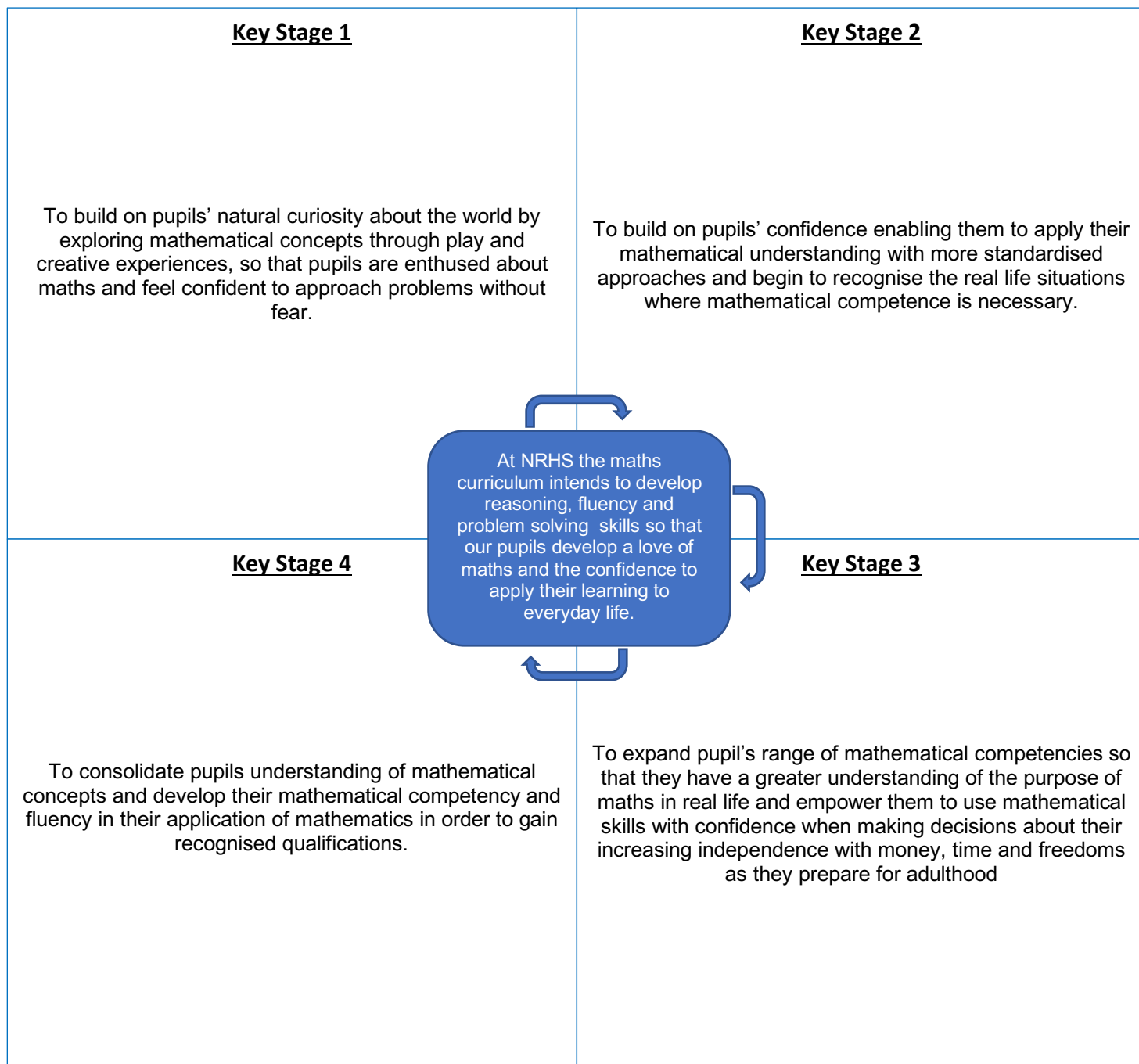


The intent of the Mathematics curriculum at NRHS



Curriculum Information - Maths

Year 1	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number Shape	<ul style="list-style-type: none"> Counting; addition and subtraction to 10. Properties of 2D and 3D shapes. 	<ul style="list-style-type: none"> Link to Science: How different types of weather can be measured. Link to Horticulture PE: counting, timing and measuring – this applies throughout KS1.
Oct-Dec (Term 1.2)	Number Measures	<ul style="list-style-type: none"> Counting and number order; place value and comparing quantities and numbers; developing mental strategies for addition; subtraction as difference. Measures; addition and subtraction using money. 	<ul style="list-style-type: none"> Link to Horticulture
Jan-Feb (Term 2.1)	Number Measures	<ul style="list-style-type: none"> Counting reading and writing number patterns; doubles and near doubles; addition and subtraction to 15; grouping and sharing; fractions. Measures, including time. 	<ul style="list-style-type: none"> Link to Science: measuring plant growth; time it takes for plants to grow. Link to Horticulture
Feb-April (Term 2.2)	Number Shape Measures	<ul style="list-style-type: none"> Counting and place value; addition and subtraction beyond totals of 10; grouping and sharing; addition and subtraction totals to 10. Shape, position and movement. Measuring and time. 	<ul style="list-style-type: none"> Link to Science: Parts of the human body (hand spans, height etc). Link to ICT: spreadsheets. Link to Horticulture Link to Humanities: time.
April-May (Term 3.1)	Number Shape Measures	<ul style="list-style-type: none"> Addition to totals to 10; addition and subtraction to 20; fractions; multiplications and division. Measures and time. Moving and turning. 	<ul style="list-style-type: none"> Link to Horticulture Link to Humanities: weather observations.
May-July (Term 3.2)	Number Shape Measures	<ul style="list-style-type: none"> Addition to totals to 10; addition and subtraction to 20; fractions; multiplications and division. Standard measures and time. Properties of 2D and 3D shapes. 	<ul style="list-style-type: none"> Link to Horticulture Link to Humanities: chronology.

