessment tasks focusing on reasoning and discussion to develop mathematical language. • Opportunities to self-assess and assess peers to further understanding and identify progress • Verbal feedback throughout lessons 	<ul style="list-style-type: none"> • developing the ability to read and understand mathematical language • use mathematical language and representations to communicate problems and solutions • use mathematics in a range of contexts
AUTUMN Half term 2	<p>Geometry and Measures</p> <ul style="list-style-type: none"> • measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings • interpret plans and elevations of 3D shapes • use scale factors, scale diagrams and maps <p>Probability</p> <ul style="list-style-type: none"> • relate relative expected frequencies to theoretical probability, using appropriate language and the 0 - 1 probability scale 	<p>Teaching & Learning Themes</p> <p>Geometry and Measures</p> <ul style="list-style-type: none"> • Use and interpret scale drawings • Use and interpret bearings • Explore ways of representing 3D shapes <p>Probability</p> <ul style="list-style-type: none"> • Understand the meaning of probability • Explore experiments and outcomes • Develop understanding of probability <p>Algebra</p> <ul style="list-style-type: none"> • Understand the concept of a factor • Understand the notation of algebra 	<p>Summative Assessment</p> <ul style="list-style-type: none"> • End of unit tests relevant to the topics covered this half term. • 1:1 discussion following the completion of an end of topic assessment. • Written Feedback following the completion of an end of topic assessment. <p>Formative Assessment</p> <ul style="list-style-type: none"> • Paired and small group assessment tasks focusing on reasoning and discussion to 	<p>Literacy Elements</p> <ul style="list-style-type: none"> • Spelling • Definitions • understanding of mathematical vocabulary • developing the ability to read and understand mathematical language • use mathematical language and representations to communicate

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	<ul style="list-style-type: none"> record describe and analyse the frequency of outcomes of probability experiments using tables construct theoretical possibility spaces for single experiments with equally likely outcomes and use these to calculate theoretical probabilities apply the property that the probabilities of an exhaustive set of outcomes sum to one <p>Algebra</p> <ul style="list-style-type: none"> use and interpret algebraic notation, including: a^2b in place of $a \times a \times b$, coefficients written as fractions rather than as decimals understand and use the concepts and vocabulary of factors simplify and manipulate algebraic expressions by taking out common factors and simplifying expressions involving sums, products and powers, including the laws of indices substitute numerical values into scientific formulae 	<ul style="list-style-type: none"> Evaluate algebraic statements <p>Teaching & Learning Styles</p> <ul style="list-style-type: none"> Teacher led new content, through Modelling and Scaffolding Visuals and Images Paired Learning Group Discussion Collaborative Learning Independent Learning ICT and Online Learning Game Based Learning Inquiry Based Learning Personalised Learning Repetition and Reinforcement Differentiated Lessons using multiple intelligences. 	<p>develop mathematical language.</p> <ul style="list-style-type: none"> Opportunities to self-assess and assess peers to further understanding and identify progress. Verbal feedback throughout lessons 	<p>problems and solutions</p> <ul style="list-style-type: none"> use mathematics in a range of contexts
SPRING Half term 3	<p>Algebra</p> <ul style="list-style-type: none"> rearrange formulae to change the subject generate terms of a sequence from either a term-to-term or a position-to-term rule deduce expressions to calculate the nth term of linear sequences <p>Number</p> <ul style="list-style-type: none"> work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $7/2$ or 0.375 or $3/8$) 	<p>Teaching & Learning Themes</p> <p>Algebra</p> <ul style="list-style-type: none"> Manipulate algebraic expressions Explore sequences <p>Number</p> <ul style="list-style-type: none"> Explore links between fractions, decimals and percentages <p>Ratio and Proportion, Rates of Change</p> <ul style="list-style-type: none"> Explore the uses of ratio 	<p>Summative Assessment</p> <ul style="list-style-type: none"> End of unit tests relevant to the topics covered this half term. 1:1 discussion following the completion of an end of topic assessment. Written Feedback following the completion of an end of topic assessment. <p>Formative Assessment</p> <ul style="list-style-type: none"> Paired and small group assessment tasks focusing on 	<p>Literacy Elements</p> <ul style="list-style-type: none"> Spelling Definitions understanding of mathematical vocabulary developing the ability to read and understand mathematical language use mathematical language and

