H3

CURRICULUM MAP

SUBJECT AREA:	Mathematics	YEAR / GROUP:	7 aimed at grade expected standard

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, End of Unit tests, DrFrost Maths, BKSB assessments and AQA past papers questions.

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
AUTUMN Half term 1	Number • use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest	Teaching & Learning Themes Number • Solve problems using common factors and highest common factors • Exploring prime numbers	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.	Literacy Elements • Spelling • Definitions • understanding of mathematical vocabulary

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	common factor and lowest common multiple • use positive integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 • recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions# understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals) • apply the four operations, including formal written methods, to integers and decimals	• Solve problems using common multiples and lowest common multiples • Explore powers and roots • Exploring place value • Exploring written methods of calculation • Calculating with decimals 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.	• 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	• 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	Number • use conventional notation for priority of operations, including brackets • recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions) • round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures) • estimate answers; check calculations using approximation and estimation, including answers obtained using technology • recognise and use relationships between operations, including	Teaching & Learning Themes Number • Know and apply the correct order of operations • Explore ways of approximating numbers • Explore ways of checking answers • Comparing numbers • Ordering integers and decimals • Ordering fractions • Ordering integers, decimals and fractions (including mixed numbers) • Using comparison symbols in algebraic contexts Geometry and Measures • Interpret geometrical conventions and notation • Apply geometrical conventions and notation • Investigate the properties of 3D shapes	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.	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

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	inverse operations (e.g. cancellation to simplify calculations and expressions) • order positive and negative integers, decimals and fractions • use the symbols =, ≠, <, >, ≤, ≥ Geometry and Measures • use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries • use the standard conventions for labelling and referring to the sides and angles of triangles • draw diagrams from written description • identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres • derive and apply the properties and definitions of: special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles and other plane figures using appropriate language	• Explore quadrilaterals • Explore triangles 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.	• Verbal feedback throughout lessons	
SPRING Half term 3	Algebra • understand and use the concepts and vocabulary of expressions, equations, formulae and terms • use and interpret algebraic notation, including: ab in place of a × b, 3y in place of y + y + y and 3 × y, a^2 in place of a × a, a^3 in place of a × a × a, a/b in place of a ÷ b, brackets	Teaching & Learning Themes Algebra • Understand the vocabulary and notation of algebra • Manipulate algebraic expressions • Explore functions • Evaluate algebraic statements • Investigate number patterns • Explore number sequences • Explore sequences	Summative Assessment • End of chapter 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	Literacy Elements • Spelling • Definitions • understanding of mathematical vocabulary • developing the ability to read and understand mathematical language

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
	• simplify and manipulate algebraic expressions by collecting like terms and multiplying a single term over a bracket • where appropriate, interpret simple expressions as functions with inputs and outputs • substitute numerical values into formulae and expressions • use conventional notation for priority of operations, including brackets • generate terms of a sequence from a term-to-term rule Number • express one quantity as a fraction of another, where the fraction is less than 1 or greater than 1 • define percentage as 'number of parts per hundred' • express one quantity as a percentage of another Ratio, Proportion and Rates of Change • use ratio notation, including reduction to simplest form • divide a given quantity into two parts in a given part:part or part:whole ratio	Number • Understand and use top-heavy fractions • Understand the meaning of 'percentage' • Explore links between fractions and percentages Ratio, Proportion and Rates of Change • Understand and use ratio notation • Solve problems that involve dividing in a ratio 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.	• 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	• use mathematical language and representations to communicate problems and solutions • use mathematics in a range of contexts

SPRING Half term 4	Geometry and Measures • use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.) • use standard units of mass, length, time, money and other measures (including standard compound	Teaching & Learning Themes Geometry and Measures • Measure accurately • Convert between measures • Solve problems involving measurement • Investigate angles Number	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.	Literacy Elements • Spelling • Definitions • understanding of mathematical vocabulary • developing the ability to read and understand

	measures) using decimal quantities where appropriate • change freely between related standard units (e.g. time, length, area, volume/capacity, mass) in numerical contexts • measure line segments and angles in geometric figures • apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles Number • apply the four operations, including formal written methods, to simple fractions (proper and improper), and mixed numbers • interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively	• Calculate with fractions • Calculate with percentages 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.	• 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	mathematical language • use mathematical language and representations to communicate problems and solutions • use mathematics in a range of contexts
SUMMER Half term 5	Number • compare two quantities using percentages • solve problems involving percentage change, including percentage increase/decrease Algebra • recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions) • solve linear equations in one unknown algebraically Geometry and Measures • use standard units of measure and related concepts (length, area, volume/capacity) • calculate perimeters of 2D shapes • know and apply formulae to calculate area of triangles, parallelograms, trapezia • *calculate surface area of cuboids*	Teaching & Learning Themes Number • Calculate with fractions • Calculate with percentages Algebra • Explore way of solving equations • Solve two-step equations • Solve three-step equations Geometry and Measures • Develop knowledge of area • Investigate surface area • Explore volume • Explore lines on the coordinate grid Teaching & Learning Styles • Teacher led new content, through Modelling and Scaffolding • Visuals and Images • Paired Learning • Group Discussion • Collaborative Learning • Independent Learning	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

	• know and apply formulae to calculate volume of cuboids • understand and use standard mathematical formulae • work with coordinates in all four quadrants • *understand and use lines parallel to the axes, y = x and y = -x*	• ICT and Online Learning • Game Based Learning • Inquiry Based Learning • Personalised Learning • Repetition and Reinforcement • Differentiated Lessons using multiple intelligences.		
SUMMER Half term 6	Geometry and Measures • solve geometrical problems on coordinate axes • identify, describe and construct congruent shapes including on coordinate axes, by considering rotation, reflection and translation • describe translations as 2D vectors • interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data and know their appropriate use Statistics • interpret, analyse and compare the distributions of data sets from univariate empirical distributions through appropriate measures of central tendency (median, mean and mode) and spread (range) • interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data and know their appropriate use	Teaching & Learning Themes Geometry and Measures • Use transformations to move shapes • Describe transformations • Explore types of data • Construct and interpret graphs • Select appropriate graphs and charts Statistics • Investigate averages • Explore ways of summarising data • Analyse and compare sets of data • Explore types of data • Construct and interpret graphs • Select appropriate graphs and charts 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.	Summative Assessment • End of unit tests relevant to the topics covered this half term. • End of Year test • 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