Curriculum Information - Maths

<u>Year 2</u>	Topic/Unit Objectives	• Knowledge to be taught	• Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number Shape Measures	<ul style="list-style-type: none"> Place value; comparing and ordering; the 4 operations. Properties of 2D and 3D shapes. Measures: length, mass, capacity, money. 	<ul style="list-style-type: none"> Link to ICT: simple algorithms.
Oct-Dec (Term 1.2)	Number Geometry Measures Statistics	<ul style="list-style-type: none"> Place value; comparing and ordering; the 4 operations; fractions. Position, direction and motion. Collecting data in tallies, tables and pictograms. 	<ul style="list-style-type: none"> Link to Science: Everyday Materials: sorting/classifying materials, collecting data. Link to ICT: Questioning (pictograms and simple databases). Link to Humanities: time and dates.
Jan-Feb (Term 2.1)	Number Geometry Measures	<ul style="list-style-type: none"> Place value; estimating, comparing and ordering; the 4 operations; fractions. Properties of 2D and 3D shapes. Measures: length, mass, capacity, money. 	<ul style="list-style-type: none"> Link to Science: tally of minibeasts. Link to Horticulture
Feb-April (Term 2.2)	Number Geometry Measures Statistics	<ul style="list-style-type: none"> Place value; estimating, comparing and ordering; the 4 operations; fractions. Position and direction. Collecting data in tallies, tables and pictograms. 	<ul style="list-style-type: none"> Link to Horticulture
April-May (Term 3.1)	Number Geometry Measures	<ul style="list-style-type: none"> Place value; estimating, comparing and ordering; the 4 operations; fractions. Properties of 2D and 3D shapes. Measures: length, mass, capacity, money 	<ul style="list-style-type: none"> Link to Horticulture
May-July (Term 3.2)	Number Geometry Measures Statistics	<ul style="list-style-type: none"> Place value; estimating, comparing and ordering; the 4 operations; fractions. Position and direction. Collecting and representing data in tallies, tables, pictograms and block diagrams. 	<ul style="list-style-type: none"> Link to Horticulture