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	<p>Ratio and Proportion, Rates of Change</p> <ul style="list-style-type: none"> • express the division of a quantity into two parts as a ratio; apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations) • identify and work with fractions in ratio problems • understand and use proportion as equality of ratios • express a multiplicative relationship between two quantities as a ratio or a fraction • use compound units (such as speed, rates of pay, unit pricing) • change freely between compound units (e.g. speed, rates of pay, prices) in numerical contexts • relate ratios to fractions and to linear functions 	<ul style="list-style-type: none"> • Investigate the connection between ratio and proportion • Solve problems involving proportional reasoning • Solve problems involving compound units <p>Teaching & Learning Styles</p> <ul style="list-style-type: none"> • Teacher led new content, through Modelling and Scaffolding • Visuals and Images • Paired Learning • Group Discussion • Collaborative Learning • Independent Learning • ICT and Online Learning • Game Based Learning • Inquiry Based Learning • Personalised Learning • Repetition and Reinforcement • Differentiated Lessons using multiple intelligences. 	<p>reasoning and discussion to develop mathematical language.</p> <ul style="list-style-type: none"> • Opportunities to self-assess and assess peers to further understanding and identify progress • Verbal feedback throughout lesson 	<p>representations to communicate problems and solutions</p> <ul style="list-style-type: none"> • use mathematics in a range of contexts

<p>SPRING Half term 4</p>	<p>Geometry and Measures</p> <ul style="list-style-type: none"> • understand and use alternate and corresponding angles on parallel lines • derive and use the sum of angles in a triangle (e.g. to deduce and use the angle sum in any polygon, and to derive properties of regular polygons) <p>Number</p> <ul style="list-style-type: none"> • interpret fractions and percentages as operators • work with percentages greater than 100% • solve problems involving percentage change, including 	<p>Teaching & Learning themes</p> <p>Geometry and Measures</p> <ul style="list-style-type: none"> • Develop knowledge of angles • Explore geometrical situations involving parallel lines <p>Number</p> <ul style="list-style-type: none"> • Calculate with fractions • Calculate with percentages <p>Algebra</p> <ul style="list-style-type: none"> • Solve linear equations with the unknown on one side • Solve linear equations with the unknown on both sides 	<p>Summative Assessment</p> <ul style="list-style-type: none"> • End of unit tests relevant to the topics covered this half term. • 1:1 discussion following the completion of an end of topic assessment. • Written Feedback following the completion of an end of topic assessment. <p>Formative Assessment</p> <ul style="list-style-type: none"> • Paired and small group assessment tasks focusing on reasoning and discussion to develop mathematical language. 	<p>Literacy Elements</p> <ul style="list-style-type: none"> • Spelling • Definitions • understanding of mathematical vocabulary • developing the ability to read and understand mathematical language • use mathematical language and representations to communicate
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	<p>original value problems, and simple interest including in financial mathematics</p> <ul style="list-style-type: none"> • calculate exactly with fractions <p>Algebra</p> <ul style="list-style-type: none"> • solve linear equations with the unknown on both sides of the equation • find approximate solutions to linear equations using a graph 	<ul style="list-style-type: none"> • Explore connections between graphs and equations <p>Teaching & Learning Styles</p> <ul style="list-style-type: none"> • Teacher led new content, through Modelling and Scaffolding • Visuals and Images • Paired Learning • Group Discussion • Collaborative Learning • Independent Learning • ICT and Online Learning • Game Based Learning • Inquiry Based Learning • Personalised Learning • Repetition and Reinforcement • Differentiated Lessons using multiple intelligences. 	<ul style="list-style-type: none"> • Opportunities to self-assess and assess peers to further understanding and identify progress • Verbal feedback throughout lessons 	<p>problems and solutions</p> <ul style="list-style-type: none"> • use mathematics in a range of contexts
