Year: 9 **Subject: Maths**	**Curriculum Intent:** The curriculum seeks to develop on prior learning and therefore students will continue to build upon their knowledge and skills across all elements of the curriculum. Students will be given the opportunity to solve problems and develop their reasoning skills, which encourages them to be more fluent in their mathematical thinking. This will develop their resilience whilst also igniting their curiosity for using mathematics outside of the curriculum.		
	Term 1	**Term 2**	**Term 3**
Number	**Indices** **All** – Know the words Integer, Index, (pl) Indices, Power, positive, negative. Location of the index (small to right). Concept of repeated multiplication. Use positive integer notation to indicate the repeated multiplication. **Most** – Square and cube numbers as powers. Calculate any positive powers of any positive Integers. Recognise common values of powers of numbers e.g. square (link to area) cubes (link to Volume) and $5^3 = 125$ **Some** – Use place value to introduce negative integer indices. Calculations with Negative Indices. Calculations with Fractional Indices. Understand Fraction Indices are Roots.	**Rounding/Significant figures (Set 3 to 5)** All – Recap place value in big numbers and decimals, use a number line and the symbols >, < to order Round numbers to the nearest whole number, ten, hundred, etc. Round numbers to one dp Use rounded numbers to estimate simple calculations and check on calculator Use a calculator to enter complex calculations and round the answer to a given degree of accuracy Most – Round answers to integers and to stated decimal places. Round answers to integers and to stated decimal places. Round numbers to a given number of decimal places (dp). Use rounded numbers to estimate real life problems using appropriate calculations and check on calculator Use a calculator to enter complex calculations and round answers to an appropriate level of accuracy. Some – Solve worded estimation problems and estimate the answers to calculations Recognise the upper and lower bounds for rounded values, understand this represents an error interval	
	Standard Form **All** – Place Value include decimal. Rounding rules; (dp) &(sf). Powers of 10 e.g. 6.2×10^3.	**Roots and Surds** All – Recap positive integer powers and exact roots, for example 2 to the power 4 is 16 and the	

	Most – Use different number bases. Multiply and divide with Base 10 **Some** – Multiply and divide Standard Form without a calculator. Use of calculator for Std Form calculations.	square root of 9 is 3. Recognise simple powers of 2, 3, 4 and 5. Most – Calculate with integer powers and exact roots. E.g. √9=3 , 3√8=2, Recognise simple powers of 2, 3, 4 and 5 Some – Estimate powers and roots to the nearest whole number. E.g. √51 ≈ 7 and state what a root would be between	
	BIDMAS **All** –order and why the process is used. e.g. repeated addition is multiplication. Use of BIDMAS in any context, situation. **Most** – Use inverse BIDMAS to check calculations **Some** – All applications of BIDMAS (Include inverse use for Solving Equations.)		
	Decimals **All** – Place Value. Adding and subtracting, +ve and -ve numbers with decimals. Use of Place Value columns to maintain values of integers in the calculation. Represent parts of a whole. E.g. Money. **Most** – Use decimals in + & - and x and Division. Represent parts of a whole. Recurring decimal notation. **Some** – Use of decimals in any situation throughout Maths. Use notation for recurring decimal. Know recurring Dec. to fraction e.g. 1/3. Infinitely small parts. E.g. 1.9rec never reaches 2.		
	Factors **All** – Factors are Integers. Factor x Factor = Multiple. More than two factors for most numbers (in their need of number work.) Index notation for repeated factors. Prime Numbers know first eight. (**2**, 3, **5**, 7) (11, 13, 17, 19 all possible subsequent PN have unit 1, 3, 7, 9.)		

