

Year 7 - Scheme of Learning - Autumn 1					
Word Rich - Oracy, Vocabulary, Reading, Writin	SMSC & Values	Careers & Employability	Enrichmo	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meaning of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling use of academic talk 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 	 Used to plot paths of planets in astronomy Use of unknowns in geometry for architecture Links to applied and industrial maths within business. Problems like, how do I operate my energy and steam producing assets to minimise the cost of production and be able to sell my excess capacity to the market? 	 Maths s Inquiry Puzzle c Maths c Maths t 	scholars maths of the week challenge calks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> <u>https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html</u> Beginning and roots of Algebra from Arabic meaning reunion of broken parts. Al - Khwarizmi 800AD
	Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning
 Set Test after 3 weeks. Wee Autumn - Half termly test jug 	ek beginning 26/09/22 ust before half term in line with topic checklists		Use of the f students: • Di • M • M • M • M • M • Co • M • G	following platforms for r Frost maths laths bot lathspad lathsbox lathsmadeeasy orbett maths lathworksheets4kids oogle forms	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and <i>Skills</i>	Curriculum Links and Sequencing	5	National Curriculum	(including KS2)
Algebra 1 (3 weeks)	Algebraic vocabularyExpression, equation, term,	GCSE links		KS2use simple formulae	

We have chosen algebra as it is not repeating Yr 6. Exciting and new, fresh for every child Investigative challenges	 Simplify + and - Simplify × Simplify ÷ Substitution - Using mathematics and physics formulas 	 Quadratic equation Collecting like terms Forming complex equations Factorising Solving Equations Resilience: Verbal repetition of terms Cross Curricular links: Business: equations Science - Formulas 	 express missing number problems algebraically find pairs of numbers that satisfy an equation with two unknowns enumerate possibilities of combinations of two variables. KS3 use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships substitute values in expressions, rearrange and simplify expressions, and solve equations use and interpret algebraic notation, including: ab in place of a × b 3y in place of y + y + y and 3 × y a² in place of a × a, a³ in place of a × a × b a/b in place of a × b substitute numerical values into formulae and expressions, including scientific formulae understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms
SSM 1 (1 week) D&T Project Link Help to access number with different challenges Can add levels of challenge with algebraic perimeter and area	 Perimeter Area counting Area rectangles Area Triangles Challenge: Compound area Area with algebra Perimeter with algebra Solving to find an unknown 	GCSE links Volume 3D shapes Surface area Pythagorus Trigonometry Hidden Curriculum: Independence: Accessing online homework via Dr Frost Cross curricular links Sport: running round Building Zone: Sport: area in Goal / netball Geography: Walking route on OS map and	 KS2 Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares KS3 derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders) interpret mathematical relationships both algebraically and geometrically.

	scale distances round perimeter of landmarks	

Number 1 (2 weeks) Adding and subtracting Multiplication x10 ÷10 Include decimals Short and long multiplication include decimals Short and long division (bus stop) include decimals Negative numbers + and - Negative numbers × and ÷ BIDMAS - Ensure DM/AS taught as joint formula Creation of the state of the state	 Standard form Rearranging equations Solving equations Prime factorisation Hidden curriculum: Courage: To keep practising and build on capability Fross curricular: Financial PE: Scoring and umpiring Geography: Temperatures/GDP 	 KS2 count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers multiply and divide numbers mentally drawing upon known facts divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 KS3 consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots understand and use place value for decimals, measures and integers of any size order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ use the four operations, including formal written methods, applied to integers decimals, proper and improper fractions and mixed
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Year 7 - Scheme of Learning - Autumn 2				
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity

 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud 	 Fundamental British values of democracy while looking at pie charts and bar charts. Knowledge of Britain's democratic parliamentary system with looking at votes in general elections across counties and data averages Recognising and valuing things we might have in common 	 Data analyst for companies Actuarial studies Meteorologist Financial analyst Research scientist 	 Maths s Inquiry Puzzle c Maths c Maths t 	cholars maths of the week hallenge alks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematiics/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/thepower-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
	Formal Assessments (Title/Date)		Bie	ended Learning	Home Learning
• Autumn 2 exam before Chr The plan is to sit the t	istmas in line with topic checklists est two weeks before breaking up. This allows fo	r christmas events and financial week	Use of the f students: M M M M Co	ollowing platforms for r Frost maths laths bot lathspad lathsbox lathsmadeeasy orbett maths	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencing	g	National Curriculum	(including KS2)
Statistics (2 weeks) After half term and having consolidated number work in basic mathematical skills. Statistics allows students to apply skills in a practical and real world situation. It's the first link into GCSE statistics option in Yr 10 linking to A level	 Time Tally/ Frequency tables Interpreting data Pie charts interpreting Bar charts - Interpreting Pictograms- Interpreting Mode Median Range Mean Challenge Mean from table 	 GCSE links Speed distance time Charts and data analysis Grouped mean from a table Box Plots Outliers Cumulative frequency Histograms Hidden Curriculum It's the first link into GCSE statting Yr 10 linking to A level FREQ POLYGON Cross curricular links Food Tech: Healthy eating 	istics option UENCY	 KS2 read, write and convertight 24-hour clocks solve problems involve to seconds; years to mean to be a second second seconds; years to mean to be a second s	rt time between analogue and digital 12- and ing converting from hours to minutes; minutes nonths; weeks to days discrete and continuous data using methods, including bar charts and time n and difference problems using information ts, pictograms, tables and other graphs. ct pie charts and line graphs and use these to t the mean as an average. d compare observed distributions of a single ropriate graphical representation involving

		 PSHE: Healthy choices transport how to get to school Geography: Average rainfall Science: experiments Geography: population data Citizenship: Voting 	 discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers) construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data
Algebra (2 weeks) We have chosen to do so to lessen the impact on curriculum time. We also wish to develop independence and resilience in their learning in preparation for KS4 and KS5 We have chosen to do so to lessen the impact on curriculum time.	 Function machines Forming Equations -Visual Solving - Weights and balancing Solving 1 operation + - × ÷ Solving 2 operations Challenge Solving unknown on both sides Fractional solving - Fraction on both sides 	 GCSE links Changing the subject of equations Solving inequalities Iteration Cross Curricular links Science: Mixing chemicals Design Technology: Buying materials 	 KS2 use their knowledge of the order of operations to carry out calculations involving the four operations solve problems involving addition, subtraction, multiplication and division use simple formulae solve comparison, sum and difference problems using information presented in a line graph KS3 understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)
Geometry 1 (1 week) Links to previous algebra work and is conducive to end of term activities	 Coordinates y = and x= lines Challenge Types of graphs 	 GCSE links Quadratic graphs Gradient Cross Curricular links Geography: Maps Business: Currency conversions 	 KS2 describe positions on the full coordinate grid (all four quadrants KS3 work with coordinates in all four quadrants recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane interpret mathematical relationships both algebraically and graphically reduce a given linear equation in two variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically
Enrichment week - Project based learning	 www.stem.org.uk, www.bolandmaths.org.uk 		

Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichm	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling use of academic talk 	 Willingness to reflect on their experiences after two assessments and marking how to improve for the next assessment Looking at newspaper statistics which use percentages or fractions of a quantity based on demographics, ethnicity and socio-economic backgrounds and if they can be used to influence communities or groups of people. BREXIT 	 Customer relationship management use probability models intensively Meteorologist GCHQ and spying Cryptography roles Aeroplane analyst 	 Maths s Inquiry Puzzle c Maths c Maths t 	scholars maths of the week challenge calks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
Formal Assessments (Title/Date)			Ble	ended Learning	Home Learning
Half termly assessment in line with topic checklists			Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy Corbett maths		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencin	g	National Curriculum	(including KS2)
Number 2 (2 weeks) Covered in preparation for probability work and sufficient time has lapsed since primary to ensure engagement and recall of previous knowledge	 Place value - SUPPORT ONLY Fraction notation Equivalent fractions, decimals, percentages Improper Fractions - Change to mixed number, Top set could include functions Fractions of a quantity 	GCSE LinksKS2• Boundsread, write, order and determine the value of count forwards or bac number up to 1,000 0• Reciprocals• count forwards or bac number up to 1,000 0• Reciprocals• interpret negative nun backwards with positi through zero• Food Technology: Recipes • Sport: Measuring distances• compare and order fractions the same number		d compare numbers to at least 1 000 000 and of each digit ckwards in steps of powers of 10 for any given 000 mbers in context, count forwards and ive and negative whole numbers, including ractions whose denominators are all multiples of	

		• Textiles: measuring metric amounts	 identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5] add and subtract fractions with the same denominator and denominators that are multiples of the same number multiply proper fractions and diagrams KS3 use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative
Statistics 2 (3 weeks) Practical lessons as much as possible. We have chosen to do so to lessen the impact on curriculum time. We also wish to develop independence and resilience in their learning in preparation for KS4 and KS5	 Probability scale FDP_ Probability Scale Listing possible outcomes Sample space diagrams Theoretical expectation Experimental probability Two Way tables Challenge Tree Diagrams Venn diagrams 	GCSE Links Combination Sample space diagrams Conditional probability replacement / without replacement Mutually exclusive events Union and intersection Cross Curricular links Business: risk assessment Building zone: insurances Geography: placement of settlements Gomputing: Spreadsheets https://www.bbc.co.uk/bitesize/topics/z8 42m39/articles/zs8496f	 KS2 None KS3 record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale understand that the probabilities of all possible outcomes sum to 1 enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams
Review Review needed as assessing topics covered since before Christmas Misconception, exploration and enrichment week			

Year 7 - Scheme of Learning - Spring 2					
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichme	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling use of academic talk 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 	 Engineers Architects Carpenters Artists Doctors Athletes 	 Maths s Inquiry I Puzzle o Maths c Maths t 	cholars maths If the week hallenge alks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
Formal Assessments (Title/Date)			Ble	ended Learning	Home Learning
Half termly assessment in line with topic checklists at the end of the		e term	Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsmadeeasy Corbett maths		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencing	5	National Curriculum	(including KS2)
Enrichment Week (1 week) Suggested for support and core. Top develop inquiry maths skills	 Negative numbers BIDMAS Solve 2 operations 	GCSE links Quadratic graphs Rearranging formula Quadratic Equations Cross Curricular links		 KS2 use their knowledge of calculations involving KS3 use algebraic method (including all forms the recognise and use relimination) 	of the order of operations to carry out the four operations Is to solve linear equations in one variable nat require rearrangement) ationships between operations including

		 Geography: Climate Change 	 inverse operations use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
SSM 2 (2 weeks) Aim is to develop problem solving with multi step problems	 Naming Shapes Properties of shapes Angle Geometry Angles within Triangles Special Triangles Special Quadrilaterals Challenge Multi step problems 	GCSE Links Circle Theorems Trigonometry Pythagoras Cosine/Sine Rules Cross Curricular Links Textiles: Shape design DT: Product design Catering: Proportion Building Zone: Brick Laying/Electrical	 KS2 draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. KS3 derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons
Number 3 (2 weeks)	 Rounding 10,100,1000 Rounding Decimal Places/Sig Fig Conversion %, decimal, fraction Percentage quantities Increase and decrease without a calculator Challenge Multipliers 	GCSE Links Standard Form Compound Interest Depreciation Cross Curricular Links Science: Chemistry History: Historical statistics Geography: GDP Statistics: Percentage comparisons	 KS2 solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison recall and use equivalences between simple fractions, decimals and percentages, including in different contexts Pupils should be taught throughout that percentages, decimals and fractions are different ways of expressing proportions. round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 KS3 solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics round numbers and measures to an appropriate degree of accuracy work interchangeably with terminating decimals and their

	corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8)

Year 7 - Scheme of Learning - Summer 1					
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichme	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling use of academic talk 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 	 Banking Finance Credit counsellors Mortgage brokers Stock brokers Retail banks Auto finance officers Commercial lenders 	 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 		 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
Formal Assessments (Title/Date)			Blended Learning		Home Learning
• End of Year exams befor	re GCSE and A levels		Use of the for students:	ollowing platforms for Frost maths aths bot athspad athsbox athsmadeeasy orbett maths	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and <i>Skills</i>	Curriculum Links and Sequencing		National Curriculum	(including KS2)
Ratio and Proportion (2 weeks) Never seen Ratio before	 Intro Ratio division through bar modelling 	GCSE Links Trig Ratios Bearings 		 KS2 solve problems involv missing values can be division facts 	ring the relative sizes of two quantities where found by using integer multiplication and

know it is a problem area in KS4 so wish address this deficiency early on	 Representing ratio as a fraction (proportion) Simplifying ratio Fraction of a quantity Ratio of Total amount Challenge Unitary method using direct proportion 1:n or n:1 - recipes and best buys should be used 	 Vectors Best buys Cross Curricular Links Catering: Recipes DT: Woodwork 	 solve problems involving similar shapes where the scale factor is known or can be found solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. KS3 express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1 use ratio notation, including reduction to simplest form divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction
SSM 3 (2 weeks) Visually represent turns with rotations try and keep away from "turn" language	 Reflection Congruence identified coordinates x = and y = lines Translation Enlargement Lines symmetry 	GCSE Links Bearings Rearranging Formula Cross Curricular Links Textiles: Design Geography: Map Work Dance: Cannon/group dance 	 KS2 identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. solve problems involving similar shapes where the scale factor is known or can be found describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes KS3 identify properties of, and describe the results of, translations, rotations and reflections applied to given figures identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids
Algebra 4 (1 week) Accessible to all students and instilling higher end practices and addressing misconception early on and bringing full awareness of	 Percentages bar modelling Percentage to decimal Powers simplify numbers Powers simplify algebra 	GCSE Links Fractional Indices Logarithms Cross Curricular Links	 KS2 recognise and use square numbers and cube numbers, and the notation for squared ² and cubed ³ solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes

links to other disciplines	 k/k means 1 to use in algebraic fraction simplification Indices law 	Science: Chemicals	 KS3 understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
Number 4 (2 weeks) Linking previous techniques from number / fractions to increase your knowledge base with retrieval and emphasis on previous topics	 Fractions × ÷ + - Rounding Significant figures/dp Estimation Prime numbers Prime factorisation - Link with simplifying surds Challenge HCF /LCM Venn diagram Combinations 	GCSE Links Cross Curricular Links • Building zone: Quotes	 KS2 use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy identify common factors, common multiples and prime numbers KS3 appreciate the infinite nature of the sets of integers, real and rational numbers. round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiple, prime factorisation, including using product notation and the unique factorisation property