Curriculum Information - Maths

Year 3	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number Measures Geometry	<ul style="list-style-type: none"> • Reading, writing and ordering two- and three- digit numbers; counting and estimating; number facts to 20 and 100; the 4 operations. • Measures: length, mass, volume and capacity. • Properties of 2D and 3D shapes. 	<ul style="list-style-type: none"> • Link to science: light • Link to Geography: numbers/shapes in local area • Link to Spanish: numbers to 10. • Link to Horticulture • Link to Humanities: shape/data handling/number in local area. • Link to PE: counting, timing and measuring – this applies throughout KS2.
Oct-Dec (Term 1.2)	Number Measures Statistics	<ul style="list-style-type: none"> • Counting and estimating; addition and subtraction of 2- and 3-digit numbers using a number line and columns; doubling and halving, TU x U; fractions - representing, comparing and ordering unit fractions of shapes and numbers. • Read and write time to 5 minute intervals. • Read, present and interpret pictograms and tables. 	<ul style="list-style-type: none"> • Link to Science: rocks. • Link to Horticulture
Jan-Feb (Term 2.1)	Number Measures Geometry	<ul style="list-style-type: none"> • Number and place value; addition and subtraction with partitioning; multiplying one-digit numbers by multiples of 10; multiplication and division - practical and informal written methods. • Measures: adding and subtracting money. • Recognising and drawing right angles in 2D shapes. 	<ul style="list-style-type: none"> • Link to Science: Forces and Magnets. • Link to ICT: spreadsheets. • Link to Horticulture
Feb-April (Term 2.2)	Number Measures Statistics	<p>Addition and subtraction of two-digit numbers using columns; multiplying by multiples of 10; dividing with remainders; multiplying and dividing by larger numbers; fractions - representing, comparing and ordering unit and non-unit fractions of numbers and shapes.</p> <ul style="list-style-type: none"> • Measuring using g and kg. • Read and interpret bar charts, using scales. 	<ul style="list-style-type: none"> • Link to science: plants – measuring. • Link to Food Tech: measuring • Link to Horticulture
April-May (Term 3.1)	Number Geometry Measures	<ul style="list-style-type: none"> • Read, write and order and round two- and three-digit numbers; multiplication and division problems; addition and subtraction of three-digit numbers and 1s, 10s and 100s. • Shape: vertical, horizontal and curved lines. • Measuring using litres and millilitres. 	<ul style="list-style-type: none"> • Link with art – measurement / types of lines. • Link to ICT: branching databases. • Link to Horticulture

May-July (Term 3.2)	Number Measures Statistics	<ul style="list-style-type: none">• Addition and subtraction of two- and three-digit numbers using columns; written methods of multiplication and division; short multiplication and division. Fractions - equivalence, addition and subtraction within 1, finding tenths.• Read and write time using 12 and 24 hour.• Construct and interpret bar charts using scales.	<ul style="list-style-type: none">• Link with science: statistics.• Link to ICT: graphing.• Link to Horticulture• Link to Humanities: ancient Egyptian number system.
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Curriculum Information - Maths

Year 4	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number Geometry Measures	<ul style="list-style-type: none"> Number, place value and rounding; mental addition and subtraction; multiplication and division. Geometry: properties of shape; symmetry Money, time, area. 	<ul style="list-style-type: none"> Spanish: revise numbers to 10, numbers to 15. Horticulture
Oct-Dec (Term 1.2)	Number Geometry Statistics	<ul style="list-style-type: none"> Mental and written addition and subtraction; multiplication and division; fractions. Coordinates in the first quadrant; classifying geometric shapes. Converting units of time; discrete and continuous data. 	<ul style="list-style-type: none"> Link to Science: states of matter (measurement). Link to Horticulture
Jan-Feb (Term 2.1)	Number	<ul style="list-style-type: none"> Number, place value and rounding. Mental and written addition and subtraction. Mental and written multiplication and division. Fractions and decimals. 	<ul style="list-style-type: none"> Link to ICT: spread sheets. Link to Food technology: measuring. Link to Horticulture Link to Humanities: measuring weather.
Feb-April (Term 2.2)	Number Geometry Statistics	<ul style="list-style-type: none"> Mental calculation; written addition and subtraction; time; written multiplication and division. Coordinates in first quadrant; translations of shapes. Data handling and measurement. 	<ul style="list-style-type: none"> Link to Science: electricity (data and measurement). Link to Horticulture
April-May (Term 3.1)	Number Measures	<ul style="list-style-type: none"> Place value ideas; mental addition and subtraction and measures (use measures as a context for problems); written addition and subtraction and measures; mental and written multiplication and division; fractions. Area and perimeter of rectilinear shapes and capacity. 	<ul style="list-style-type: none"> Link to Horticulture
May-July (Term 3.2)	Number Geometry Measures Statistics	<ul style="list-style-type: none"> Mental calculations; written addition and subtraction; mental and written multiplication and division. 2D shape, angles and coordinates. Converting different units of measure; time. Representing data. 	<ul style="list-style-type: none"> Link to Horticulture

