Year 7 Core Scheme of Work
Overview

1st Half Term	**Number 1** 1. The 4 operations with integers 2. Decimals – place value, ordering decimals, rounding off to a given number of decimal places. 3. The 4 operations with decimals. 4. Multiplying and dividing by 10, 100, 1000. 5. Negative numbers – ordering and the 4 operations with them. 6. BODMAS. 7. Factors – listing the factors of a given number, introduction to HCF.	**Algebra 1** 1. The language of algebra. 2. Simplifying expressions by gathering like terms and using indices. 3. Factorising simple expressions and expanding a bracket – common factor only. 4. Substitute values into simple expressions and formulae; positive & negative integers and decimal values.
2nd Half Term	**Ratio/Proportion/Rates of change/Number 1** 1. Basic concept of what a fraction is, language of fractions. 2. Shading a given fraction of a shape, stating what fraction of a shape is shaded. 3. Finding equivalent fractions; larger & smaller (cancelling), ordering fractions. 4. Converting between mixed numbers and equivalent fractions. 5. Multiplying fractions and finding a fraction of a whole number. 6. Definition of a percentage – number of parts per 100. 7. Finding a percentage of a quantity without a calculator. 8. Finding a percentage of a quantity with a calculator 9. Introduction to fraction, decimal, percentage equivalence without a calculator.	**Probability 1** 1. The language of Probability. 2. Use of the probability scale. 3. Theoretical probability of simple events, relative frequency of simple situations. 4. Understand & use the concept that probabilities sum to 1
3rd Half Term	**Shape & Space 1** 1. Measure & draw lines accurately. 2. Measure and draw angles accurately. 3. Properties of 2d shapes. 4. Area of rectangles, parallelograms and triangles, perimeter of rectangles. 5. Area and perimeter of compound shapes; only made from rectangles.	**Algebra 2** *1. Recap Algebra 1 – 2/3 lessons.* 2. What is an equation as opposed to an expression, introduce the concept of doing the same thing to both sides of an equation. 3. Solving linear equations – up to and including ones involving brackets and ones with a fractional/mixed number answer.

Year 7 Core Scheme of Work
Overview

4th Half Term	**Statistics 1** 1. Construct and interpret; Bar charts, histograms, pictograms and tally charts. 2. Compare 2 sets of data displayed in these forms. 3. Calculate the Mean, Median and Mode for sets of data, use to compare 2 sets of data.	**Number 2** 1. *Recap from Number 1; Rounding off decimals, 4 ops with decimals and negative numbers – 2/3 lessons.* 2. *Recap from RPRN 1; All fractions work – 2 lessons.* 3. Adding & subtraction fractions. 4. Dividing a fraction by a fraction, a fraction by an integer and an integer by a fraction.
5th Half Term	**Ratio/Proportion/Rates of change/Number 2** 1. Introduction to ratio – cancelling ratios – link to fractions. 2. Sharing an amount in a given ratio – both sorts. 3. Understanding the links between ratio & fractions.	**Algebra 3** 1. Coordinates in all 4 quadrants. 2. *Recap of Algebra 1& 2 – Simplifying expressions, substitution and solving linear equations.* 3. Sequences – Arithmetic sequences; term to term rule, finding the next term, position to term rule (nth term) and using it to find any term in a sequence. 4. Geometric sequence – what one is, term to term rule and finding the next term.
6th Half Term	**Shape & Space 2** 1. Properties of plane (2d) shapes, correct notation for angles, shapes etc. 2. Basic angle facts – Angles on a straight line, angles at a point, opposite angles, angles in a triangle. 3. Interior and exterior angles of polygons.	