	Know Basic Times Tables. (Needed to easily factorise numbers) **Most** – Know concept of Prime Numbers. Know the first 20 PN's. **Some** – Use numbers expressed as product of PN to calculate HCF & LCM		
	Fractions **All** – Know TT's. Know remainders are fractions of the divisor. Factors, Parts of a whole, shade parts. Know terms Numerator & Denominator and function of each. Inequalities to place on Number line. Add & subtract fractions. Equivalent fractions – so that they can + & - **Most** – Use factors to simplify, to create equivalent fractions in order to + & - any fractions. A/A = 1 identity. Multiply and divide any fractions. Use Common Factors to simplify. **Some** – Convert any recurring decimal into a fraction and vice versa. All operations with Fractions including use in Algebra.		
	Rounding/Significant figures (Set 1 and 2) **All** – Rounding (use of 5 as Median) Round to suitable degree of accuracy (context). Use approx. symbol ≈ . Roots to appropriate/given accuracy. Use in calculations. Check with calculator. Use Inequality symbols correctly. Simple Upper and Lower Bounds and use for Max and Min value calculations. **Most** – Upper and Lower bounds to calculate limits. Use of Pi. Surds. **Some** – Investigate effect of rounding too early on accuracy of final answer. substitution into kinematic formulae and general equations involving fractions, π , and surds. Estimate powers and roots to the nearest whole number. E.g. √51 ≈ 7 Nearest Integer.		
Algebra	**Substitution** **All** – Use formulae expressed in words. Use the vocabulary. Terms, expressions, variables, constants, -- Formulae, substitution. Construct simple expressions and formulae from given		**Function machines, rearrangement and proof** **All** – Know the words: expression, equation and inequalities. Interpret simple expressions as functions with inputs and outputs. Able to construct function machines given a function. Change subject of a simple formula.

	information (sentences and diagrams) and use them in calculations. Substitute numbers into simple expressions & formulae e.g. v = u + at, find v. Extension Change of Subject in very simple formulae. (A = bh etc. **Most** – Use formula to calculate the SA & V of basic shapes & pyramid, spheres, cones. **Some** – Substitute into SUVAT formulae and change of subject. Decimal and fraction subs.		**Most** – Understand and use the concepts and vocabulary of expressions, equations, formulae, inequalities, terms and factors. Recap coordinates in all four quadrants. Use a table of values to plot graphs of linear functions. Appreciate the infinite nature of the set of real, rational numbers. Rearrange formulae to change the subject, where the subject appears once only involving 2 simple steps - no indices. E.g. Make d the subject of the formula $C = \pi d$. Make x the subject of the formula $y = 3x - 2$. **Some** – Be able to use algebra to support and understand a proof, derive simple algebraic proofs using reasoning. Use algebra to construct proofs and arguments. E.g. To explain why the sum of three consecutive numbers is always divisible by three.
	Sequences **All** – Describe and continue linear & non-linear sequences in diagram and number forms. Put in a Table. Workout a position-to-term rule for simple arithmetic sequences in words. Connect to Multiplication T's. Recognise Triangular, Square & cube sequence. Generate/extend any sequence given a pattern and from a term-to-term rule. **Most** – Find a position-to-term rule for simple arithmetic sequences, algebraically or in words. Use n^{th} term notation 5n + 2. Start to use Algebra. Derive the formula for the n^{th} term of any arithmetic sequence. Use an expression to describe the n^{th} term of an Arithmetic S. **Some** – Recognise Fibonacci sequences, find the next term eg a ,b, a+b. Use the formula for the nth term of a simple quadratic sequence. Eg give first 4 terms of n^2+1. Use the formula for a simple quadratic sequence. Work out the formula (n^{th} Term) of a simple Quadratic Sequence – $an^2 – 8$ where a =1		**Plotting and sketching graphs** **All** – Work with *x*- and *y*- coordinates in all four quadrants. Use a table of values to plot graphs of linear functions. E.g. $y=x+3$. Appreciate the infinite nature of the set of real, rational numbers. Recap plot graphs of linear functions. E.g. $y=x+3$. Appreciate the infinite nature of the set of real, rational numbers. Recognise and sketch the graphs of simple linear functions. E.g. $y = 2$, $x = 1$, $y = x$ **Most** – Interpret the gradient and intercept of straight lines, graphically and from a table of results. Plot and interpret linear graphs. E.g. find the value of y when x=3 from a graph of y=4x-1. Identify how equation of line relates to gradient and y intercept, introduction to form y=mx+c. Use a table of values to plot graphs of quadratic functions, other polynomial graphs and reciprocals. E.g. $y = 2x^2 + 1$, y=x3 , y=1/x. Recognise other polynomial graphs and simple reciprocals. *E.g.* $y=x^3 - 2x$, $y=1/x$

