## **Maths Department: Curriculum Overview 2023-24**

## **Curriculum Intent:**

## In Maths, IT & Computing, our aims are for all students;

- To have a passion for and resilience towards Maths, IT and Computing
- To develop strong problem solving, digital literacy and numeracy skills
- To be able to communicate their learning in Maths, IT and Computing effectively
- To be aware of E-Safety and how to report concerns and keep themselves safe & healthy online
- To gain qualifications to best prepare students for life after Fullbrook

## **Maths: Implement**

- Mastery Scheme of work in Year 7 & 8 to create a greater depth of understanding. SoW was developed and agreed collaboratively, based on staff feedback
- Year 9 will see harder topics from Y7-8 stretched further, to prepare for the CGSE course
- GCSE course starts one full cycle at the beginning of Y10, finishing at Christmas of Y11, to leave plenty of time for revision
- Teachers to work collaboratively on designing thought-provoking and meaningful 100-minute lesson plans that follow the learning cycle
- Key Stage 3 assessments to be re-designed to reflect new SoW, but also new assessment format, with 20 marks multiple choice at the start
- Year 9 Low attainers entered into the Edexcel Entry Awards to provide opportunities to experience success
- Yellow Feedback Sheets, highlighted so students can clearly see what they are doing well on and what they need to work on. Students respond to this (by completing INT Questions)
- Focus on Problem Solving within lessons
- T&L Maths meetings to discuss pedagogy with a focus on Problem Solving and mathematical communication
- UKMT Maths Challenges
- OCR Additional Maths offered in Year 10 & 11
- Numeracy Challenge in tutor time every cycle
- Primary School Team Maths Challenge
- Marking Policy is only to mark formative and summative assessment points, but not mark books, to reduce workload and be more beneficial to the students.
- Open Book Tests to encourage the students to make more accurate and detailed notes
- Use Profiles for Success to help support disadvantaged students
- Key Stage Leaders attend Maths Hubs courses for latest pedagogy
- Interleaving will regularly take place in the form of starters in lessons and through Open books tests, Assessments, End of Year Tests and Mocks
- Reading & Vocabulary Tier 3 Vocabulary taught and recorded in students' books using purple D.V.I. sheets
- Keywords for each topic on SoW and learning logs (which are put in the students' books)
- Discuss the importance of vocab in Maths Teaching & Learning meetings

		Ter	m 1			Ter	m 2	Term 3				
Year 7	Half To		Half Term 2 [12 lessons]		Half Term 3 [10 lessons]			Ferm 4 essons]	Half Term 5 [10 lessons]		Half Term 6 [10 lessons]	
Topic	Factors, Multiples, Primes	Negative Numbers	Algebraic Expressions	Measuring Space	Calculations	Rounding and Estimating	Representing Data	Averages	Fractions	Perimeter, Area, Volume	Constructions	End Points
Skill	Number	Number	Algebra	Geometry	Number	Number	Statistics	Statistics	Number	Geometry	Geometry	
Content	Finding Factors Finding Multiples Identifying primes, squares and cubes Product of Prime Factors HCF LCM	Ordering negatives, Addition, Subtraction, Multiplication, Division with negatives Worded examples	Collecting like term Substitution, multiplying expressions, expanding brackets, factorising	Measuring lines, measuring angles, reading scales, telling the time, calculations with time, converting units of measure	Place Value Column addition Column subtraction Multiplication Division Calculations with decimals BIDMAS	Rounding to decimals places Rounding to significant figures Estimating calculations Upper and Lower Bounds	Types of data Bar Charts Dual Bar Charts Pie Charts Frequency Tables Line Graphs Scatter Graphs	Mean, median, mode, range Averages from a frequency table Comparing two sets of data	Simplify Fractions Multiply and divide fractions Add and subtract fractions Order Fractions Mixed Numbers	Perimeter and Area of rectangle, triangle, parallelogram, trapezium Volume of prisms Area an circumference of circle Surface Area of cuboid	Construct ASA, SAS, SSS triangles Construct equilateral triangles, perpendicular bisectors and angle bisectors Basic loci	
Prior Knowledge Required	Times Tables, basic arithmetic	Number Line	Basic arithmetic, negatives		Basic arithmetic	Place Value	Reading a scale	Basic arithmetic, BIDMAS	Shade a fraction on a picture	Area by counting squares	Measuring angles	