Year 7 - Scheme of Learning - Summer 2					
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity	
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 		 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html 	

	Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning
Closing the gap lessons based on assessments through the year and home learning to reflect on		 Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsmadeeasy Corbett maths 		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/ 	
Unit of Work	Knowledge and <i>Skills</i>	Curriculum Links and Sequencin	g	National Curriculum	(including KS2)
Algebra 5 (1 week) Sequence covered earlier but with no specific link to nth term and algebra. Substitution and solving involved to find terms have now been covered and engaging with golden ratio and Fibonacci	 Substitution Nth Term y=mx+C link to nth term nth term enrichment 	GCSE Links Quadratic Nth Term Cross Curricular Links Science: Formula 		 KS2 generate and describ generalisations of nu KS3 generate terms of a sposition-to-term rule recognise arithmetic reduce a given linear y = mx + c; calculate a of such linear equation 	e linear number sequences mber patterns equence from either a term-to-term or a sequences and find the nth term equation in two variables to the standard form and interpret gradients and intercepts of graphs ons numerically, graphically and algebraically
SSM 4 (1 week) Covered basics in KS2 but can be engaging with mathematical language and physical manipulation of nets	 Edges, faces and vertices of 3D Nets/surface area Challenge Volume 	GCSE Links Volume of Sphere/Cone Cross Curricular Links DT: Product design Catering: Product design PE: Stroke Volume 		 KS2 recognise, describe a nets KS3 use the properties of cuboids, prisms, cylin problems in 3-D 	nd build simple 3-D shapes, including making faces, surfaces, edges and vertices of cubes, ders, pyramids, cones and spheres to solve
SSM 5 (2 weeks) Calculator skills are an essential and often overlooked skill thats needs to be honed for KS4	 Calculator skills Parts of a circle Area circle Circumference of a circle Fractions of a circle 	GCSE Links Trig Circle Theorem Compound Shape Arc Lengths 		 KS2 illustrate and name p circumference and kr KS3 begin to reason dedu 	arts of circles, including radius, diameter and now that the diameter is twice the radius ctively in geometry, number and algebra,

Calculators need to be owned and a decent version	<u>Challenge</u>Sectors of a circleCompound area	Cross Curricular Links Catering: Proportion PE: Athletics 	 including using geometrical constructions substitute values in expressions, rearrange and simplify expressions, and solve equations calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
Number 5 (1 weeks) Consolidates all algebra skills and makes the relationship between different units of measure explicit	 Forming equations rearranging equations Units conversion Challenge speed distance time 	GCSE Links Rearranging formula Quadratic formula Cosine rule Mass density volume Cross Curricular Links Science: Formula DT: measuring PE: Athletics	 KS2 use simple formulae convert between miles and kilometres use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places KS3 use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships understand and use standard mathematical formulae; rearrange formulae to change the subject use compound units such as speed, unit pricing and density to solve problems.
Enrichment Week - Project based learning (1 week)	www.stem.org.uk,www.bowlandmaths.org.uk		

Year 8 - Scheme of Learning - Autumn 1						
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity		
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by 	 Used to plot paths of planets in astronomy Use of unknowns in geometry for architecture Links to applied and industrial maths within business. Problems like, how do I operate my energy and steam producing assets to 	 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> <u>https://www.pearson.com/uk/educators/schools/subject-area/mathematics/thepower-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-</u> 		

questions out loudModelling use of academic talk	volunteering and cooperating with others when looking at Tarsia puzzles	minimise the cost of production and be able to sell my excess capacity to the market?			 poster-series.html Beginning and roots of Algebra from Arabic meaning reunion of broken parts. Al - Khwarizmi 800AD
Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning	
• Autumn - Half termly	test just before half term in line with topic check	lists	Use of the f students: D M M M M M C C C C C C	following platforms for r Frost maths laths bot lathspad lathsbox lathsmadeeasy orbett maths lathworksheets4kids oogle forms	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencing	ŝ	National Curriculum	(including KS2)
Algebra 1 (1 week)	 Algebraic vocabulary Expression, equation, term, Simplify + and - Simplify × Simplify ÷ Substitution - Using mathematics and physics formulas Challenge Rearrange 	GCSE links Quadratic equation Collecting like terms Forming complex equations Solving Equations Resilience: Verbal repetition of terms Cross Curricular links: Business: equations Science - Formulas		 KS2 use simple formulae express missing numbers find pairs of numbers enumerate possibilitie KS3 use algebra to generate formulate mathematie substitute values in example and solve equations use and interpret algeter and solve equations use and interpret algeter and solve of a × b 3y in place of a × a, a³ in place of a × a × a a² b in place of a × a × a a/b in place of a ÷ b substitute numerical formulations 	per problems algebraically that satisfy an equation with two unknowns es of combinations of two variables. lise the structure of arithmetic, including to cal relationships xpressions, rearrange and simplify expressions, ebraic notation, including: y and 3 × y a; × b values into formulae and expressions, including

			 scientific formulae understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms
SSM 1 (3 week) D&T Project Link Help to access number with different challenges Can add levels of challenge with algebraic perimeter and area	 Measuring / drawing / naming angles Perimeter Area counting Area rectangles Area Triangles Area Parallelograms Compound area Area Trapeziums Challenge: Area with algebra Perimeter with algebra Solving to find an unknown Similar triangles Surface area 3D cuboids 	GCSE links Volume 3D shapes Surface area Pythagorus Trigonometry Hidden Curriculum: Independence: Accessing online homework via Dr Frost Cross curricular links Sport: running round Building Zone: Sport: area in Goal / netball Geography: Walking route on OS map and scale distances round perimeter of landmarks	 KS2 Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares KS3 derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders) interpret mathematical relationships both algebraically and geometrically. begin to reason deductively in geometry, number and algebra, including using geometrical constructions calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
Number 1 (2 weeks) From previous two sections we wish to address any misconceptions Bus stop method only division	 Adding and subtracting Multiplication x10 ÷10 Include decimals Short and long multiplication include decimals Short and long division (bus stop) include decimals Negative numbers + and - Negative numbers × and ÷ BIDMAS - Ensure DM/AS taught as joint formula Multiples / Factors / Prime/Powers 	 GCSE link: Standard form Rearranging equations Solving equations Prime factorisation Hidden curriculum: Courage: To keep practising and build on capability Cross curricular: 	 KS2 count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers multiply and divide numbers mentally drawing upon known facts divide numbers up to 4 digits by a one-digit number using the formal