			Some – Recognise parallel lines by considering gradient, and find line parallel to a stated line through a specific point. Apply equations of parallel and perpendicular lines to geometric problems. E.g. Find area of shape enclosed by lines *y=2x*, *y=2* and *x=-1,* Name the shape enclosed by *y=3x+1*, *y=3x-4*, *y=-x+1* and *y=-x-7.*
	Expanding and Factorising **All** – Understand the role of '=' & '≡' (equiv) the distinction between them. Linear two term factorising. Expand and factorise any two term expressions e.g. $3x^2 – 5x$ **Most** – Expand & simplify 2 single brackets e.g. Simplify 3(x-2)+5(x+3). Expand & Simplify simple Binomials +ve & -ve terms. **Some** – Identify pattern in difference of two squares and know how to expand (a+b)2 - include a > 1 first term. factorise quadratic expressions including the difference of two squares, e.g. $x^2 – 9 = (x + 3) (x – 3)$. Switch of variable and constant in one bracket e.g.(2x + 7)(5 – x)		**Real life Graphs** **All** – Construct and interpret graphs in real-world contexts. E.g. money conversions, temperature conversion, distance-time. Use multiplicative relations to scale up e.g. where value is beyond the graph axes. Solve simple problems involving direct & inverse proportion, e.g. sharing cost between more people, if speed doubles than the time is halved. **Most** – Understand the relationship between gradient and ratio. **Some** – Investigate contexts that lead to direct or inverse proportion from a variety of contexts. Recognise & interpret graphs of direct & inverse proportion. Use graphs in real-world contexts to solve problems. E.g. distance-time, money conversion, temperature conversion. Formulate equations and solve problems for direct proportion (inc powers or roots). Use proportionality symbol and constant. Find gradient from graph using (change in *y*)/(change in *x*). Interpret straight line gradients as rates of change. Velocity as gradient of distance-time graph
	Solving equations and inequalities **All** – Pull all the work on Expressions and Inequalities together and BIDMAS inverse operations – with – (=) to form Equations. Solve Linear equations with variable one side only. **Most** – Solve Linear equations with variable both sides. FResults in context. Involve decimals		

	and fractions. Set up and solve linear inequalities. Illustrate on a number line. Solve simple simultaneous equations One variable's Co-efficient =1. **Some** – Set and solve Simultaneous Equations where both equations need manipulation e.g. co-efficient of one or both variables are not the same. Set up & solve Quadratic equations with a = 1. Then a > 1. Rearrange the quadratic and use the formula.		
Geometry		**Angles** All – Know and use the terms acute, obtuse, right and reflex angles. Know and use the terms point, line and line segment, parallel lines and perpendicular lines. Understand that angles around point total 360, on a straight line and in triangle total 180, Know the names of triangles and their angle properties Understand that angles around a point total 360 Most – Use shape terms confidently, define different types of angles; use to explain limits of angles in shapes (eg 2 obtuse angles in triangles) Calculate missing angles using angles around point, straight line, in triangle giving explanations Know and use vertically opposite angles are equal; alternate angles on parallel lines are equal; and corresponding angles on parallel lines are equal. Derive and use the sum of the interior angles of a triangle is 180°. Be able to label interior and exterior angles of polygon and know they add to 180. Know sum exterior angles add to 360 Determine the size of exterior angle of regular polygons. Find the interior angle of a regular polygon using exterior angles. Know and use vertically opposite angles are equal; alternate angles on parallel lines are	**Trigonometry (Set 3 and 4)** All – Introduction to trigonometric ratios, $\sin\theta$, $\cos\theta$ and $\tan\theta$ and apply them to find lengths in right-angled triangles.