Feedback Points		Skills Check	ASSESSMENT POINT 1	Skills Check		Skills Check		Skills Check		ASSESSMENT POINT 2		
Key Questions	Convince me that 109 is a prime number Is 2468 a square number? How do you know? Is 1 a prime number? Why? Why are they called square numbers and cube numbers? Why don't we find the HCM and LCF?	Convince me that –15 < -3 The coldest day was -7°C. The temperature rose by 2 degrees overnight. What was the temperature the next day? Simon had £450 in his bank account. He spent £500. What is his balance?	Kenny thinks that ' $b^2$ ' is the same as ' $2b'$ because when $b = 2$ , $b^2 = 4$ and $2b = 4$ . Do you agree with Kenny? Explain your answer. Jenny thinks that $7 + 2a = 9a$ . Do you agree with Jenny? Explain your answer.	Show me a metric unit of measure. Why is it not correct to add 3kg + 50g and make 53? What is a sensible unit of measurement to measure?	Find missing digits in this multiplication calculation Convince me that 2472 × 12 = 29664 Why have you chosen to add (subtract, multiply)? Show me a calculation that is connected to 147 × 26 = 3822.	Could this calculation be correct? How do we know? The crowd was given as 32000. Could the actual crowd be 31782? What more information do you need?	Show me a pie Chart representing the following information: Blue (25%), Red over 50%), Yellow (the rest) If two pie charts have the same sized section, does each section represent the same amount of data? Show me a scatter graph with positive/negative correlation	Always / Sometimes / Never: The mean is a whole number. Joe is working out the mean of 2, 3, 4 and 5. He calculates 2 + 3 + 4 + 5 ÷ 4 = 10.25. Do you agree with Joe? Explain.	Show me an improper fraction. Show me a mixed number. How many wholes are there in 7/7? 21/7? Jim eats 2/4 of a Pizza, Jo eats 1/2. Who has eaten more? Kenny thinks 1/2 + 1/2 = 2/4. Do you agree? Sam thinks you can only multiply fractions if they have the same denominator. Do you agree? Explain.	If rectangle A has a bigger perimeter than rectangle B does rectangle A have a bigger area? Prove your answer Can you find a rectangle with a perimeter of 22cm and an area of 28cm²? What is the biggest field you can enclose with 100m of fencing? Can you find a 3D shape with the same surface area and volume?	Given SSS, how many different triangles can be constructed? Why? Repeat for ASA, SAS, SSA, AAS, AAA.  Always / Sometimes / Never: to draw a triangle you need to know the size of three angles; to draw a triangle you need to know the size of three sides.	
Direct Vocab Instruction	(Common) multiple (Common) factor Divisible Prime number Square number Cube number Product of Prime Factors	Negative Number Positive Number Integer Zero Ascending Descending Increase Decrease The equals sign (and not equals) The inequality symbols	Algebra, algebraic, algebraically Symbol Expression Variable Substitute	Length, distance Mass, weight Volume Capacity Metre, centimetre, millimetre Tonne, kilogram, gram, milligram Litre, millilitre Hour, minute, second Inch, foot, yard Pound, ounce Pint, gallon	Addition Subtraction Sum, Total Difference, Minus, Less Operation Multiply, Multiplication, Times, Product Commutative Factor Estimate Divide, Division, Divisible	Round Approximate Estimate Decimal place Significant figure Lower bound Upper bound	Data Categorical, Discrete, Continuous Grouped data Frequency table Tally Bar Chart Line Graph Graph, Scale, Axis Line Graph Scatter Graph Correlation Pie Chart	Average Mean Median Mode, Modal, Bimodal Measure Data Statistic	Fraction Proper / Improper Top Heavy Simplify, cancel, lowest terms Mixed Numbers Equivalent Numerator Denominator	Area Perimeter Surface area Volume Triangle, quadrilateral, pentagon, hexagon, octagon Square, rectangle, parallelogram, trapezium, rhombus, kite Diameter Radius Circumference	Plane Parallel Perpendicular Equilateral Sketch Construct Bisect Side, Angle Scale Bearing	
Standardised Homework	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	

		Ter	m 1			Ter	m 2	Term 3				
Year 8	Half T [12 les			Term 2 essons]	Half Term 3 [10 lessons]		erm 4 ssons]		Half Term 5 [10 lessons]		Term 6 essons]	
Topic	FDP	Percentages	Equations	Angles	Ratio	Compound Measures	Probability	Sequences	Algebraic Graphs	Right Angled Triangles	Transformations	End Points
Skill	Number	Number	Algebra	Geometry	Proportion	Proportion	Statistics	Algebra	Algebra	Geometry	Geometry	