 use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation

Year 8 - Scheme of Learning - Autumn 2						
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity		
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of 	 Fundamental British values of democracy while looking at pie charts and bar charts. Knowledge of Britain's democratic parliamentary system with looking at votes in general elections across counties and data averages Recognising and valuing things we might have in common 	 Data analyst for companies Actuarial studies Meteorologist Financial analyst Research scientist 	 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematics.pdf</u> <u>https://www.pearson.com/uk/educators/schools/subject-area/mathematics/thepower-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html</u> 		

questions out loud					
Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning	
 Autumn 2 exam before Christmas in line with topic checklists The plan is to sit the test two weeks before breaking up. This allows for christr 		r christmas events and financial week	Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy Corbett maths		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and <i>Skills</i>	Curriculum Links and Sequencing		National Curriculum	(including KS2)
Statistics (2 weeks) After half term and having consolidated number work in basic mathematical skills. Statistics allows students to apply skills in a practical and real world situation. It's the first link into GCSE statistics option in Yr 10 linking to A level	 Bus / Train Timetables Tally/ Frequency tables Interpreting data Pie charts interpreting Bar charts - Interpreting Pictograms- Interpreting Mode Median Range Mean Challenge Mean from table Box Plots Frequency Polygons 	 GCSE links Speed distance time Charts and data analysis Grouped mean from a table Box Plots Outliers Cumulative frequency Histograms Hidden Curriculum It's the first link into GCSE statistics in Yr 10 linking to A level FREQUE POLYGON Cross curricular links Food Tech: Healthy eating PSHE: Healthy choices transport get to school Geography: Average rainfall Science: experiments Geography: population data Citizenship: Voting 	stics option JENCY t how to	 KS2 read, write and converent 24-hour clocks solve problems involving to seconds; years to mean the propriate graphical graphs. solve comparison, sume presented in bar chartering interpret and construct solve problems calculate and interpret KS3 describe, interpret and variable through: apprediscrete, continuous a central tendency (mean consideration of outliefeet) construct and interpret including frequency ta categorical data, and we grouped numerical data 	rt time between analogue and digital 12- and ing converting from hours to minutes; minutes nonths; weeks to days discrete and continuous data using methods, including bar charts and time n and difference problems using information ts, pictograms, tables and other graphs. Et pie charts and line graphs and use these to t the mean as an average. d compare observed distributions of a single ropriate graphical representation involving nd grouped data; and appropriate measures of an, mode, median) and spread (range, ers) et appropriate tables, charts, and diagrams, sbles, bar charts, pie charts, and pictograms for vertical line (or bar) charts for ungrouped and ta

Algebra (2 weeks) We also wish to develop independence and resilience in their learning in preparation for KS4 and KS5 We have chosen to do so to lessen the impact on curriculum time.	 Function machines Forming Equations -Visual Solving - Weights and balancing Solving 1 operation + - × ÷ Solving 2 operations Solving unknown on both sides Expand and solve Challenge Factorise Factorise quadratic Fractional solving - Fraction on both sides 	 GCSE links Changing the subject of equations Solving inequalities Iteration Cross Curricular links Science: Mixing chemicals Design Technology: Buying materials 	 KS2 use their knowledge of the order of operations to carry out calculations involving the four operations solve problems involving addition, subtraction, multiplication and division use simple formulae solve comparison, sum and difference problems using information presented in a line graph KS3 understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)
Geometry 1 (2 weeks) Links to previous algebra work and is conducive to end of term activities	 Coordinates Reading and interpreting line graphs Conversion graphs Distance time graphs y = and x= lines Challenge y = mx+c linear graphs Parallel graphs Perpendicular graphs 	 GCSE links Quadratic graphs Gradient Cross Curricular links Geography: Maps Business: Currency conversions 	 KS2 describe positions on the full coordinate grid (all four quadrants KS3 work with coordinates in all four quadrants recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane interpret mathematical relationships both algebraically and graphically reduce a given linear equation in two variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically
Enrichment week - Project based learning	 <u>www.stem.org.uk</u>, <u>www.bowlandmaths.org.uk</u> 		 develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics

Year 8 - Scheme of Learning - Spring 1				
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity

 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling academic talk 	 Willingness to reflect on their experiences after two assessments and marking how to improve for the next assessment Looking at newspaper statistics which use percentages or fractions of a quantity based on demographics, ethnicity and socio-economic backgrounds and if they can be used to influence communities or groups of people. BREXIT 	 Customer relationship management use probability models intensively Meteorologist GCHQ and spying Cryptography roles Aeroplane analyst 	 Maths s Inquiry Puzzle c Maths c Maths t 	scholars maths of the week challenge alks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
	Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning
Half termly assessmer	nt in line with topic checklists		Use of the f students:	following platforms for r Frost maths laths bot lathspad lathsbox lathsmadeeasy orbett maths	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencin	g	National Curriculum	(including KS2)
Number 2 (2 weeks) Covered in preparation for probability work and sufficient time has lapsed since primary to ensure engagement and recall of previous knowledge	 Place value - SUPPORT ONLY Fraction notation Equivalent fractions, decimals, percentages Improper Fractions - Change to mixed number, Top set could include functions Fractions of a quantity Multiply fractions Dividing fractions Add and subtract fractions Fraction to decimal Ordering decimals 	 GCSE Links Bounds Recurring decimals to fraction Rationalising denominator Reciprocals Cross Curricular Food Technology: Recipes Sport: Measuring distances Textiles: measuring metric am 	nounts	 KS2 read, write, order and determine the value of count forwards or back number up to 1,000 C interpret negative nu backwards with positit through zero compare and order frithe same number identify, name and wire represented visually, recognise mixed num one form to the other mixed number [for exite add and subtract fraction of the same for the same fo	d compare numbers to at least 1 000 000 and of each digit ckwards in steps of powers of 10 for any given 000 mbers in context, count forwards and ive and negative whole numbers, including actions whose denominators are all multiples of rite equivalent fractions of a given fraction, including tenths and hundredths bers and improper fractions and convert from r and write mathematical statements > 1 as a sample, 2/5 + 4/5 = 6/5 = 1 1/5] tions with the same denominator and

	 Multiplying decimals 4 operations of mixed number fractions 		 denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams KS3 use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]
Statistics 2 (3 weeks) Practical lessons as much as possible. We have chosen to do so to lessen the impact on curriculum time. We also wish to develop independence and resilience in their learning in preparation for KS4 and KS5	 Probability scale FDP_ Probability Scale Listing possible outcomes Sample space diagrams Theoretical expectation Experimental probability Two Way tables Challenge Tree Diagrams Venn diagrams 	GCSE Links Combination Sample space diagrams Conditional probability replacement / without replacement Mutually exclusive events Union and intersection Cross Curricular links Business: risk assessment Building zone: insurances Geography: placement of settlements Computing: Spreadsheets https://www.bbc.co.uk/bitesize/topics/z8 42m39/articles/zs8496f	 KS2 None KS3 record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale understand that the probabilities of all possible outcomes sum to 1 enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities
Review Review needed as assessing topics covered since before Christmas Misconception, exploration and enrichment week	 Mr barton maths investigations Inquiry maths Nrich Cross curricular project of interest to the class 		