Year 7 Extension Scheme of Work
Overview

1st Half Term	**Number 1** 1. The 4 operations with integers 2. Decimals – place value, ordering decimals, rounding off to a given number of decimal places. 3. The 4 operations with decimals. 4. Multiplying and dividing by 10, 100, 1000. 5. Negative numbers – ordering and the 4 operations with them. 6. BODMAS. 7. Factors – listing the factors of a given number, introduction to HCF. 8. Product of prime factors, using to find HCF.	**Algebra 1** 1. The language of algebra. 2. Forming and then simplifying expressions by gathering like terms and using indices. 3. Factorising simple expressions and expanding a bracket – common factor only. 4. Substitute values into simple expressions and formulae; positive & negative integers and decimal values.
2nd Half Term	**Ratio/Proportion/Rates of change/Number 1** 1. Basic concept of what a fraction is, language of fractions. 2. Shading a given fraction of a shape, stating what fraction of a shape is shaded. 3. Finding equivalent fractions; larger & smaller (cancelling), ordering fractions. 4. Converting between mixed numbers and equivalent fractions. 5. Multiplying and dividing fractions and finding a fraction of a whole number. 6. Definition of a percentage – number of parts per 100. 7. Finding a percentage of a quantity without a calculator. 8. Finding a percentage of a quantity with a calculator. 9. Percentage increase & decrease both with and without a calculator. 10. Fraction, decimal, percentage equivalence without and without a calculator.	**Probability 1** 1. The language of Probability. 2. Use of the probability scale. 3. Theoretical probability of simple events, relative frequency of simple situations. 4. Understand & use the concept that probabilities sum to 1 5. Listing the outcomes from 2 events, beginning to look at the probability of outcomes from 2 events.
3rd Half Term	**Shape & Space 1** 1. Measure and draw angles accurately. 2. Constructions with a ruler and compass 3. Properties of 2d shapes. 4. Area of rectangles, parallelograms, triangles, trapezium and circle. Perimeter of rectangles and circumference of a circle. 5. Area and perimeter of compound shapes; only made from rectangles for area and perimeter, but for area find the area of shapes made from rectangles/triangles and rectangles/circles as well.	**Algebra 2** *1. Recap Algebra 1 – 2/3 lessons.* 2. What is an equation as opposed to an expression, introduce the concept of doing the same thing to both sides of an equation. 3. Solving linear equations – up to and including ones involving brackets and ones with a fractional/mixed number answer and ones with unknowns on both sides. 4. Form and then solve an equation from a written problem or a practical context.

Year 7 Extension Scheme of Work
Overview

4th Half Term	**Statistics 1** 1. Construct and interpret; Bar charts, histograms, pictograms, tally charts and Stem & Leaf diagrams. 2. Compare 2 sets of data displayed in these forms. 3. Calculate the Mean, Median and Mode for sets of data, including data displayed in Stem & Leaf diagrams, use to compare 2 sets of data.	**Number 2** 1. *Recap from Number 1; Rounding off decimals, 4 ops with decimals and negative numbers – 2/3 lessons.* 2. *Recap from RPRN 1; All fractions work – 2 lessons.* 3. Adding & subtraction fractions. 4. Dividing a fraction by a fraction, a fraction by an integer and an integer by a fraction.
5th Half Term	**Ratio/Proportion/Rates of change/Number 2** 1. Introduction to ratio – cancelling ratios – link to fractions. 2. Sharing an amount in a given ratio – both sorts. 3. Understanding the links between ratio & fractions. 4. Begin to work on problems relating to direct proportion.	**Algebra 3** 1. Coordinates in all 4 quadrants. 2. *Recap of Algebra 1& 2 – Simplifying expressions, substitution and solving linear equations.* 3. Sequences – Arithmetic sequences; term to term rule, finding the next term, position to term rule (nth term) and using it to find any term in a sequence. 4. Relate the above to practical situations. 5. Geometric sequence – what one is, term to term rule and finding the next term.
6th Half Term	**Shape & Space 2** 1. Properties of plane (2d) shapes, correct notation for angles, shapes etc. 2. Basic angle facts – Angles on a straight line, angles at a point, opposite angles, angles in a triangle. 3. Interior and exterior angles of polygons. 4. Angles made between parallel lines and a transversal.	