Content	Convert between equivalent Fractions, Decimals and Percentages Change a fraction into a recurring decimal Change a recurring decimal into a fraction	Find % of an amount Increase of decrease by a % Express as a % Use decimal multipliers Solve finance problems with interest	Solve linear equations (one step, two step, x on both sides) Substitute numbers into formulae Change subject of formulae	Apply basic angle facts, around a point, straight line, in a triangle Angles in parallel lines Angles in polygons	Write as a ratio Simplify a ratio Divide amount into a ratio Ratio given one part, Ratio given the difference Best Buys Currency Conversions Direct proportion	Speed Density	Probability scale Equally likely outcomes Probabilities add up to 1 Sample Space Diagrams Relative Frequency Tree Diagrams	Missing term Term to term rules Nth term (linear) Generating sequences Using nth term	Plot coordinates Plot a straight line from a table of values Find gradient Y = mx + c	Identify Hypotenuse Pythagoras to find hypotenuse Pythagoras to find shorter side Label a triangle SOH CAH TOA to find a missing length	Lines of symmetry Reflection Rotation Translation Enlargement	
Prior Knowledge Required	Fractions	FDP	Collecting like terms, expand bracket	Measuring an angle	Basic arithmetic and fractions	Basic arithmetic, Measuring time	Fractions	Substitution	Substitution	Substitution, squaring	Coordinates	
Feedback Points		ASSESSMENT POINT 1		Skills Check		Skills Check		Skills Check	ASSESSMENT POINT 2		Skills Check	
Key Questions	How do you convert between FDP? Can all fractions be converted into a decimal? What is an irrational number? What is a fraction? What is a decimal? Is 33.3% the same as 33.33%?	How can I find 10% of any number? How does this help me to find 5%, 20%, 35% etc How do you find the multiplier when doing a percentage increase? Is this the same for doing a percentage decrease? Is decreasing 80 by 20% the same as finding 80% of 80? Why?	Does the equation still balance?  If I do this to one side what must I do to the other side?  How can we check our answer is correct?  What is the inverse of?  What is currently the subject of the formulae	Without using a protractor, can you estimate the size of this angle and state the type of angle? How would you instruct a year 5 student on using a protractor? After finding missing angles, can you give a reason for each answer? What is the difference between congruent and similar shapes?	If you double the total amount of money what will happen to Ben's share? Is the question telling us how much money there is in total, or how much 1 person has? How many multiples of the recipe do we need? Will halving the recipe help? Are the units the same?	Why is the graph horizontal? (on d/t and v/t) When is it travelling fastest? How do you know? Does it matter what units I use for speed? Who is travelling quickest? Give me an example of a high density material	If an event is certain then what is its probability? Come up with examples of mutually exclusive events How many cards are in a deck? How do you find relative frequency? The probability of a team winning is 0.6 Ben thinks the probability of them winning twice is 0.6 + 0.6 = 1.2. Why is Ben wrong?	Kenny thinks that 2, 4, 8, 16, is a linear example. Do you agree? Explain your answer. Create a linear sequence with 3rd term of '8'. Show me a linear sequence where the rule to get from one term to the next is 'add 3'.  Always/ Sometimes /Never: The 10th term of is double the 5th term of the (linear) sequence	Jack describes this point as (-3, 4). Jill describes the point as (4, -3). Who do you agree with? Why? Two vertices of a rectangle are (-1, 2) and (4, -2). What could the other two vertices be? Show me a point on this line (e.g. y = 2x + 1) Tell me a line parallel to y = 4x + 5 Show me lines with the same "m", show me lines with the same "c"	Can you identify the sides of the triangle regardless of the orientation Can you explain what SOH CAH TOA stands for and how to use it Can you think of a reallife situation that you can use Pythagoras theorem for	Always / Sometimes / Never: The centre of rotation is in the centre of the object Convince me that y = 0 is the x-axis Always / Sometimes / Never: The line x = a is parallel to the x-axis What rotation, translation, reflection, or enlargement could I do, for the shape to land exactly back on itself?	