Year 8 - Scheme of Learning - Spring 2

Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichme	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling use of academic talk 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 	 Engineers Architects Carpenters Artists Doctors Athletes 	 Maths sc Inquiry r Puzzle o Maths cl Maths ta 	cholars maths f the week hallenge alks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
Formal Assessments (Title/Date)			Ble	ended Learning	Home Learning
Half termly assessment in line with topic checklists at the end of the term		e term	Use of the fo students: Dr Mi Mi Mi Co	ollowing platforms for Frost maths aths bot athspad athsbox athsmadeeasy orbett maths	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencing	5	National Curriculum	(including KS2)
Enrichment Week (1 week) Suggested for support and core. Top develop inquiry maths skills	 BIDMAS Solve 2 operations List inequalities Inequalities on a numberline Solving inequalities Challenge Graphical inequalities 	GCSE links Quadratic graphs Rearranging formula Quadratic Equations Cross Curricular links Geography: Climate Change 		 KS2 use their knowledge of calculations involving KS3 use algebraic method (including all forms the recognise and use rel inverse operations use integer powers and use rel inverse operations 	of the order of operations to carry out the four operations Is to solve linear equations in one variable nat require rearrangement) ationships between operations including nd associated real roots (square, cube and

			higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
SSM 2 (2 weeks) Aim is to develop problem solving with multi step problems	 Naming Shapes Properties of shapes Angle Geometry Angles within Triangles Special Triangles Special Quadrilaterals Angles in parallel lines Interior / exterior angles of polygons Construction of triangles Bisect line and angle Challenge Multi step problems Bearings Loci 	GCSE Links Circle Theorems Trigonometry Pythagoras Cosine/Sine Rules Cross Curricular Links Textiles: Shape design DT: Product design Catering: Proportion Building Zone: Brick Laying/Electrical	 KS2 draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. KS3 draw and measure line segments and angles in geometric figures, including interpreting scale drawings derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons
Number 3 (2 weeks) Finance week Linking to bank accounts with interest on savings or credit payments on credit cards	 Rounding 10,100,1000 Rounding Decimal Places/Sig Fig Conversion %, decimal, fraction Percentage quantities Increase and decrease without a calculator Multipliers Challenge Reverse percentages Percentage profit Percentage loss 	GCSE Links Standard Form Compound Interest Depreciation Cross Curricular Links Science: Chemistry History: Historical statistics Geography: GDP Statistics: Percentage comparisons	 KS2 solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison recall and use equivalences between simple fractions, decimals and percentages, including in different contexts Pupils should be taught throughout that percentages, decimals and fractions are different ways of expressing proportions. round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 KS3 solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics work interchangeably with terminating decimals and their

	corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8)

Year 8 - Scheme of Learning - Summer 1					
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichme	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling academic talk 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 	 Banking Finance Credit counsellors Mortgage brokers Stock brokers Retail banks Auto finance officers Commercial lenders 	 Maths s Inquiry i Puzzle o Maths c Maths ta 	cholars maths f the week hallenge alks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
Formal Assessments (Title/Date)		Blended Learning		Home Learning	
• End of Year exams befor	re GCSE and A levels		Use of the fr students:	ollowing platforms for Frost maths aths bot athspad athsbox athsmadeeasy orbett maths	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and <i>Skills</i>	Curriculum Links and Sequencing		National Curriculum	(including KS2)
Ratio and Proportion (2 weeks) Ratio is a problem area in KS4 so wish address this	 Intro Ratio division through bar modelling Representing ratio as a fraction (proportion) 	GCSE Links Trig Ratios Bearings Vectors 		 KS2 solve problems involv missing values can be division facts solve problems involv 	ring the relative sizes of two quantities where found by using integer multiplication and ring similar shapes where the scale factor is

deficiency early on	 Simplifying ratio Fraction of a quantity Ratio of Total amount Unitary method using direct proportion 1:n or n:1 - recipes and best buys should be used Challenge Direct proportion Inverse proportion 	 Best buys Cross Curricular Links Catering: Recipes DT: Woodwork 	 known or can be found solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. KS3 express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1 use ratio notation, including reduction to simplest form divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction
SSM 3 (2 weeks) Visually represent turns with rotations try and keep away from "turn" language use tier 3 vocabulary	 Reflection coordinates x = and y = lines Lines symmetry Congruence identified Translation vectors Enlargement scale factor Enlargement from a point Rays to find centre of enlargement Rotation from a point Challenge Scatter graphs Correlation Line of best fit Outliers 	GCSE Links Bearings Rearranging Formula Cross Curricular Links Textiles: Design Geography: Map Work Dance: Cannon/group dance 	 KS2 identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. solve problems involving similar shapes where the scale factor is known or can be found describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes KS3 identify properties of, and describe the results of, translations, rotations and reflections applied to given figures identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric
Algebra 4 (1 week) Accessible to all students and instilling higher end practices and addressing misconception early on and bringing full awareness of	 Percentages bar modelling Percentage to decimal Powers simplify numbers Powers simplify algebra 	GCSE Links Fractional Indices Logarithms Cross Curricular Links	 KS2 recognise and use square numbers and cube numbers, and the notation for squared ² and cubed ³ solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes KS3

links to other disciplines	 k/k means 1 to use in algebraic fraction simplification Indices law 	• Science: Chemicals	 understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
Number 4 (2 weeks) Linking previous techniques from number / fractions to increase your knowledge base with retrieval and emphasis on previous topics	 Fractions × ÷ + - Rounding Significant figures/dp Estimation Prime numbers Prime factorisation - Link with simplifying surds Challenge HCF /LCM Venn diagram Combinations 	GCSE Links Cross Curricular Links • Building zone: Quotes	 KS2 use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy identify common factors, common multiples and prime numbers KS3 appreciate the infinite nature of the sets of integers, real and rational numbers. round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiple, prime factorisation, including using product notation and the unique factorisation property

Year 8 - Scheme of Learning - Summer 2					
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity	
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 		 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html 	

	Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning
Closing the gap lessons based on assessments through the year and home learning to reflect on		 Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy Corbett maths 		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/ 	
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencin	g	National Curriculum	(including KS2)
Algebra 5 (1 week) Sequence covered earlier but with no specific link to nth term and algebra. Substitution and solving involved to find terms have now been covered and engaging with golden ratio and Fibonacci	 Substitution Nth Term y=mx+c link to nth term nth term enrichment Challenge Fibonacci sequences Quadratic sequences 	GCSE Links Quadratic Nth Term Cross Curricular Links Science: Formula 		 KS2 generate and describ generalisations of nu KS3 generate terms of a sposition-to-term rule recognise arithmetic reduce a given linear y = mx + c; calculate a of such linear equation 	e linear number sequences mber patterns sequence from either a term-to-term or a sequences and find the nth term equation in two variables to the standard form and interpret gradients and intercepts of graphs ons numerically, graphically and algebraically
SSM 4 (1 week) Covered basics in KS2 but can be engaging with mathematical language and physical manipulation of nets	 Edges, faces and vertices of 3D Nets/surface area Volume cuboid Challenge Volume sphere, cones, prisms 	GCSE Links Volume of Sphere/Cone Cross Curricular Links DT: Product design Catering: Product design PE: Stroke Volume 		 KS2 recognise, describe a nets KS3 use the properties of cuboids, prisms, cylin problems in 3-D volume of cuboids (in cylinders) 	nd build simple 3-D shapes, including making faces, surfaces, edges and vertices of cubes, iders, pyramids, cones and spheres to solve including cubes) and other prisms (including
SSM 5 (2 weeks) Calculator skills are an essential and often	 Calculator skills Parts of a circle Area circle Circumference of a circle 	GCSE Links Trig Circle Theorem 		 KS2 illustrate and name p circumference and kr 	parts of circles, including radius, diameter and now that the diameter is twice the radius

overlooked skill thats needs to be honed for KS4 Calculators need to be owned and a decent version	 Fractions of a circle <u>Challenge</u> Sectors of a circle Compound area 	 Compound Shape Arc Lengths Cross Curricular Links Catering: Proportion PE: Athletics 	 KS3 begin to reason deductively in geometry, number and algebra, including using geometrical constructions substitute values in expressions, rearrange and simplify expressions, and solve equations calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
Number 5 (1 weeks) Consolidates all algebra skills and makes the relationship between different units of measure explicit	 Forming equations rearranging equations Units conversion Challenge speed distance time 	GCSE Links Rearranging formula Quadratic formula Cosine rule Mass density volume Cross Curricular Links Science: Formula DT: measuring PE: Athletics	 KS2 use simple formulae convert between miles and kilometres use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places KS3 use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships understand and use standard mathematical formulae; rearrange formulae to change the subject use compound units such as speed, unit pricing and density to solve problems.
Enrichment Week - Project based learning (1 week)	www.stem.org.uk,www.bowlandmaths.org.uk		 develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics

Y	Year 9 - Scheme of Learning - Autumn 1					
v	Word Rich - Oracy, ocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity	
•	Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by 	 Used to plot paths of planets in astronomy Use of unknowns in geometry for architecture Links to applied and industrial maths within business. Problems like, how do I operate my energy and steam producing assets to 	 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematics/term-1-famous-mathematicians.pdf</u> <u>https://www.pearson.com/uk/educators/schools/subject-area/mathematics/thepower-of-maths/diversity-and-inclusion-in-maths/maths-diversit</u>	

questions out loudModelling use of academic talk	volunteering and cooperating with others when looking at Tarsia puzzles	minimise the cost of production and be able to sell my excess capacity to the market?			 poster-series.html Beginning and roots of Algebra from Arabic meaning reunion of broken parts. Al - Khwarizmi 800AD
	Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning
• Autumn - Half termly to	est just before half term in line with topic check	lists	Use of the f students: D V V V V V V C C V G	following platforms for r Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy orbett maths Mathworksheets4kids Mogle forms	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencing	5	National Curriculum	(including KS2)
Algebra 1 (2 weeks)	 Algebraic vocabulary Expression, equation, term, Simplify + and - Simplify × Simplify ÷ Substitution - Using mathematics and physics formulas Expand linear Expand quadratic expression Describe sequence Continue a sequence Nth term Graphing a sequence Challenge Expand quadratic with coefficient Expand triple brackets 	GCSE links Quadratic equation Collecting like terms Forming complex equations Factorising Solving Equations Resilience: Verbal repetition of terms Cross Curricular links: Business: equations Science - Formulas		 KS2 use simple formulae express missing numb find pairs of numbers enumerate possibilitie KS3 use algebra to generate formulate mathemati substitute values in example and solve equations use and interpret alge ab in place of a × b 3y in place of a × a × a a³ in place of a × a × a a² b in place of a × a × a a² b in place of a × a × a a² b in place of a × a × a a³ b in place of a × a × a a² b in place of a × a × a a² b in place of a × a × a a(b in place of a × a) substitute numerical scientific formulae understand and use the equations, inequalities 	per problems algebraically that satisfy an equation with two unknowns es of combinations of two variables. lise the structure of arithmetic, including to cal relationships xpressions, rearrange and simplify expressions, ebraic notation, including: y and 3 × y a; × b values into formulae and expressions, including the concepts and vocabulary of expressions, is, terms and factors

	Quadratic sequences		 simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms
SSM 1 (2 weeks) D&T Project Link Help to access number with different challenges Can add levels of challenge with algebraic perimeter and area	 Conversion of length units Conversion of time units Bus and train timetables Perimeter Area rectangles, triangles, parallelograms Compound area Area Circles Circles circumference, arc length and sector area Challenge: Area with algebra Area Trapeziums Surface area prisms 	GCSE links Volume 3D shapes Surface area Pythagorus Trigonometry Hidden Curriculum: Independence: Accessing online homework via Dr Frost Cross curricular links Sport: running round Building Zone: Sport: area in Goal / netball Geography: Walking route on OS map and scale distances round perimeter of landmarks	 KS2 Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares KS3 derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders) interpret mathematical relationships both algebraically and geometrically. begin to reason deductively in geometry, number and algebra, including using geometrical constructions calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
Number 1 (2 weeks) From previous two sections we wish to address any misconceptions Bus stop method only division	 Adding and subtracting Multiplication x10 ÷10 Include decimals Short and long multiplication include decimals Short and long division (bus stop) include decimals Negative numbers + and - Negative numbers × and ÷ BIDMAS - Ensure DM/AS taught as joint formula Multiples / Factors / Prime/Powers Square numbers Cubic numbers 	GCSE link: Standard form Rearranging equations Solving equations Prime factorisation Hidden curriculum: Courage: To keep practising and build on capability Cross curricular: Financial PE: Scoring and umpiring	 KS2 count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers multiply and divide numbers mentally drawing upon known facts divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context

	Triangle numbersRootsPrime factorisation	 Geography: Temperatures/GDP 	 multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
	Ratio simplificationRatio of a quantityProportion on conversion graphs		 KS3 consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots
Chall	lenge		 understand and use place value for decimals, measures and integers of any size
	 Square numbers - indices algebra HCF and LCM from prime factorisation 		 order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥
	Rounding decimal placeRatio a:b to b:c type questionsDirectly proportional		 use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative
	 Inverse proportionality 		 use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property

Year 9 - Scheme of Learning - Autumn 2						
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity		
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud 	 Fundamental British values of democracy while looking at pie charts and bar charts. Knowledge of Britain's democratic parliamentary system with looking at votes in general elections across counties and data averages Recognising and valuing things we might have in common 	 Data analyst for companies Actuarial studies Meteorologist Financial analyst Research scientist 	 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematiics/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators /schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html 		