Curriculum Information - Maths

Year 5	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number Geometry Measures	<ul style="list-style-type: none"> Place value to 1,000,000; mental addition and subtraction; factors of numbers and prime numbers; using multiplication and division facts. Measuring and drawing angles. Length, perimeter and area. 	<ul style="list-style-type: none"> Link to Spanish: numbers to 20. Link to Horticulture
Oct-Dec (Term 1.2)	Number Geometry Statistics	<ul style="list-style-type: none"> Written methods for multiplication; divide 4-digit numbers; fractions and decimals - tenths and hundredths and thousandths. 2D and 3D shapes. Tables and bar charts. 	<ul style="list-style-type: none"> Link to Science: Earth and space (understanding large numbers). Link to Horticulture
Jan-Feb (Term 2.1)	Number Geometry Measures	<ul style="list-style-type: none"> Negative numbers and solving problems involving numbers; addition and subtraction of large numbers and money; long multiplication, square numbers and cube numbers; adding and subtracting fractions. Reflections and translations. Mass. 	<ul style="list-style-type: none"> Link to Science: forces (mass). Link to ICT: spread sheets. Link to Horticulture
Feb-April (Term 2.2)	Number Measures Statistics	<ul style="list-style-type: none"> Addition and subtraction: mental and written methods for large numbers; multiplication and division - written methods; calculating with fractions; percentages. Measuring capacity. Line graphs/comparative graphs. 	<ul style="list-style-type: none"> Link to ICT: databases. Link to Horticulture
April-May (Term 3.1)	Number Geometry Measures	<ul style="list-style-type: none"> Negative numbers and Roman numerals; adding and subtracting large and small numbers; long multiplication and division with remainders; working with fractions. Diagonals and problems involving angles. Volume, time and money. 	<ul style="list-style-type: none"> Link to Spanish: times of the day. Link to Food technology: measuring. Link to Horticulture
May-July (Term 3.2)	Number Geometry Statistics	<ul style="list-style-type: none"> Addition and subtraction of money; multiplication and division of money; decimals and fractions; problems involving percentages. Perimeter, area and scale drawing. Using tables and line graphs. 	<ul style="list-style-type: none"> Link to Horticulture

Curriculum Information - Maths

Year 6	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number Geometry Measures	<ul style="list-style-type: none"> Place value and rounding off; mental and written addition and subtraction of large numbers; multiples, factors and prime numbers; written methods for multiplication and division - HTU x TU and HTU x U. Circles and angles. Units of measure. 	<ul style="list-style-type: none"> Link to Horticulture Link to Humanities: local area study.
Oct-Dec (Term 1.2)	Number Geometry Statistics	<ul style="list-style-type: none"> Written methods for multiplication and division; comparing, ordering and simplifying fractions; multiplying decimals by 10, 100 and 1000; order of operations. 2D and 3D shapes. Pie charts. 	<ul style="list-style-type: none"> Link to Science: light (measuring angles). Link to Horticulture Link to Humanities: local history study.
Jan-Feb (Term 2.1)	Number Geometry Measures	<ul style="list-style-type: none"> Negative numbers and solving problems involving numbers; mental and written addition and subtraction of decimals and money; mental and written multiplication and division; calculating with fractions. Reflections and translations on coordinate axes. Perimeter, area and volume. 	<ul style="list-style-type: none"> Link to ICT: spread sheets. Link to Horticulture Link to Humanities: river fieldwork
Feb-April (Term 2.2)	Number Measures Statistics	<ul style="list-style-type: none"> Calculating with large numbers; multiplying and dividing decimals; percentages, fractions and decimals; simple formulae. Area and volume. Line graphs. 	<ul style="list-style-type: none"> Link to Science: electricity Link to Horticulture
April-May (Term 3.1)	Number	<ul style="list-style-type: none"> Problems involving number; adding and subtracting large and small numbers; long multiplication and division; working with fractions; problems involving percentages, fractions and decimals; ratio and proportion. 	<ul style="list-style-type: none"> Link to Science: Living things and their habitats. Link to Horticulture
May-July (Term 3.2)	Number Measures Statistics	<ul style="list-style-type: none"> Solving problems involving money; number puzzles; fractions with different denominators; problems involving decimals and percentages. Problems involving measures. Using data. 	<ul style="list-style-type: none"> Link to Food technology: measuring. Link to Horticulture