		equal; and corresponding angles on parallel lines are equal. Derive and use the sum of the interior angles of a triangle is 180°. Be able to label interior and exterior angles of polygon and know they add to 180. Know sum exterior angles add to 360 Determine the size of exterior angle of regular polygons. Find the interior angle of a regular polygon using exterior angles. Give a bearing between the points on a map or scaled plan, interpret bearing and scaled drawings. Use parallel lines to find bearing of reverse journey. Some – Understand a proof that the sum of the angles in a triangle is 180 and a quadrilateral is 360 Recap angles at a point and on a line, between parallel lines, in triangles, in quadrilaterals, exterior angles and int/ext regular polygons. Solve complex geometrical problems using properties of angles Recap and use properties of angles between intersecting and parallel lines in more formal proofs of geometrical results within the context of circle theorems. Apply standard circle theorems concerning angles, radii, tangents and chords, and use them to deduce angles	
		Measures All – Interpret scales on a range of measuring instruments, including mm, cm, m, km, ml, cl, l, mg, g, kg, tonnes, Use and convert standard units of measurement for length, mass, time and money Solve speed problems using loops involving simple multiples of time or distance - speed as how many km in 1 hour	**Area and Volume** **All** – To know the area of a triangles, parallelograms, trapeziums, kites, rectangles & compound shapes made from rectangles including basic algebraic lengths. Area of composite shapes including algebraic lengths. By identifying rectangle cut into sections calculate the area as whole and as two parts - move into expanding single brackets

		Most – Convert between metric units of measure for area and volume eg cm2 m2 Use and convert standard units of measurement for length, mass, time and money. Intro to ideas of cm2 to m2, cm3 to m3 and vice versa Solve more complex speed, density, pressure questions using loops & unit method Use and convert simple compound units as …. "unit" per 1 "unit" (e.g. for speed, rates of pay, unit pricing). Know and apply standard compound measurement formulae: speed, density, pressure Some – Interpret scales on a range of measuring instruments, including mm, cm, m, km, ml, cl, l, mg, g, kg, tonnes, and recognise the inaccuracy of measurements starting to consider error bounds. understand and use simple examples compound measures such as density or pressure, to solve problems understand and use simple examples of measures of speed (and other compound measures such as density or pressure) to solve problems use measures of speed, density or pressure to solve problems inc where time given in minutes and speed km/hr or volume in cm2, mass is kg and density g/m3 use measures of speed, density or pressure to solve problems inc where time given in minutes and speed km/hr	**Most** – Calculate the volume of cuboids and other right prisms. Write expressions for volume / surface area of cuboids with algebraic lengths. Given the total area (e.g. 10x + 15) identify 2 separate rectangles and move into factorising single bracket (Extension work as covered in 2 further units). Calculate the surface area of cuboids and composite prisms. Calculate the volume of 3D composite prisms excluding cylinders Some – Calculate the volume of 3D composite prisms - parts of Cylinder. e.g trough, cylinders on polygons, Iinks from volume to mass, capacity, density. Perimeter, Area, Volume, Surface Area of any 2D, 3D shapes in any configuration. Links to Mass and density, Pythagoras Theorem
		Pythagoras (Set 1 to 4) All – Know and apply Pythagoras' theorem to find length of hypotenuse in right-angled triangles in 2D figures. Most –	**Circles** All – Understand and use the terms centre, radius, chord, diameter and circumference. Be able to use π by practical measuring and deducing relationship to circumference of a circle. Calculate circumference of circles given diameter.