	Formal Assessments (Title/Date)			ended Learning	Home Learning
 Autumn 2 exam before Christmas in line with topic checklists The plan is to sit the test two weeks before breaking up. This allows for christmas events and financial week 		Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsmadeeasy Corbett maths		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/ 	
Unit of Work	Knowledge and <i>Skills</i>	Curriculum Links and Sequencing	g	National Curriculum	(including KS2)
Statistics (2 weeks) After half term and having consolidated number work in basic mathematical skills. Statistics allows students to apply skills in a practical and real world situation. It's the first link into GCSE statistics option in Yr 10 linking to A level	 Bus / Train Timetables Tally/ Frequency tables Interpreting data Pie charts interpreting Bar charts - Interpreting Pictograms- Interpreting Mode, Median, Range, Mean Frequency Polygons Challenge Mean from table Box Plots Cumulative frequency 	 GCSE links Speed distance time Charts and data analysis Grouped mean from a table Box Plots Outliers Cumulative frequency Histograms Hidden Curriculum It's the first link into GCSE stat in Yr 10 linking to A level FREQ POLYGON Cross curricular links Food Tech: Healthy eating PSHE: Healthy choices transporget to school Geography: Average rainfall Science: experiments Geography: population data Citizenship: Voting 	istics option UENCY rt how to	 KS2 read, write and converzed-hour clocks solve problems involve to seconds; years to merce interpret and present appropriate graphical graphs. solve comparison, surpresented in bar charmed in the pret and construe solve problems calculate and interpret KS3 describe, interpret and variable through: app discrete, continuous a central tendency (merce consideration of outline) construct and interpret including frequency ta categorical data, and grouped numerical data 	ert time between analogue and digital 12- and ing converting from hours to minutes; minutes nonths; weeks to days discrete and continuous data using methods, including bar charts and time in and difference problems using information ts, pictograms, tables and other graphs. ct pie charts and line graphs and use these to et the mean as an average. d compare observed distributions of a single ropriate graphical representation involving and grouped data; and appropriate measures of an, mode, median) and spread (range, ers) et appropriate tables, charts, and diagrams, ables, bar charts, pie charts, and pictograms for vertical line (or bar) charts for ungrouped and ata
Algebra (2 weeks) We also wish to develop	 Function machines Forming Equations -Visual Solving - Weights and balancing 	 GCSE links Changing the subject of equat Solving inequalities 	ons	 KS2 use their knowledge c calculations involving 	of the order of operations to carry out the four operations

independence and resilience in their learning in preparation for KS4 and KS5 We have chosen to do so to lessen the impact on curriculum time.	 Solving 1 operation + - × ÷ Solving 2 operations Linear solving unknown on both sides Expand and solve Factorise linear expression Challenge Factorise quadratic Fractional solving - Fraction on both sides 	 Iteration Cross Curricular links Science: Mixing chemicals Design Technology: Buying materials 	 solve problems involving addition, subtraction, multiplication and division use simple formulae solve comparison, sum and difference problems using information presented in a line graph KS3 understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)
Geometry 1 (2 weeks) Links to previous algebra work and is conducive to end of term activities	 Coordinates Reading and interpreting line graphs Conversion graphs Distance time graphs y = and x= lines y = mx+c linear graphs Challenge Parallel and perpendicular graphs FInding the gradient from two coordinates or graph Finding equation of the line from a graph 	 GCSE links Quadratic graphs Gradient Cross Curricular links Geography: Maps Business: Currency conversions 	 KS2 describe positions on the full coordinate grid (all four quadrants KS3 work with coordinates in all four quadrants recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane interpret mathematical relationships both algebraically and graphically reduce a given linear equation in two variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically
Enrichment week - Project based learning	 <u>www.stem.org.uk</u>, <u>www.bowlandmaths.org.uk</u> 		 develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics

Year 9 - Scheme of Learning - Spring 1					
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity	

 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling academic talk 	 Willingness to reflect on their experiences after two assessments and marking how to improve for the next assessment Looking at newspaper statistics which use percentages or fractions of a quantity based on demographics, ethnicity and socio-economic backgrounds and if they can be used to influence communities or groups of people. BREXIT 	 Customer relationship management use probability models intensively Meteorologist GCHQ and spying Cryptography roles Aeroplane analyst 	 Maths s Inquiry Puzzle c Maths c Maths t 	icholars maths of the week ihallenge alks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
	Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning
Half termly assessment in line with topic checklists			Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy Corbett maths		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencin	g	National Curriculum	(including KS2)
Number 2 (2 weeks) Covered in preparation for probability work and sufficient time has lapsed since primary to ensure engagement and recall of previous knowledge	 Place value - SUPPORT ONLY Fraction notation Equivalent fractions, decimals, percentages Improper Fractions - Change to mixed number, Top set could include functions Fractions of a quantity Multiply fractions Dividing fractions Add and subtract fractions Fraction to decimal Ordering decimals 	GCSE Links Bounds Recurring decimals to fraction Rationalising denominator Reciprocals Cross Curricular Food Technology: Recipes Sport: Measuring distances Textiles: measuring metric am	ounts	 KS2 read, write, order and determine the value of count forwards or barnumber up to 1,000 C interpret negative nubackwards with posit through zero compare and order fr the same number identify, name and w represented visually, recognise mixed num one form to the othe mixed number [for example add and subtract fract 	d compare numbers to at least 1 000 000 and of each digit ckwards in steps of powers of 10 for any given 000 mbers in context, count forwards and ive and negative whole numbers, including ractions whose denominators are all multiples of rite equivalent fractions of a given fraction, including tenths and hundredths bers and improper fractions and convert from r and write mathematical statements > 1 as a kample, 2/5 + 4/5 = 6/5 = 1 1/5] tions with the same denominator and

	 Multiplying decimals 4 operations of mixed number fractions 		 denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams KS3 use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]
Statistics 2 (2 weeks) Practical lessons as much as possible. We have chosen to do so to lessen the impact on curriculum time. We also wish to develop independence and resilience in their learning in preparation for KS4 and KS5	 Probability scale FDP_ Probability Scale Listing possible outcomes Sample space diagrams Theoretical expectation Experimental probability Two Way tables Challenge Tree Diagrams Venn diagrams Multiplication of probabilities 	GCSE Links Combination Sample space diagrams Conditional probability replacement / without replacement Mutually exclusive events Union and intersection Cross Curricular links Business: risk assessment Building zone: insurances Geography: placement of settlements Computing: Spreadsheets https://www.bbc.co.uk/bitesize/topics/z8 42m39/articles/zs8496f	 KS2 None KS3 record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale understand that the probabilities of all possible outcomes sum to 1 enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities
Review Review needed as assessing topics covered since before Christmas Misconception, exploration and enrichment week	 Mr barton maths investigations Inquiry maths Nrich Cross curricular project of interest to the class 		