Direct Vocab Instruction	Convert Equivalent Recurring Reciprocal Irrational number	Multiplier Simple Interest Compound interest Profit Depreciation Increase Decrease	Equation Formulae Substitute Variable Re-arrange Subject Linear Quadratic	Opposite, alternate, corresponding, interior, exterior, Polygon Congruent Supplementary, complementary Acute, obtuse, reflex Parallel, perpendicular Equilateral, isosceles, right-angle	Proportion Ratio Scale Simplify Currency Exchange Rate Direct Proportion Inverse Proportion	Gradient Speed Velocity Kilometres, Metres, Miles Conversion Acceleration Mass Density Volume Pressure	Bias Mutually exclusive Relative Frequency Independent and dependent events Sample Tree diagram Outcome	Pattern Sequence Linear Term Ascending Descending Term-to-term rule Position-to-term rule n <sup>th</sup> term	Plot Equation (of a graph) Function Formula Linear Coordinate plane Gradient y-intercept Substitute Quadratic	Angle Hypotenuse Adjacent Opposite Sine (sin) Cosine (cos) Tangent (tan) Right angle Pythagoras Trigonometry	(Cartesian) coordinates Axis, axes, x-axis, y-axis Origin Quadrant Translation, Reflection, Rotation Enlargement Transformation Object, Image Congruent Mirror line Vector Centre of rotation	
Standardised Homework	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	

		Ter	m 1			Te	rm 2	Term 3				
Year 9	Half Term 1 [12 lessons]		Half Te	erm 2	Half Term 3	Half '	Half Term 4		Term 5			
			[12 lessons]		[10 lessons]	[11 le	essons]	[10 le	ssons]			
Topic	Number, Powers, Error	Algebra	Equations	Angles	Direct and Inverse Proportion	Data and Probability	Fractions	Sequences and Algebraic Graphs	Pythagoras, Trig, Vectors	Perimeter, Area, Volume	Similar Shapes	End Points
Skill	Number	Algebra	Algebra	Geometry	Proportion	Statistics	Number	Algebra	Geometry	Geometry	Geometry	
Content	Multiplying & Dividing Decimals Indices Laws Standard Form Negative and Fractional Indices Surds Upper and Lower Bounds	Expanding Brackets Collecting Like Terms Simplifying with Indices Factorising Completing the Square	Solving linear equations Solving Quadratics by Factorising Quadratic Formula Changing the subject Inequalities	Angles in parallel lines Angles in polygons Circle Theorems Bearings	Solve direct and inverse proportion with a constant of proportionality Recognise graphs	Sampling Freq. Polygon Pie Chart Scatter Graph Cumulative Freq. Two Way Tables Venn Diagrams Tree Diagrams	Consolidate all fraction skills from Year 7 Convert recurring decimal to fraction Work with algebraic fractions	Linear sequences Geometric sequences Quadratic sequences Recognise and plot graphs Find gradient Y = mx + c	Pythagoras, 3D SOH CAH TOA 3D Sine Rule and Cosine Rule (acc only) Adding column vectors Drawing vector diagrams	Consolidate perimeter and area Arcs and Sectors Volume of prisms, cylinders, cones, pyramids Surface area of a cylinder	Finding a scale factor Identifying congruent and similar shapes Find a missing length on a similar shape Areas and volumes	
Prior Knowledge Required Feedback	Squaring and Cubing	Simplifying expressions	Inverse operations, factorising Open Book Test 1	Basic angle facts	Substitution  ASSESSMENT 1	Plotting coordinates, probability scale	Fraction skills from Y7 Open Book Test 2	Nth term from Y8	Pythagoras SOH CAH TOA ASSESSMENT 2	Perimeter and area of rectilinear shapes and circles	Proportion  Open Book Test 3	
Points Key							Spen seek rees					