		Develop understanding of Pythagoras' theorem to find lengths in right-angled triangles in 2D figures. Use Pythagoras' theorem to find the height of an isosceles triangle & in practical problems Use Pythagoras' theorem to find the height of an isosceles triangle & in practical problems Some – Use Pythagoras' theorem to find any side of a right-angled triangle Find the distance between two points on a coordinate grid by using Pythagoras Apply Pythagoras' theorem in more complex figures, including 3D figures. E.g. Recognise the diagonal of a rectangle is the hypotenuse etc.	Most – Know and apply the formula to calculate the area of a circle, given diameter or radius. Find areas of simple composite shapes with semi-circles and quadrants. Calculate the arc length and area of a sector of a circle given its angle and radius. Some – Use area & circumference of circle to calculate perimeter of sectors, composite shapes involving circles, volume & surface area of cylinders
		Scales/Similar Shapes All – Use multiplicative relations to scale up eg where value is beyond the graph axes Use and interpret scale drawings. Interpret map/model scales as a ratio, Measure line segments and use simple map scales recognises that similar shapes maintain the same ratios between their sides and equal angles. Solve simple questions eg doubling / halving / x10 Most – Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides Some – recap use of bearings, interpret maps / scale drawings in problem solving questions Compare lengths, areas and volumes using ratio notation and scale factors use ratio to solve problems involving similar shapes; for length, areas and volumes.	**Plans and 3D shapes** All – Construct and interpret plans and elevations of simple 3D solids. Representation (e.g. using isometric paper) of solids from plans and elevations. Solve simple surface area and volume problem from diagrammatic information provided in plan and elevation diagrams for cuboids and solids made from component cuboids. Most – Solve surface area & volume problems from diagrammatic information provided in plan & elevation diagrams for more complex solids given the appropriate measurements.

		Understand and use the effect of enlargement for perimeter, area and volume of shapes and solids Use fractional multiples in exact calculations without a calculator. E.g. Problems involving finding the missing dimension where one side is increased by a stated multiple but area remains constant. Know the relationships between linear, area and volume scale factors of mathematically similar shapes and solids Similar triangles to find volume and Surface area of Frustum including use of Pythagoras to find missing lengths	
		Trigonometry (Set 1 and 2) All – Introduction to trigonometric ratios, sinθ, cosθ and tanθ and apply them to find lengths in right-angled triangles Know and apply the trigonometric ratios, sinθ, cosθ and tanθ and apply them to find angles in right-angled triangles. know the exact values of sinθ and cosθ for θ = 0, 30, 45 , 60 and 90; know the exact value of tanθ for θ = 0, 30, 45 and 60 Understand and apply appropriate trigonometry formulae in range of contexts Most – know the exact values of sinθ and cosθ for θ = 0, 30, 45 , 60 and 90; know the exact value of tanθ for θ = 0, 30, 45 and 61	**Shape Properties, Congruence and Loci** All – Identify 2D and 3D shapes, including faces, surfaces, edges and vertexes. Measure angles using a protractor correct to 1 degree of accuracy. Work out the order of rotational /number of lines of symmetry of a shape. Understand the meaning of Loci, construct simple loci (circle, parallel lines). Use simple scales (e.g. of a plan / map) and construct simple scale drawings. Most – Construct triangles using protractor and equilateral triangles using compass. Construct triangles – (Side Side Side), (Angle Side Angle) and (Side Angle Side) - with an appropriate method. Construct the perpendicular bisector and midpoint of a line segment. Construct the bisector of an angle formed from two lines. Some – Construct the perpendicular from a point to a line and to a line at a point. Know that the perpendicular distance from a point to a line is the shortest distance to the line. Construct scaled diagrams from sketches and written instructions using ruler and compass to solve real life problems. Know similar shapes

			have equal angles, Prove that two triangles are similar.
			Transformations All – Define what transformations in Maths are and be able to explain what reflection, rotation and enlargement mean. Reflect a basic shape with a given mirror line, rotate a basic shape with centre of rotation in centre of shape. Understand simple translation of a shape. Enlarge a basic shape with a scale factor of 2 and 3. Most – Rotate a simple shape clockwise or anti-clockwise through a multiple of 90° about a given centre of rotation. Understand vector terminology when translating a shape. Understand the concept of fractional scale factors; investigate resizing images to objects. Perform and describe the sequence of isometric transformations (reflections, rotations or translations) needed to transform object to image and the changes and invariance achieved. Some – Use x- and y-coordinates in plane geometry problems, including transformations of simple shapes. E.g. reflect in y=3 / y=x, rotate around origin. Enlarge shapes by negative scale factors. Basic Transformation vectors, represent a 2-dimensional vector as a column vector, and draw column vectors on a square or coordinate grid.
			Vectors (Set 1 only) All – Use vectors in simple geometric arguments and proofs. E.g. Define different routes between stated vertices. Understand addition of vectors. Understand subtraction of vectors. Recognise that subtracting a vector is the same as the addition of the negative vector.