Year 7 Support Scheme of Work Overview

1st Half Term	**Number 1** 1. Adding and subtracting integers 2. Order numbers; integers and negatives. 3. Find factors of one and two digit numbers. 4. Find multiples of single digit numbers.	**Algebra 1** 1. Know the language of algebra 2. Simple sequences 3. Number machines – inputs to outputs 4. Number machines – outputs to inputs 5. Substitution
2nd Half Term	**Ratio/Proportion/Rates of change/Number 1** 1. Language of fractions 2. Shading fractions of shapes 3. Finding what fraction is shaded 4. Fraction of an amount	**Probability 1** 1. Use the language of probability. 2. Use the probability scale and thus compare probabilities. 3. Place events onto a probability scale. 4. Calculate simple theoretical probability.
3rd Half Term	**Shape and Space 1** 1. Measure and draw lines accurately. 2. Measure and draw angles accurately (<180) 3. Estimate the size of angles (before measuring!). 4. Read the time accurately (analogue and digital) 5. Find the difference between two times 6. Name 2D and 3D shapes. 7. Identify properties of 2d and 3D shapes.	**Number 2** 1. Adding and subtracting integers 2. Find all of the factors of a number. 3. Identify prime numbers up to 20 4. Find the multiples of a given number

Year 7 Support Scheme of Work Overview

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4th Half Term	**Statistics 1** 1. Construct and interpret a tally chart for discrete data. 2. Construct and interpret a bar chart for discrete data. 3. Construct and interpret a pictogram. 4. Calculate the mean median and mode.	**Number 3** 1. Multiplication using column method or partitioning. 2. Division using bus stop method or knowledge of time tables. 3. Round integers to the nearest 10 100 and 1000. 4. Times-tables practice
5th Half Term	**Ratio/Proportion/Rates of change/Number 2** 1. Read decimals and know their place value. 2. Order decimals. 3. Round decimals to the nearest whole number. 4. Add and subtract decimals. 5. Use the order of operations in sums BODMAS	**Algebra 2** 1. The language of algebra 2. Simplifying expressions by gathering like terms. 3. More sequences 4. Substitution
6th Half Term	**Shape & Space 2** 1. Identify types of triangles. 2. Angles work – on a line, at a point, in a triangle 3. Area of shapes – counting squares 4. Area of rectangles	**Recap and Revision**

Year 8 Core Scheme of Work
Overview

-1st Half Term	**Number 1** 1. The 4 operations with decimals. 2. X and ÷ by 10, 100 & 1000 & 0.1, 0.01 3. The 4 operations with fractions – **including mixed number and improper fractions.** 4. Factors and **multiples; finding HCF and LCM of pairs of numbers.** **5. Prime factor decomposition – using the prime factors of a number to find HCF and LCM.**	**Algebra 1** 1. Simplifying expressions by gathering like terms and **using indices.** 2. Factorising an expression and expanding a bracket – common factor only. 3. **Simplifying an expression containing more than one bracket and then simplifying the resultant expression.** 4. **Expanding a pair of brackets and then simplifying the resultant expression.**
2nd Half Term	**Ratio/Proportion/Rates of change/Number 1** 1. Understanding the link between fractions, decimals and percentages, **find a reciprocal of a number/fraction/decimal.** 2. Ordering fractions, decimals and percentages – **using inequality signs within the context of this.** 3. **Writing one number as a fraction and a percentage of another –** 4. Finding a percentage of a quantity without a calculator, knowing that finding 10% of a quantity is the same as finding 0.1or 1/10 of it. 5. Finding a percentage of a quantity with a calculator. 6. **Percentage increase and decrease, both with and without a calculator.**	**Probability 1** 1. **Introduction to experimental probability, making comparisons between experimental probability and theoretical probability.** 2. **Analyse outcomes of experiments involving randomness, fairness, bias etc.** 3. **Construct and use sample space diagrams for single and combined events, use these to calculate probabilities.**
3rd Half Term	**Shape & Space 1** 1. Recap of basic angle facts. 2. Interior and exterior angles of polygons. 3. **Finding missing angles between parallel lines and a transversal.** 4. Recap area of other shapes inc compound. 5. **Surface area & Volume of a cuboid.** 6. **Area and circumference of a circle.**	**Algebra 2** 1. Solving linear equations – up to and including ones with brackets but the unknown only appearing once. 2. **Solving linear equations with unknowns on both sides.** 3. **Forming linear equations, then solving them in order to answer a problem question.** 4. **Changing the subject of a simple formula.**