Questions Direct Vocab Instruction	Inequality Root Powers, Indices BIDMAS Reciprocal Estimate Significant figures Rounding Product Prime HCF, LCM Standard form Bound Error interval	Expression Coefficient Formula Inequality Term Identity Simplify Expand Factorise Substitute Rearrange Subject Function Input, Output	Solve Equation Unknown Expand Inequality Factorise Quadratic Linear Simultaneous Solution	Opposite Alternate Corresponding Interior Exterior Polygon Congruent Similar Bearing Proof Radius Tangent Chord Diameter	Directly Proportional Inversely Proportional Exchange rate Currency Distance Speed Time Density Pressure Capacity Compound units	Discrete Continuous Grouped data Population Sample Bias Frequency Correlation Outlier Line of best fit Interpolate Extrapolate Cumulative Frequency density	Fraction Numerator Denominator Reciprocal Ascending Descending Mixed number Improper Recurring	Sequence Term Consecutive Fibonacci-type Linear Geometric Common ratio Quadratic Common difference Gradient Intercept Root Turning point/Vertex Solution Quadratic Cubic Reciprocal	Hypotenuse Adjacent Opposite Vector Scalar Parallel	Area Perimeter Volume Compound shape Surface area Arc Sector Radius Diameter Circumference Sphere Prism Pyramid Cone	Congruent Similar Scale Factor Length Area Volume	
Standardised Homework	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	MathsWatch	

		Ter	m 1			Ter	m 2					
Year 10	Half Term 1 [12 lessons]		Half Term 2 [12 lessons]		Half Term 3 [10 lessons]		erm 4 ssons]	Half Term 5 [10 lessons]		Half Term 6 [10 lessons]		
Topic	Number, Powers, Error	Algebra	Representing Data	Averages	Transformations & Constructions	Ratio	Percentages	Fractions	Sequences	Proportion & Compound Measures	Solving Equations	End Points
Skill	Number	Algebra	Statistics	Statistics	Geometry	Proportion	Number	Number	Algebra	Proportion	Algebra	
Content	Multiplying & Dividing Decimals Indices Laws Standard Form Negative and Fractional Indices Surds Upper and Lower Bounds  Decimals	Expanding Factorising Indices Completing the Square Inverse Functions Composite Functions	Freq Polygon Pie Chart Cumulative Frequency Box Plot Histogram Scatter Graph  Bar Charts	Averages from Freq tables Averages from box plots, cumulative freq graphs and box plots Comparing data  Averages from	Reflection Rotation Translation Enlargement Invariant Points Combinations Constructions Loci  Transformations	Sharing quantities in a ratio Combining ratios Scaling ratios and solving problems Link ratios and equations  Simplify Ratio	% Change Reverse Percentages Profit and loss Compound Interest Successive % Change	Find reciprocal Manipulate Fractions Recurring decimals to fractions Add, multiply, simplify algebraic fractions  Fractions	Linear sequences Geometric sequences Quadratic sequences	Direct/inverse proportion Recognise graphs Best Buys Currency Conv. Speed, Density, Pressure Area under curve Instant. Rate of change Gradient	Linear equations Quadratic equations (factorise, formula, complete square) Iteration Linear Inequalities Quadratic Inequalities Inverse	
Knowledge Required	Squaring, cubing, powers	algebra		raw data	from Y8		Multipliers	arithmetic			Operations Factorising	
Feedback Points		ASSESSMENT 1		Open Book Test 1		Open Book Test 2		Open Book Test 3		ASSESSMENT 2		
Key Questions												