Ratio and Proportion		**Percentages** All – Understand percentage is 'number of parts per hundred'. Find a 50% and 10% of an amount Be able to convert between basic fractions, decimals and percentages with and without a calculator Most – Increase or decrease a quantity by a simple percentage, eg by finding 10% and adding Calculate a percentage of a quantity without a calculator. Increase or decrease a quantity by a simple percentage using 100% and then 10% as starting point Use that x1 = 100% to identify simple decimal or fractional multipliers. Eg increase by 10% = x 1.1 or 110/100 Solve problems step-by-step involving multipliers over a given interval, eg further discounts of sales prices, depreciation, compound interest. Apply decimal multipliers to solve simple original value problems. E.g. Calculate the original price of an item costing £10 after a 50% discount. (NOTE ; REVERSE PERCENTAGES IS ONLY IN FOUNDATION BOOK) Some – Set up, solve and interpret the answers in growth and decay problems, including compound interest. Solve reverse problems involving compound interest and depreciation including by	
		Proportion, Ratio and Proportionality All – Write simple ratios, such as finding the ratio of teachers to students Understand what a ratio actually means and relate to sharing. Apply ratio to real contexts and problems (such as ratio of colours)	

		Compare amounts as ratio notation, simplest form of ratio, ratio in 1:n form, ratio/fraction equivalence Use ratio notation, including reduction to simplest form, understand equivalent ratios. Identify and work with fractions in simple ratio problems to scale up eg G:B = 1:4, 12 more boys than girls (ie 3/5 = 12 people) Answer questions like: If the ratio of girls to boys in a class is 7: 9 and there are 14 girls, how many boys are there? Divide a given quantity into two parts in a given part:part ratio - use diagrams to support Most – express the division of a quantity into two parts as a ratio Recap simplified ratio of quantities in the form a:b or in the form 1:n, taking care to work with constant units of measurement. E.g. 50 cm : 1.5 m = 1:3 Divide a given quantity into two parts in a given part:part ratio Understand and use the ratio 1 : n and n : 1, with for example recipes, conversions e.g. forex. Some – Express a multiplicative relationship between two quantities as a ratio or a fraction e.g. Scale factor x 1.5 ~ ratio 2:3 solve problems involving algebra using ratio. Eg x:y = 2:3 write equation for y in terms of x Express a multiplicative relationship between two quantities as a ratio or a fraction e.g. Scale factor x 1.5 ~ ratio 2:3	
Probability and Data		**Probability** All – Use the probability scale as a measure of likelihood of random events, and calculate probabilities of simple combined events, using	**Collecting and representing discrete data** All – Gather information, make frequency tables, lists and tally charts from discrete data. Draw line graphs, bar charts and pictograms. Be able to identify frequency. Find median and