Curriculum Information - Maths

Year 7	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Analysing & displaying data Number skills	<ul style="list-style-type: none"> Choosing the best representation for different types of data. Negative numbers and where they fit into the ordering of the number line. 	<ul style="list-style-type: none"> Eng: Skills used to interpret and discuss data PE: Data collected to assess performance Spanish: Numbers to do sums, asking what time is?
Oct-Dec (Term 1.2)	Expressions, functions & formulae Decimals & measures	<ul style="list-style-type: none"> Algebraic expression as a rule, and writing an algebraic expression. Why area is measured in square units, and length (perimeter) in linear units. 	<ul style="list-style-type: none"> Music/P A: significant use of symbolic representation FOODs: Measuring ingredients
Jan-Feb (Term 2.1)	Fractions Probability	<ul style="list-style-type: none"> Simplifying fractions to make them easier to visualise. Probability as a fraction, decimal or a percentage. 	<ul style="list-style-type: none"> PSHE: Conversation in everyday life e.g 1/10 of population is left handed. What is the risks of catching cold
Feb-April (Term 2.2)	Ratio & proportion	<ul style="list-style-type: none"> The relationship between ratio and proportion. Understand that a ratio is simply another way of comparing parts - and how this relates to comparing parts written in fraction form. 	<ul style="list-style-type: none"> Art: Ratio used to mixed paints Food: using ratio in recipes. Art : Body drawing
April-May (Term 3.1)	Lines & angles Sequences & graphs	<ul style="list-style-type: none"> Use angles in triangles to solve problems involving other shapes made up of triangles. Know that the first term and term-to-term rule together define a sequence. 	<ul style="list-style-type: none"> History: Historical dates used for sequencing How graphs and charts are used in history
May-July (Term 3.2)	Transformations.	<ul style="list-style-type: none"> Translation, Rotation & Reflection of any given objects. 	<ul style="list-style-type: none"> Art: Through Cubism, tessellations of Escher

Curriculum Information - Maths

Year 8	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number Area & volume	<ul style="list-style-type: none"> Understand, choose and use a range of strategies for mental calculations. Developing knowledge of differences between areas and volume. 	<ul style="list-style-type: none"> Hort: Crop rotation Hum.: History of Parliament PSHE: Money and planning for the future.
Oct-Dec (Term 1.2)	Statistic, graphs & charts. Expressions & Equations	<ul style="list-style-type: none"> Understand how to make comparisons between data Knowing that solutions to equations can be positive and negative integers, and (simple) decimals and fractions. 	<ul style="list-style-type: none"> Eng: Research project on Shakespeare Food: Balanced diet and primary foods. SCI: Metals and Acids Energy
Jan-Feb (Term 2.1)	Real-life graphs. Decimals and ratio.	<ul style="list-style-type: none"> Using graphs to solve problems by finding patterns in data, predicting midpoints & identifying trends. How to use unit ratios to make comparison. 	<ul style="list-style-type: none"> Art: Observational Drawing Hort: Site survey and planning
Feb-April (Term 2.2)	Lines and angles	<ul style="list-style-type: none"> Solving geometric problems, using angles in parallel lines and properties of 2D shapes. 	<ul style="list-style-type: none"> Hum: Exploring: Britain gains an Empire PE: Analysis of own performance against practical criteria
April-May (Term 3.1)	Calculating with fractions Straight-line graphs	<ul style="list-style-type: none"> Using four operations with mixed numbers. Writing the equations of straight line graphs in the form of $y = mx + c$ 	<ul style="list-style-type: none"> Hort: Choosing suitable winter crops (Draw a plot plan) Sci.: Health and Lifestyle
May-July (Term 3.2)	Percentages, decimals & fractions	<ul style="list-style-type: none"> Conversio and equivalence of fractions, decimals and percentages in word problems. 	<ul style="list-style-type: none"> Food : Healthy Breakfast and packed lunches Sci.: Ecosystem Processes.