Bold topics are new concepts not covered in year 7, normal font has previously been covered

Year 8 Core Scheme of Work
Overview

4th Half Term	**Statistics 1** **1. Draw and answer questions about Pie charts, frequency polygons and histograms (equal class width only),** **2. Compare, test hypotheses and make inferences about data presented in a variety of forms. MMMR including simple frequency tables, stem and leaf including back to back, two way tables.** **3. Draw, interpret and use scatter diagrams.** **4. Discuss misleading graphs and statistics.**	**Number 2** 1. Rounding off to the nearest whole number, 10, 100, 1000 and to a given number of decimal places. 2. **Rounding off to a given number of significant figures. – discuss appropriate degree of accuracy** 3. **Estimating the answer to calculations** 4. **Use of a calculator – effective use of a basic and scientific calculator, real emphasis on BODMAS,** negative numbers in brackets **& use of power function.**
5th Half Term	**Ratio/Proportion/Rates of change/Number 2** **1. Use of scales and scale factors – bearings, maps, enlargement** **2. Proportion in a practical context – recipes, currency conversion and value for money.** **3. Introduction to compound measures – distance, speed and time formula and line graphs.**	**Algebra 3** 1. Substitution into scientific formulae - +ve, -ve, decimal and fractional values. **2. Drawing the graph of a linear function – by drawing a table and substituting values for x into the equation to find y.** **3. Introduce finding gradient and intercept of a straight line** **4. Introduce Finding midpoint of a line segment**
6th Half Term	**Shape & Space 2** **1. Transformations (pupils need to practice these on a set of Cartesian axes, linking in coordinates practice);** **a) Reflections – reflecting shapes in a mirror line, including a diagonal line.** **b) Rotations – pupils rotate shapes to a given set of instructions – 90, 180 and 270 degree turns only.** **c) Translations – teach column vectors from the start.** d) **Enlargement – simple enlargement by an integer scale factor.** 2. **Begin to introduce the concept of simple combined transformations.** 3. **Introduce the concept of congruent shapes**	**Shape & Space 3** 1. **Discuss Properties of 3d shapes.** 2. **Constructing triangles from – SSS, SAS, ASA.** 3. **Perpendicular bisector to a line segment.** 4. **Bisecting an angle.** 5. **Perpendicular from a point to a line.**

Bold topics are new concepts not covered in year 7, normal font has previously been covered

Year 8 Support Scheme of Work Overview

1st Half Term	**Number 1** 1. Understand place value. 2. Multiplying and dividing by powers of 10. 3. Ordering decimals. 4. Rounding. 5. Order of operations. 6. Mental and written methods for addition, subtraction, multiplication and division.	**Algebra 1** 1. Algebraic shorthand - Using letters to represent numbers. 2. Simplifying expressions by collecting like terms. 3. Simplifying expressions by multiplying and using indices 4. Using brackets correctly and expanding a single bracket.
2nd Half Term	**Fractions, Decimals, Percentages, Ratio and Proportion 1** 1. Equivalence of fractions 2. Understanding the link between decimals, fractions and percentages and converting between them 3. Representing fractions on a diagram. 4. Looking at common denominators - Adding and subtracting fractions. 5. Calculating fractions of quantities 6. Calculating percentages of amounts 7. Simplifying ratios. 8. Sharing an amount in a given ratio	**Probability 1** 1. Discuss Probability vocabulary 2. Calculating the probability of an event occurring or not occurring. 3. Using diagrams to identify all the possible outcomes of an experiment. 4. Introduction to experimental probability and comparing it to theoretical probability. 5. Calculating probabilities based on experimental data and comparing with theoretical results.
3rd Half Term	**Shape & Space 1** 1. Discuss types of angles 2. Measuring and drawing angles and lines accurately 3. Angle rules for straight lines, triangles, quadrilaterals and around a point. 4. Classifying quadrilaterals. 5. **Draw circles using compasses.**	**Algebra 2** 1. Generate terms of a linear sequence using term-to-term or position-to-term rules. 2. Generate sequences from pictures 3. Expressing functions in words and algebraically. 4. Finding a function from inputs and outputs (Function machines) 5. **Coordinates**

