



HPRS CURRICULUM MAP



SUBJECT AREA:	Mathematics	YEAR / GROUP:	10 – aimed at grade 1 – 3 aimed at grade 4 - 5
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BRIEF SUMMARY OF CURRICULUM INTENT

Our main aim in mathematics in HPRS is to give students the best possible chance to enjoy and succeed in mathematics in such a way that will positively impact on their lives post 16. We believe that maths is not only about numbers, equations etc but is about real understanding and we work with students to help them see that by studying mathematics/numeracy they can make a real difference to their future prospects. Maths has a structure that can be learnt through practical applications and we plan lessons to be as “hands-on” and problem solving as possible to increase student participation and self esteem. As enthusiastic teachers we hope to convey our enjoyment of the subject and the fun in the topic in a way that brings the teaching moment into focus.

It is the intent that the mathematics curriculum at HPRS is:-

- A curriculum that is ambitious for all students whilst identifying an individual's learning pathway
- A curriculum that is coherently planned and sequenced alongside accurately assessing students current learning ability
- A curriculum that is successfully adapted, designed and developed for students with special educational needs, and/or disabilities to allow them to make expected or better progress in mathematics
- A curriculum that is broad and balanced for all students

The curriculum delivery in mathematics relies on:-

- Embedding quality teaching a learning opportunities in lessons with increased thinking time planned for students before the need to respond
- Marking in such a way that it is personalised to identify and correct misconceptions in student friendly language
- Assessing progress regularly and reporting this to parents/carers each term
- Comparing student progress with their individual learning profiles
- Supporting student who are struggling to work in the mathematics room by offering 1 : 1 support with a TA
- Monitoring students who are being taught separately from the main cohort by supplying resources to support the staff working towards the Functional Skills qualification with students
- Purposeful questioning provoking discussion within the lessons.

How SMSC and British Values are delivered in this subject

Spiritual – 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 etc.

Social – students in seating plan to facilitate good working practise, collaboration and the opportunity to work with students from a variety of different backgrounds. 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 and marking will be timely and detailed.

A combination of these, along with teacher judgement, will form a RAG rated entry half termly on the assessment tracker and this will be reported back to parents/carers at the end of each term

Assessments will be a combination of Corbett maths past papers, BKSB assessments, mymaths assessments and AQA past papers

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	Understand what a multiple is and be able to list multiples of n Identify and explain whether a number is or is not a multiple of a given integer	Multiples, factors and primes Maths cards	<u>Baseline test at start of key stage 4</u> Pearson Edexcel GCSE Baseline Test used and results inputted on their spreadsheet within the first fortnight of term or the induction period for any	Know the meaning and spelling of the following terms: _Integer Multiple

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	<p>Understand what a factor is and be able to identify factors of positive integers</p> <p>Understand what a prime number is and be able to identify prime numbers</p> <p>Understand that a positive integer can be written uniquely as a product of its prime factors</p> <p>Use the prime factorisation of 2 or more positive integers to efficiently identify the HCF and LCM</p>		<p>new starters during the year – this will give use their target grade for GCSE and can be up-dated throughout the 2 years to evidence progress</p> <p>Mymaths – GCSE 9 – 1 (England)</p> <p>Revision and assessment booster packs for 3 & 4</p> <ul style="list-style-type: none"> - Factors, powers and roots - Calculations 	<p>Factor HCF LCM Prime factorisation</p>
<p>AUTUMN Half term 2</p>	<p>Understand that 1 can be written in the form $\frac{n}{n}$ (where n is any integer)</p> <p>Understand improper fractions and mixed numbers and be able to convert between them</p> <p>Understand that a fraction represents a division and that performing that division results in an equivalent decimal</p> <p>Understand the process of simplifying fractions through dividing both numerator and denominator by common factors</p>	<p>Fractions, decimals and percentages</p> <p>Fraction walls Fraction</p>	<p><u>End of term assessment</u> timetabled for last fortnight in the term for using to complete reports for parents/carers – using the BKS online learning platform</p> <p>Level 1 Maths Reformed:-</p> <ul style="list-style-type: none"> - Fractions - Improper fractions - Fractions of amounts - Estimate fractions - Decimals - Add, subtract, multiply and divide decimals 	<p>Know the meaning and spelling of the following terms: _</p> <p>Equivalent Denominator Numerator</p> <p>Compound interest</p>