		appropriate language and the 0 - 1 probability scale. Use terms 'Impossible' for 0, 'Evens' for 0.5 and 'Certain' for 1. Use tables and grids to list the outcomes of single events and simple combinations of events, and to calculate theoretical probabilities. Use sample spaces for more complex combinations of events E.g. flipping two coins, rolling 2 dice and adding, picking colour beads from a bag (with return) etc. Calculate probabilities expressed as fractions, decimals and percentages in simple experiments with equally likely outcomes. Apply ideas of randomness and fairness and that p(A) + p(not A) = 1. Complete Venn and Carroll diagrams given missing information Record, describe and analyse the relative frequency including frequency trees. Use a two-circle Venn diagram to enumerate sets, and use this to calculate related probabilities. Use systematic listing strategies. E.g. to find the number of arrangements which the letters E, F and G can be written. Calculate theoretical probabilities for simple experiments with equally likely outcomes. Record, describe and analyse the relative frequency of outcomes of repeated experiments using tables. Most – Understand that relative frequencies approach the theoretical probability as the number of trials increases. Derive or informally understand and apply the formula p(A or B) = p(A) + p(B) - p(A and B) Draw tree diagrams to enumerate sets and to record the probabilities of successive events from information given in words, or where the tree frame is partially completed. Use tree diagrams and other representations to calculate the probability of independent and dependent combined events.	mode of categorical data, find mean and mode from discrete data and compare sets, find range from a list of numbers. Collect and record discrete data, construct frequency diagrams and simple vertical line graphs for ungrouped discrete numerical data. Extract and interpret information presented in simple tables, lists, bar charts and pictograms including mode. Interpret pie charts where segments are equivalent to simple fractions. Understand the meaning population and sample, be able to explain obvious bias in sampling. Most – Recognise graphical misrepresentation through incorrect scales, labels etc. Use multiple and composite bar charts to compare two sets of data. Be able to construct frequency table from them. Create and interpret line graphs where the intermediate values have meaning. Interpret pie charts by considering angle as fraction of whole, follow given method for construct a pie chart. Understand the meaning of population and sample, be able to explain obvious bias in sampling. Plot and interpret scatter diagrams for bivariate data. Recognise types of correlation. Identify an outlier in simple cases. Draw a line of best fit by eye, use a line of best fit to interpolate and extrapolate from data, be aware of the limitations of these techniques. Some – Interpret highs and lows for time series data in context (e.g. seasonal variations), and identify trend over time. Rapidly calculate the mode, median, mean and range for ungrouped data and use to describe sets of data (using terms average/spread) & identify which average is most appropriate. Confident with pie chart questions including interpretation. Plot and interpret scatter diagrams for bivariate data. Recognise types of correlation. Identify an

		Some – Construct a Venn diagram to classify outcomes and calculate probabilities. Use tree diagrams to record their sorting and classifying of information. Use the addition law for mutually exclusive events. Use p(A) + p(not A) = 1. Use sample spaces for more complex combinations of events. E.g. roll two dice and determine probability that the difference between the two values is less than 3 Recognise when a sample space is the most appropriate form to use when solving a complex probability problem. Use the most appropriate diagrams to solve unstructured questions where the route to the solution is less obvious. Construct two-way tables or Venn diagrams to solve more complex probability problems (where the structure for diagrams may not be given).	outlier in simple cases. Identify impact of graphical misrepresentation through incorrect scales, labels etc. Construct tables for large discrete and continuous sets of raw data, choosing suitable class intervals; design and use two-way tables. Calculate moving averages, Interpret and construct line graphs for time series data, and identify trends (e.g. seasonal variations). Interpret correlation within the context of the variables, and appreciate the distinction between correlation and causation.
			Interpreting grouped data All – Recap mean median and mode using single digits. Group data, where appropriate, in equal class intervals. Find the mode and range from discrete frequency tables. By writing pictograms/ bar charts / frequency tables as list of numbers find mean and median - introduce mean from frequency table. Most – find the mean from pictograms, bar charts, discrete frequency table. Find the modal class from grouped frequencies. Estimate the mean, median and range of a set of grouped data in freq table, explain why estimate. Compare two or more distributions and make inferences, using the shape of the distributions and measures of average and range Some – Compare two or more distributions and make inferences, using the shape of the

			distributions and measures of average and range, comparing 'like-for-like' summary values. Understand the advantages and disadvantages of summary values. Construct and interpret cumulative frequency diagrams for grouped data. Find median and inter-quartile range from cumulative frequency table or graph. Draw box plots from a cumulative frequency table; interpret box plots. Compare two or more distributions and make inferences about average and spread from median and quartiles. Understanding area in histograms represents frequency and calculation frequencies from Histograms.
Assessment	Weekly Maths skills (5 questions) – completed as an entry task Homework – every week (except one week each half term) Topic Tests (2 per half term) – Students will receive written feedback and a percentage (not a grade)		
	Progress Test: Core Paper – all students – decides the tier of the main test. Main test - Higher or Foundation tier.	Progress Test: Core Paper – all students – decides the tier of the main test. Main test - Higher or Foundation tier.	End of Year Test: Core Paper – all students – decides the tier of the main test. Main test - Higher or Foundation tier.