<p>SUMMER Half term 5</p>	<p>Geometry and Measures</p> <ul style="list-style-type: none"> • compare lengths, areas and volumes using ratio notation • calculate perimeters of 2D shapes, including circles • identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference • know the formulae: circumference of a circle = $2\pi r = \pi d$, area of a circle = πr^2 • calculate areas of circles and composite shapes • know and apply formulae to calculate volume of right prisms (including cylinders) <p>Algebra</p> <ul style="list-style-type: none"> • plot graphs of equations that correspond to straight-line graphs in the coordinate plane • identify and interpret gradients and intercepts of linear functions graphically • recognise, sketch and interpret graphs of linear functions and simple quadratic functions 	<p>Teaching & Learning Themes</p> <p>Geometry and Measures</p> <ul style="list-style-type: none"> • Investigate circles • Discover pi • Solve problems involving circles • Explore prisms and cylinders <p>Algebra</p> <ul style="list-style-type: none"> • Plot and interpret linear graphs • Plot and quadratic graphs • Model real situations using linear graphs <p>Teaching & Learning Styles</p> <ul style="list-style-type: none"> • Teacher led new content, through Modelling and Scaffolding • Visuals and Images • Paired Learning • Group Discussion • Collaborative Learning • Independent Learning • ICT and Online Learning • Game Based Learning • Inquiry Based Learning • Personalised Learning • Repetition and Reinforcement • Differentiated Lessons using multiple intelligences. 	<p>Summative Assessment</p> <ul style="list-style-type: none"> • End of unit tests relevant to the topics covered this half term. • 1:1 discussion following the completion of an end of topic assessment. • Written Feedback following the completion of an end of topic assessment. <p>Formative Assessment</p> <ul style="list-style-type: none"> • Paired and small group assessment tasks focusing on reasoning and discussion to develop mathematical language. • Opportunities to self-assess and assess peers to further understanding and identify progress • Verbal feedback throughout lessons 	<p>Literacy Elements</p> <ul style="list-style-type: none"> • Spelling • Definitions • understanding of mathematical vocabulary • developing the ability to read and understand mathematical language • use mathematical language and representations to communicate problems and solutions • use mathematics in a range of contexts

	<ul style="list-style-type: none"> plot and interpret graphs and graphs of non-standard (<i>piece-wise linear</i>) functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance and speed 			
SUMMER Half term 6	<p>Probability</p> <ul style="list-style-type: none"> apply systematic listing strategies record describe and analyse the frequency of outcomes of probability experiments using frequency trees enumerate sets and combinations of sets systematically, using tables, grids and Venn diagrams construct theoretical possibility spaces for combined experiments with equally likely outcomes and use these to calculate theoretical probabilities apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments <p>Statistics</p> <ul style="list-style-type: none"> interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate graphical representation involving discrete, continuous and grouped data use and interpret scatter graphs of bivariate data recognise correlation interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers) apply statistics to describe a population 	<p>Teaching & Learning Themes</p> <p>Probability</p> <ul style="list-style-type: none"> Explore experiments and outcomes Develop understanding of probability Use probability to make predictions <p>Statistics</p> <ul style="list-style-type: none"> Know the meaning of discrete data Interpret and construct frequency tables Construct and interpret pictograms, bar charts, pie charts, tables and vertical line charts Understand the mean, mode and median as measures of typicality (or location) Find the mean, median, mode and range of a set of data Find the mean, median, mode and range from a frequency table <p>Teaching & Learning Styles</p> <ul style="list-style-type: none"> Teacher led new content, through Modelling and Scaffolding Visuals and Images Paired Learning Group Discussion Collaborative Learning Independent Learning ICT and Online Learning Game Based Learning Inquiry Based Learning Personalised Learning Repetition and Reinforcement Differentiated Lessons using multiple intelligences. 	<p>Summative Assessment</p> <ul style="list-style-type: none"> End of unit tests relevant to the topics covered this half term. 1:1 discussion following the completion of an end of topic assessment. Written Feedback following the completion of an end of topic assessment. <p>Formative Assessment</p> <ul style="list-style-type: none"> Paired and small group assessment tasks focusing on reasoning and discussion to develop mathematical language. Opportunities to self-assess and assess peers to further understanding and identify progress Verbal feedback throughout lessons 	<p>Literacy Elements</p> <ul style="list-style-type: none"> Spelling Definitions understanding of mathematical vocabulary developing the ability to read and understand mathematical language use mathematical language and representations to communicate problems and solutions use mathematics in a range of contexts