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	<p>Know how to compare and order positive and negative integers, decimals and fractions</p> <p>Know, understand and use fluently a range of calculation strategies for multiplication and division of fractions</p> <p>Find a fraction of a given amount</p> <p>Given a fraction and the result, find the original amount</p> <p>Express one number as a fraction of another</p> <p>Understand that percentages are an example of a multiplicative relationship and apply this understanding to a range of contexts</p> <p>Calculate percentage increase and decrease</p> <p>Describe one quantity as a percentage of another</p> <p>Compound interest</p>		<ul style="list-style-type: none"> - Record and estimate decimals - Percentages - Percentages of amounts - Converting between fractions, decimals and percentages - Equivalences - Ratio - Direct proportion - Sharing an amount in a ratio <p>Mymaths – GCSE 9 – 1 (England)</p> <p>Revision and assessment booster packs for 3 & 4</p> <ul style="list-style-type: none"> - Fractions - percentages <p>Additional assessment for students targeting level 4 and 5 to cover prime factors, percentage increase and decrease and compound interest</p>	
<p>SPRING</p> <p>Half term 3</p>	<p>Order of operations</p> <p>Understand the concept of square and cube numbers</p>	<p>Working with numbers</p> <p>Sequences of numbers</p>	<p>End of half term assessment</p> <p>BKSB Maths Reformed Level 2</p>	<p>Know the meaning and spelling of the</p>

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	<p>Understand the concept of square roots and cube roots Round numbers to a required number of decimal places Round numbers to a required number of significant figures Interpret and compare numbers in standard form Units Appreciate that a sequence is a succession of terms formed according to a rule Understand that a sequence can be generated and described using term-to-term approaches or position-to-term rule Understand the features of an arithmetic sequence and be able to recognise one Understand that any term in an arithmetic sequence can be expressed in terms of its position in the sequence (nth term) Recognise and describe other types of non-arithmetic sequences such as geometric and special number</p> <p>Reciprocals Surds Inequalities</p>		<ul style="list-style-type: none"> - Rounding and checking - Multiples, factors and prime numbers - Index of a number - Expressions and formula - Order of operations <p>Mymaths – GCSE 9 – 1 (England)</p> <p>Revision and assessment booster packs for 3 & 4</p> <ul style="list-style-type: none"> - Sequences - Powers and roots 	<p>following terms:_</p> <p>Square numbers Square root Significant figure Standard form Sequence Geometric</p> <p>Surds Reciprocals Inequalities</p>

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SPRING Half term 4	<p>Describe and plot co-ordinates, including non-integer values, in all 4 quadrants</p> <p>Solve a range of problems involving co-ordinates</p> <p>Know that a set of co-ordinates, constructed according to a mathematical rule, can be represented algebraically and graphically</p> <p>The equation of a straight line</p> <p>Intercept and gradient</p> <p>Quadratic graphs</p> <p>Understand how to substitute numbers into formulae</p> <p>Understand and use the conventions and vocabulary of algebra including forming and interpreting algebraic expressions and equations</p> <p>Recognise that there are many different types of equations of which linear is one type</p> <p>Understand that in an equation the 2 sides of the "equals" sign balance</p> <p>Understand that a letter can be used to represent a generalised number</p>	<p>Co-ordinates and graphs</p> <p>Expressions and equations</p>	<p>Mymaths – GCSE 9 – 1 (England)</p> <p>Revision and assessment booster packs for 3 & 4</p> <ul style="list-style-type: none"> - Linear graphs - Non-linear graphs - Algebra - Formula functions - Linear equations 	<p>Know the meaning and spelling of the following terms: _</p> <p>Coordinates</p> <p>Quadrants</p> <p>Quadratic</p> <p>Intercept</p> <p>Gradient</p> <p>Expression</p> <p>Equation</p> <p>Linear</p> <p>Formula</p> <p>Coefficient</p> <p>Equivalence</p> <p>Simultaneous equation</p> <p>Factorising</p>