Curriculum Information - Maths

Year 9	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Indices & standard form. Expressions & formulae	<ul style="list-style-type: none"> The rules of indices in a negative powers of products. The formula connecting the variables & equation of line & interpreting the gradient in a real life context. 	<ul style="list-style-type: none"> PE: Analysis of own performance and the performance of others against practical criteria Hums: Twentieth Century World:
Oct-Dec (Term 1.2)	Dealing with data Multiplicative reasoning	<ul style="list-style-type: none"> How a given set of data, different types of graph & tables may better facilitate comparison of data. Solving problems involving the comparison of compound measures or constant rates. 	<ul style="list-style-type: none"> Sci: Turning Points Physics PSHE: Communities Food: Focusing on healthier takeaways and foods from around the world
Jan-Feb (Term 2.1)	Constructions Equations, inequalities & proportionality	<ul style="list-style-type: none"> Constructing accurate scaled diagrams. The 2nd difference of a quadratic sequence and the coefficient of n squared in the nth term 	<ul style="list-style-type: none"> Art: Observational drawing/Colour Theory
Feb-April (Term 2.2)	Circles, Pythagoras & prisms	<ul style="list-style-type: none"> Pythagoras's Theorem. Solving problems involving arcs of circles & the similarities between cylinder and prism. 	<ul style="list-style-type: none"> Eng: Research Project on A Midsummer Nights Dream
April-May (Term 3.1)	Sequences & graphs Probability	<ul style="list-style-type: none"> Drawing cubic graphs, recognise their features and distinguish between them. Venn diagrams of sets of data that are not mutually exclusive. 	<ul style="list-style-type: none"> Food: The impact of food in our environment Hort: Working through a list of seasonal job
May-July (Term 3.2)	Comparing shapes	<ul style="list-style-type: none"> Using trigonometry to solve bearing problems. 	<ul style="list-style-type: none"> Sci. Atoms, Elements and compounds Art: Observational drawing

Curriculum Information - Maths

Year 10	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Number. Algebra Graphs, tables & charts	<ul style="list-style-type: none"> • Prime factor decomposition & Venn diagrams to find HCF and LCM. • Using maths and science formulae. • Determine the relationship between given sets of data. 	<ul style="list-style-type: none"> • Eng: Sharing stories • PSHE: Finance, business and enterprise.
Oct-Dec (Term 1.2)	Fractions and percentages Equations, inequalities & sequences	<ul style="list-style-type: none"> • Using % in real-life situations. Simple interest & VAT • Differences between an expression, an equation, a formula and an identity 	<ul style="list-style-type: none"> • Hort.: Crop rotation • Sci: Metals and alloys
Jan-Feb (Term 2.1)	Angles Averages & range	<ul style="list-style-type: none"> • Why some polygons fit together and some others do not • Understand the need for sampling and how to avoid bias. 	<ul style="list-style-type: none"> • Eng: Sharing stories • PE: techniques to perform a range of actions in football
Feb-April (Term 2.2)	Perimeter, area & volume Graphs Transformations	<ul style="list-style-type: none"> • Conversion between measures of volume. • Understand when predictions are reliable. • Transform shapes using more than one transformation. 	<ul style="list-style-type: none"> • Art: Man Made vs Natural World • Food: Macronutrients and micronutrients
April-May (Term 3.1)	Ratio & proportion Right-angled triangles Probability	<ul style="list-style-type: none"> • Recognise different types of proportion. • Exact values of Sine, Cosine & Tangent of some angles. • Understand when events are not independent. 	<ul style="list-style-type: none"> • Hort: Crop rotation • Sci: Forces and work
May-July (Term 3.2)	Multiplicative reasoning Constructions, loci and bearings	<ul style="list-style-type: none"> • Use ratio and proportion in measures and conversions. • Solve problems involving bearings and scale diagrams. 	<ul style="list-style-type: none"> • Art: Portraits • Hum: Germany and the growth of democracy.

Curriculum Information - Maths

Year 11	Topic/Unit Objectives	Knowledge to be taught	Big picture cross curriculum links
Sept-Oct (Term 1.1)	Quadratic equations & graphs Perimeter, area & volume 2	<ul style="list-style-type: none"> • Recognise a quadratic function. • Work out the volume and surface area of composite solids. 	<ul style="list-style-type: none"> • PSHE: Risk and safety. • Sci: Kinetic theory • Eng: Connecting with the past
Oct-Dec (Term 1.2)	Fractions, indices and standard form Congruence, similarity and vectors	<ul style="list-style-type: none"> • To work with very large/Small numbers and convert them from standard form into ordinary numbers. • Recognise congruent shapes. 	<ul style="list-style-type: none"> • Food: Food labelling and marketing. • Sci: Different types of waves • Art: Develop a range of personal outcomes •
Jan-Feb (Term 2.1)	More algebra	<ul style="list-style-type: none"> • Solve simultaneous equations algebraically and Prove results using algebra. 	<ul style="list-style-type: none"> • PSHE: Relationships, identity and communities • Hum: A revolution in Medicine, • Hort: Propagation – from seed • PE: Development & Replication of Skills
Feb-April (Term 2.2)	General Revisions (Catch Up Units/Topics)		
April-May (Term 3.1)	Revision		