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Year 8 Support Scheme of Work Overview

4th Half Term	**Statistics 1** 1. Calculating the mean, median, mode and range for discrete data. 2. Interpreting the averages or range; recognise when it is appropriate to use the range, mean, median and mode. 3. Construct Graphical representations, Pictograms, Bar charts and frequency diagrams. 4. Interpret graphs.	**Number 2** 1. Multiply and divide negative numbers. 2. Multiples and factors. 3. **Highest common factors and lowest common multiples.** 4. Prime numbers and prime factors. 5. Square numbers.
5th Half Term	**Shape & Space 2** 1. Units of measurements and conversions 2. Reading scales. 3. Calculating areas of common 2D shapes and compound shapes. 4. Nets of 3D shapes. 5. Plans and elevations and 2D representations of 3D objects. 6. Scale drawings. 7. Plotting coordinates	**Algebra 3** 1. Solving linear equations – one step and two step linear equations. 2. Substitution. 3. Constructing simple formulae.
6th Half Term	**Shape & Space 3** 1. Reflection and rotation symmetry. 2. Reflections – reflecting shapes in a mirror line. 3. Rotations – pupils rotate shape to a given set of instructions. 4. Translations. 5. Enlargements	**Statistics 3** 1. Designing and carrying out a handling data project using the Handling Data Cycle 2. Designing data collection sheets and questionnaires. 3. Constructing frequency tables and two-way tables. 4. Collecting data.

Year 8 Extension Scheme of Work
Overview

1st Half Term	**Number 1** 1. The 4 operations with decimals and fractions – including mixed number and improper fractions. 2. X and ÷ by 10, 100 & 1000 & 0.1,0.01 etc. **3.** Recap Factors and multiples, HCF, LCM. Prime factor decomposition – using the prime factors of a number to find HCF **and LCM.** **4. Apply the 4 operations with fractions to practical contexts – worded questions, area perimeter etc.**	**Algebra 1** 1. Simplifying expressions by gathering like terms and using indices. 2. Factorising an expression and expanding a bracket – common factor only. 3. **Simplifying an expression containing more than one bracket and then simplifying the resultant expression.** 4. **Expanding a pair of brackets and then simplifying the resultant expression.** 5. **Expanding 3 brackets and simplifying the resultant expression to get a cubic expression.** 6. **Factorising a quadratic expression – coefficient of x = 1, including the difference of 2 squares.**
2nd Half Term	**Ratio/Proportion/Rates of change/Number 1** 1. Understanding the link between fractions, decimals and percentages, **find a reciprocal of a number/fraction/decimal.** 2. **Converting recurring decimals into fractions.** 3. Ordering fractions, decimals and percentages – **using inequality signs within the context of this.** 4. **Writing one number as a fraction and a percentage of another.** 5. Finding a percentage of a quantity both with and without a calculator, knowing that finding 10% of a quantity is the same as finding 0.1or 1/10 of it. 6. Percentage increase and decrease, both with and without a calculator, when using a calculator by using a single multiplier **7. Repeated percentage change questions – compound interest, depreciation.** 8. **Reverse percentages.**	**Probability 1** 1. **Introduction to experimental probability, making comparisons between experimental probability and theoretical probability.** 2. **Analyse outcomes of experiments involving randomness, fairness, bias etc.** 3. **Construct and use sample space diagrams for single and combined events, use these to calculate probabilities.** 4. **Drawing and representing 2 or more events on a tree diagram.** 5. **Understanding and using the 'and' 'or' rules when calculating probabilities.**
3rd Half Term	**Shape & Space 1** 1. Recap of basic angle facts. 2. Interior and exterior angles of polygons. 3. Finding missing angles between parallel lines and a transversal. 4. Recap area of other shapes including compound - **Surface area of a cube, cuboid, triangular prism** 5. **Find Area and circumference of a circle, semi-circle and quadrant.** 6. **Surface area and Volume of a prism - including a cylinder.**	**Algebra 2** 1. Forming and Solving linear equations – up to and including ones with brackets, unknowns on both sides and involving fractions. 2. **Solving a quadratic equation by factorising – coefficient of x = 1, including the difference of 2 squares.** 3. **Changing the subject of a formula including ones where the new subject appears twice (need to factorise)**