Year 9 - Scheme of Learning - Spring 2

Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichme	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling use of academic talk 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 	 Engineers Architects Carpenters Artists Doctors Athletes 	 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 		 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
Formal Assessments (Title/Date)			Ble	ended Learning	Home Learning
• Half termly assessment in line with topic checklists at the end of the t		e term	Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy Corbett maths		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and Skills	Curriculum Links and Sequencing		National Curriculum	(including KS2)
Algebra 3 (1 week) Suggested for support and core. Top develop inquiry maths skills	 BIDMAS Solve 2 operations List inequalities Inequalities on a numberline Solving inequalities Challenge Graphical inequalities on number line Graphical inequalities regions 	GCSE links Quadratic graphs Rearranging formula Quadratic Equations Cross Curricular links Geography: Climate Change 		 KS2 use their knowledge of calculations involving KS3 use algebraic method (including all forms the recognise and use relinverse operations) use integer powers and use relinverse operations 	of the order of operations to carry out the four operations Is to solve linear equations in one variable nat require rearrangement) ationships between operations including nd associated real roots (square, cube and

			higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
SSM 2 (2 weeks) Aim is to develop problem solving with multi step problems	 Naming Shapes Properties of shapes Angle Geometry Angles within Triangles Special Triangles Special Quadrilaterals Angles in parallel lines Interior / exterior angles of polygons Construction of triangles Bisect line and angle Challenge Multi step problems Bearings Loci Circle theorems 	GCSE Links Circle Theorems Trigonometry Pythagoras Cosine/Sine Rules Cross Curricular Links Textiles: Shape design DT: Product design Catering: Proportion Building Zone: Brick Laying/Electrical	 KS2 draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. KS3 draw and measure line segments and angles in geometric figures, including interpreting scale drawings derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons
Number 3 (2 weeks) Finance week Linking to bank accounts with interest on savings or credit payments on credit cards	 Rounding 10,100,1000 Rounding Decimal Places/Sig Fig Conversion %, decimal, fraction Percentage quantities Increase and decrease without a calculator Multipliers Challenge Reverse percentages Percentage profit Percentage loss 	 GCSE Links Standard Form Compound Interest Depreciation Cross Curricular Links Science: Chemistry History: Historical statistics Geography: GDP Statistics: Percentage comparisons 	 KS2 solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison recall and use equivalences between simple fractions, decimals and percentages, including in different contexts round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 KS3 solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics work interchangeably with terminating decimals and their

Compound interest	corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8)

Year 9 - Scheme of Learning - Summer 1					
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichme	ent & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 terminology Low stakes reading of questions out loud Modelling academic talk 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 	 Banking Finance Credit counsellors Mortgage brokers Stock brokers Retail banks Auto finance officers Commercial lenders 	 Maths s Inquiry Puzzle o Maths c Maths t 	cholars maths f the week hallenge alks	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-in-maths/maths-diversity-and-inclusion-poster-series.html
Formal Assessments (Title/Date)		Ble	ended Learning	Home Learning	
End of Year exams before GCSE and A levels			Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy Corbett maths		 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/
Unit of Work	Knowledge and <i>Skills</i>	Curriculum Links and Sequencing		National Curriculum	(including KS2)

Ratio is a problem area in KS4 so wish address this deficiency early on	 Representing ratio as a fraction (proportion) Simplifying ratio Fraction of a quantity Ratio of Total amount Unitary method using direct proportion 1:n or n:1 - recipes and best buys should be used Challenge Direct proportion Inverse proportion 	 Trig Ratios Bearings Vectors Best buys Cross Curricular Links Catering: Recipes DT: Woodwork 	 missing values can be found by using integer multiplication and division facts solve problems involving similar shapes where the scale factor is known or can be found solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. KS3 express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1 use ratio notation, including reduction to simplest form divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction
SSM 3 (2 weeks) Visually represent turns with rotations try and keep away from "turn" language use tier 3 vocabulary	 Reflection coordinates x = and y = lines Lines symmetry Congruence identified Translation vectors Enlargement scale factor Enlargement from a point Rays to find centre of enlargement Rotation from a point Challenge Scatter graphs Correlation Line of best fit Outliers 	GCSE Links Bearings Rearranging Formula Cross Curricular Links Textiles: Design Geography: Map Work Dance: Cannon/group dance 	 KS2 identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. solve problems involving similar shapes where the scale factor is known or can be found describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes KS3 identify properties of, and describe the results of, translations, rotations and reflections applied to given figures identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric
Algebra 4 (1 week)	Percentages bar modellingPercentage to decimal	GCSE Links	 KS2 recognise and use square numbers and cube numbers, and the

Accessible to all students and instilling higher end practices and addressing misconception early on and bringing full awareness of links to other disciplines	 Powers simplify numbers Powers simplify algebra Challenge k/k means 1 to use in algebraic fraction simplification Indices law Fractional indices law 	 Fractional Indices Logarithms Cross Curricular Links Science: Chemicals 	 notation for squared ² and cubed ³ solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes KS3 understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations
Number 4 (2 weeks) Exams Week Graduation into year 10	 Fractions × ÷ + - Rounding Significant figures/dp Estimation Prime numbers Prime factorisation - Link with simplifying surds Challenge HCF /LCM Venn diagram Combinations 	GCSE Links Cross Curricular Links • Building zone: Quotes	 KS2 use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy identify common factors, common multiples and prime numbers KS3 appreciate the infinite nature of the sets of integers, real and rational numbers. round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiple, prime factorisation, including using product notation and the unique factorisation property

Year 9 - Scheme of Learning - Summer 2 - Graduated into year 10				
Word Rich - Oracy, Vocabulary, Reading, Writing	SMSC & Values	Careers & Employability	Enrichment & Cultural Capital	Equality, Diversity & Inclusivity
 Use of Frayer Models Key words daily in lesson Etymology looking at the history and relative meanings of mathematical vocabulary Understanding tier 3 	 Use of imagination and creativity in learning when looking at options for perimeter Use of range of social skills in different contexts, working in groups, mini whiteboards and being invited to work on the interactive whiteboard 	•	 Maths scholars Inquiry maths Puzzle of the week Maths challenge Maths talks 	 <u>https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/subjects/mathematic s/term-1-famous-mathematicians.pdf</u> https://www.pearson.com/uk/educators/schools/subject-area/mathematics/the-power-of-maths/diversity-and-inclusion-

terminologyLow stakes reading of questions out loud	 Willingness to participate including by volunteering and cooperating with others when looking at Tarsia puzzles 			in-maths/maths-diversity-and-inclusion- poster-series.html
	Formal Assessments (Title/Date)		Blended Learning	Home Learning
• Closing the gap lessons based on assessments through the year and home learning to reflect on			Use of the following platforms for students: Dr Frost maths Maths bot Mathspad Mathsbox Mathsmadeeasy Corbett maths	 Homework specifically set on Dr frost maths. This is for instant feedback for students and the ability to stretch and challenge. https://www.drfrostmaths.com/