H3
CURRICULUM MAP

SUBJECT AREA:	**Mathematics**	YEAR / GROUP:	11	**aimed at grade 4 – 5**
				aimed at grade 6 - 9

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.

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

- To set ambitious targets with high expectations of all students
- To offer a variety of approaches to teaching and learning to engage and motivate students
- Coherently planned and sequences
- Successfully adapted, designed and developed for students with special educational needs, and/or disabilities
- Broad and balanced for all students

The curriculum delivery in mathematics relies on:

- Embedding quality teaching and learning opportunities in lessons
- Verbal and/ or written weekly feedback focused on positive aspects of the student in lessons
- 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
- 1 to 1 conversations focused on personal ability, progression, self-reflection and support
- Supporting students who are struggling to work in the mathematics room by offering 1 : 1 support with a TA
- Purposeful questioning allowing for development in mathematical through reasoning and discussion within the lessons.
- A baseline assessment that exposes knowledge gaps. Developing a personalised plan

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 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

If it is deemed beneficial to an individual student, we will have them sit Functional Skills Level 2 Maths qualification in the Autumn Term. In our experience the confidence gained from achieving a Maths exam qualification early in the year, increases self-confidence and resilience in students of all abilities.

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

Timing	Key Skills *What pupils are learning to do*	Teaching & Learning Themes & Styles *Topics, Activities, Learning Styles*	Assessment Focus *including dates and suggested assessments and methods of assessment*	Additional Features • Literacy Elements • Curriculum Links • Visits / Events
SPRING Half term 1	Review Geometry and Measures • make links to similarity (including trigonometric ratios) and scale factors • know the exact values of sinθ and cosθ for θ = 0°, 30°, 45°, 60° and 90°; know the exact value of tanθ for θ = 0°, 30°, 45° and 60° • know the trigonometric ratios, sinθ = opposite/hypotenuse, cosθ = adjacent/hypotenuse, tanθ = opposite/adjacent • apply it to find angles and lengths in right-angled triangles in two dimensional figures calculate surface area and volume of spheres, pyramids, cones and composite solids • use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS) • apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including	Teaching & Learning Themes Geometry and Measures • Investigate similar triangles • Explore trigonometry in right-angled triangles • Set up and solve trigonometric equations • Use trigonometry to solve practical problems • Calculate surface areas of solids • Calculate volumes of solids • Explore the congruence of triangles • Investigate geometrical situations • Form conjectures • Create a mathematical proof Algebra • Solve simultaneous equations • Solve problems involving simultaneous equations • Solve quadratic equations • Use graphs to solve equations • Manipulate algebraic expressions • Change the subject of a formula • Investigate geometric progressions Teaching & Learning Styles	Summative Assessment • 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. Formative Assessment • 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	Literacy Elements • 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 • develop exam technique

Timing	Key Skills *What pupils are learning to do*	Teaching & Learning Themes & Styles *Topics, Activities, Learning Styles*	Assessment Focus *including dates and suggested assessments and methods of assessment*	Additional Features • Literacy Elements • Curriculum Links • Visits / Events
	Pythagoras' Theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs • Algebra • solve two linear simultaneous equations in two variables algebraically • solve quadratic equations algebraically by factorising • find approximate solutions to quadratic equations using a graph • simplify and manipulate algebraic expressions by factorising quadratic expressions of the form $x^2 + bx + c$, including the difference of two squares • recognise and use simple geometric progressions (r^n where n is an integer, and r is a rational number > 0)	• 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.		
SPRING Half term 2	Geometry and Measures • identify, describe and construct similar shapes, including on coordinate axes, by considering enlargement (including fractional scale factors) • make links *between* similarity and scale factors • apply the concepts of congruence and similarity, including the relationships between length in similar figures Number • use inequality notation to specify simple error intervals due to truncation or rounding	Teaching & Learning Themes Geometry and Measures • Explore enlargement of 2D shapes • Investigate the transformation of 2D shapes Number • Explore the effects of rounding • Calculate with powers and roots • Solve problems involving repeated percentage change • Solve problems involving exponential growth and decay • Explore the use of standard form • Explore the impact of rounding	Summative Assessment • Assessments before week beginning the 28th of November • Students will sit a full GCSE paper • End o funit 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. Formative Assessment • Paired and small group assessment tasks focusing on	Literacy Elements • 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

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	• apply and interpret limits of accuracy • calculate with roots, and with integer indices • calculate with standard form $A \times 10^n$, where $1 \le A < 10$ and n is an integer • apply and interpret limits of accuracy, including upper and lower bounds • interpret fractions and percentages as operators • work with percentages greater than 100% • solve problems involving percentage change, including original value problems, and simple interest including in financial mathematics • calculate exactly with fractions Ratio and Proportion • **set up, solve and interpret the answers in growth and decay problems, including compound interest**	• Calculate with fractions • Calculate with percentages **Ratio and Proportion** • Solve problems involving repeated percentage change • Solve problems involving exponential growth and decay Teaching & Learning Styles • 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.	reasoning and discussion to develop mathematical language. • Opportunities to self-assess and assess peers to further understanding and identify progress. • Verbal feedback throughout lessons	• use mathematics in a range of contexts • develop exam technique
SUMMER Half term 3	Revision Number Algebra	Students will: • Follow a revision course designed to identify and then support areas for improvement in students' understanding	GCSE examinations	Literacy Elements • Spelling • Definitions

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	Ratio, Proportion and Rates of Change Geometry and Measures Probability Statistics	and in the application of their knowledge. • Complete past exam papers in order to become familiar with the layout and language used. • Create revision cards • Marking their own work with a marking scheme • Revisiting the language of exam questions • Student presentations of their own work using PowerPoint • Use of mnemonics • Development of mind maps • Teaching content to peers		• 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 • develop exam technique
SUMMER Half term 4	Revision Number Algebra Ratio, Proportion and Rates of Change Geometry and Measures Probability Statistics	Students will: • Follow a revision course designed to identify and then support areas for improvement in students' understanding and in the application of their knowledge. • Complete past exam papers in order to become familiar with the layout and language used. • Create revision cards • Marking their own work with a marking scheme • Revisiting the language of exam questions • Student presentations of their own work using PowerPoint • Use of mnemonics • Development of mind maps • Teaching content to peers	GCSE examinations	Literacy Elements • 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

				• develop exam technique