Direct Vocab Instruction	Inequality Root Powers, Indices BIDMAS Reciprocal Estimate Significant figures Rounding Product Prime HCF, LCM Standard form Bound Error interval	Expression Coefficient Formula Inequality Term Identity Simplify Expand Factorise Substitute Rearrange Subject Function Input, Output	Discrete Continuous Grouped data Population Sample Bias Frequency Correlation Outlier Line of best fit Interpolate Extrapolate Cumulative Frequency density	Grouped Data Mean Median Mode Range Interquartile Range Outlier Class intervalFrequency	Rotate Translate Enlarge Reflect Scale Factor Object Image Construct Congruent Similar Perpendicular Bisect Locus Invariant	Ratio Multiple LCM Scale	Fraction Percentage Increase Decrease Profit Simple interest Compound interest	Fraction Numerator Denominator Reciprocal Ascending Descending Mixed number Improper Recurring	Sequence Term Consecutive "Fibonacci-type sequence" Linear Geometric Common ratio Quadratic Common difference	Directly Proportional Inversely Proportional Exchange rate Currency Speed Density Pressure Capacity Compound units Velocity Acceleration Tangent Instantaneous rate of change Average rate of change	Solve Equation Unknown Expand Inequality Factorise Quadratic Linear Simultaneous Solution	
Standardised Homework	MathsWatch/ Exam Questions	MathsWatch/ Exam Questns	MathsWatch/ Exam Questns	MathsWatch/ Exam Questns	MathsWatch/ Exam Questions	MathsWatch/ Exam Questions	MathsWatch/ Exam Questions	MathsWatch/ Exam Questions	MathsWatch/ Exam Questions	MathsWatch/ Exam Questions	MathsWatch/ Exam Questions	

		Ter	m 1			Term 2		Term 3				$\top$
Year 11	Half To	erm 1	Half Term 2 [12 lessons]		Half Term 3 [10 lessons]	Half 1	Term 4 ssons]	Half Term 5 [10 lessons]		Half Term 6 [10 lessons]		
Topic	Pythagoras, Trigonometry, Vectors	Probability	Algebraic Graphs	MOCKS	Angles	Perimeter, Area, Volume	Similar Shapes	REVISION	REVISION		-	End Points
Skill	Geometry	Statistics	Algebra		Geometry	Geometry	Proportion					
Content	Pythagoras in different contexts SOH CAH TOA Exact Trig Values Sine and Cosine Rules ½ ab SinC 3d Pythagoras and Trigonometry Trig Graphs Column Vectors Vector problems, including proving lines are parallel, points are colinear Pythagoras, SOH	Frequency Trees Two way tables Venn Diagrams Set notation Relative Frequency Tree Diagrams Dependent events Conditional Probability  Tree Diagrams,	Y = mx + c Plot non-linear graphs Identify roots, intercepts and turning points Graph Transformations		Angles in parallel lines Angles in polygons Circle Theorems Bearings Congruent shapes Proof of congruency	Arcs and Sectors Volume of prisms, cylinders, cones, pyramids Surface area of a cylinder Surface Area of a cone Volume of a frustum	Find missing lengths Show shapes are similar Convert between measures of area and volume Understand lengths, areas, volumes in 2D and 3D similar shapes Find missing surface areas and volumes of similar shapes Similar and					
Knowledge Required	САН ТОА	Venn Diagrams			Lines, Angles in polygons	of shapes	congruent definitions					
Feedback Points		Open Book Test		MOCKS	рогудонз	MOCKS	definitions					
Key Questions												
Direct Vocab Instruction	Hypotenuse Adjacent Opposite Sine Cosine Tangent Vector Scalar Parallel	Experimental Theoretical Mutually exclusive Mutually exhaustive Trial Sample space Outcome Venn diagram Independent Dependent Union Intersect Complement	Midpoint Gradient Intercept Function Root Turning point/Vertex Solution Quadratic Cubic Reciprocal		Opposite Alternate Corresponding Interior Exterior Polygon Congruent Similar Bearing Proof Radius Tangent Chord Diameter	Area Perimeter Volume Compound shape Surface area Arc Sector Radius Diameter Circumference Sphere Prism Pyramid Cone	Congruent Similar Scale Factor Length Area Volume					
Standardised Homework	Exam Questions, GCSE Papers	Exam Questions, GCSE Papers	Exam Questions, GCSE Papers	Exam Questions, GCSE Papers	Exam Questions, GCSE Papers	Exam Questions, GCSE Papers	Exam Questions, GCSE Papers					