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	<p>Understand that a solution is a value that makes the 2 sides of an equation balance</p> <p>Know the meaning of and identify :- term, coefficient, factor, product, expression, formula and equation</p> <p>Simplify algebraic expressions by collecting like terms to maintain equivalence</p> <p>Understand how to use the distributive law to multiply an expressions by a term such as $3(a + 4b)$</p> <p>Understand how to use the distributive law to factorise expressions where there is a common factor, such as $3a + 12b$</p> <p>Solve efficiently a linear equation with a single unknown involving brackets</p> <p>Recognise real-life graphs</p> <p>Know that the gradient and intercept method means you start by plotting the intercept and then plot the other points</p> <p>Understand how to draw linear graphs</p> <p>Understand how to draw quadratic graphs</p> <p>Recognising and name the shapes of graphs</p>			

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	<p>Solve simultaneous equations both graphically and algebraically</p> <p>Know how to solving quadratic equations by factorising</p> <p>Rearrange (change the subject of) formulae</p>			
<p>SUMMER Half term 5</p>	<p>Understand that ratios are an example of a multiplicative relationship and apply this understanding to a range of contexts</p> <p>Be able to divide using a ratio</p> <p>Be able to determine the whole, given one part and the ratio</p> <p>Be able to determine one part, given the other part and the ratio</p> <p>Understand the connection between multiplicative relationships and direct proportion</p> <p>Recognise direct proportion and use in a range of contexts including compound measures</p>	<p>Ratio and proportion</p>	<p>Re-do Pearson Edexcel GCSE paper and up-date interactive spreadsheet to measure progress over 2 terms</p> <p>This test comprises 3 papers and staff will decide which one to direct students to – the vast majority will be given test A but for those students who are more able test B is also available to complete</p> <p>The tests are meant to take 90 minutes and this is not ideal in this setting so teacher discretion will be applied as to how long a student is required to work on these and over how many lessons so as not to disillusion or discourage students.</p> <p>Mymaths – GCSE 9 – 1 (England)</p>	<p>Know the meaning and spelling of the following terms: _</p> <p>Ratio Proportion</p>

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			Revision and assessment booster packs for 3 & 4 - Ratio and proportion	
SUMMER Half term 6	Understand and use angle properties Understand that a pair of parallel lines traversed by a straight line produces sets of equal and supplementary angles Know and understand proofs that in a triangle, the sum of interior angles is 180 degrees Know and understand proofs for finding the interior and exterior angle of any regular polygon Triangles Quadrilaterals and other polygon Understand the concept of perimeter, area and volume and use it in a range of problem solving situations Derive and use the formula for the area of a trapezium Understand that the areas of composite shapes can be found in different ways	Angles and polygons Perimeter, area and volume	<u>Start of half term assessment</u> BKSBS Maths reformed level 2 – - Speed, distance and time - Mass, density and volume <u>End of academic year assessment</u> BKSBS maths reformed level 2 – - 3D shape - Plans and elevations - Angles - Line meeting another line - Angles in a triangle - Angles in quadrilaterals - Co-ordinates BKSBS Maths reformed Level 2	Know the meaning and spelling of the following terms:_ Parallel Supplementary angle Interior and exterior angles Polygon Quadrilateral Volume Trapezium Composite shapes Radius and diameter Prism Vertices Congruence Density Pressure

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	<p>Solve area problems of composite shapes involving whole and/or part circles, including finding the radius or diameter given the area</p> <p>Understand the concept of surface area and find the surface area of 3D shapes in an efficient way</p> <p>Be aware that all prisms have 2 congruent polygonal parallel faces (bases) with parallelogram faces joining the corresponding vertices of the base</p> <p>Use the constant cross-sectional area property of prisms and cylinders to determine volume</p> <p>Understand and use similarity and congruence</p> <p>Recognise that similar shapes have sides in proportion to each other but angle sizes are preserved</p> <p>Recognise that for congruent shapes both side lengths and angle sizes are preserved</p> <p>Recognise rotational symmetry in shapes</p> <p>Density and pressure</p>		<ul style="list-style-type: none"> - Length - Weight - Capacity - Conversion graphs - Formulae - Perimeter and circumference - Area - Surface area - Volume <p>Mymaths – GCSE 9 – 1 (England)</p> <p>Revision and assessment booster packs for 3 & 4</p> <ul style="list-style-type: none"> - Perimeter and area - Volume and surface area - Angle properties 	