Year 8 Extension Scheme of Work
Overview

Bold topics are new concepts not covered in year 7, normal font has previously been covered

4th Half Term	**Statistics 1** **1. Draw and answer questions about Pie charts, frequency polygons and histograms (unequal class width – frequency density)** **2. Compare, test hypotheses and make inferences about data presented in a variety of forms. MMMR including frequency tables of continuous data, stem and leaf diagrams, two way tables, Misleading graphs and statistics.** **3. Draw, interpret and use scatter diagrams.**	**Number 2** 1. Rounding off to the nearest whole number, 10, 100, 1000 and to a given number of decimal places. 2. **Rounding off to a given number of significant figures. Discuss appropriate degree of accuracy** 3. **Estimating the answer to calculations** 4. **Use of a calculator – effective use of a basic and scientific calculator, real emphasis on BODMAS.** Negative numbers in brackets **& use of power function.**
5th Half Term	**Ratio/Proportion/Rates of change/Number 2** **1. Use of scales and scale factors – bearings, maps, enlargement** **2. Proportion in a practical context – recipes, currency conversion and value for money.** **3. Compound measures – working with distance speed time, density and population density, Conversion graphs** **4. Drawing and interpreting graphs of real life situations – travel graphs** **5. Discuss and interpret linear and non-linear graphs from a range of sources**	**Algebra 3** 1. Substitution into scientific formulae - +ve, -ve, decimal and fractional values. **2. Drawing the graph of a linear function – by drawing a table and substituting values for x into the equation to find y.** **3. Drawing the graph of a linear function using the y-intercept and gradient use y =mx+c and discuss problems that can be written in other forms. Eg. y+3x-2=0 y=2-3x** **4. Finding midpoint of a line segment and if a point lies on a line.** **5. Understand the links between parallel lines and gradients, introduce the concept of perpendicular lines, find the gradients of perpendicular lines.** **6. Draw the graph of a quadratic function by using a table and substituting values of x into the function.**
6th Half Term	**Shape & Space 2** **1. Transformations (pupils need to practice these on a set of Cartesian axes, linking in coordinates practice);** **a) Reflections – reflecting shapes in a mirror line, including a diagonal line.** **b) Rotations – pupils rotate shapes to a given set of instructions – 90, 180 and 270 degree turns only.** **c) Translations – teach column vectors from the start.** d) **Enlargement – enlargement from a given point by an integer scale factor, extend onto fractional and negative sf.** 2. **Begin to introduce the concept of simple combined transformations.**	**Shape & Space 3** **1. Introduce the concept of congruent shapes. Discuss 2d shapes and their properties. Discuss Properties of 3d shapes.** **2. Constructions –** **a) Constructing triangles from – SSS, SAS, ASA.** **b) Perpendicular bisector to a line segment.** **c) Bisecting an angle.** **d) Perpendicular from a point to a line.** **e) A variety of angles using compasses and a ruler.** **f) Regular polygons using compasses and a ruler.** **3. Simple Loci work – introduction to the concept of locus.**

Year 8 Extension Scheme of Work
Overview

Bold topics are new concepts not covered in year 7, normal font has previously been covered

Year 9 Foundation A Scheme of Work Overview

-1st Half Term	**A - Number – Decimals, Indices, Roots, reciprocals & BODMAS** 1. Order positive and negative integers and decimal numbers. 2. Multiply and divide by powers of 10. 3. Add, subtract, multiply and divide positive and negative integers then decimal numbers. 4. Rounding off – decimal places and significant figures. 5. Estimation – rounding to 1 sf then estimating answer. 6. Effectively use a scientific calculator – brackets, fractions, powers and roots. 7. Find the answers to calculations involving indices – both with and without a calculator. 8. Use laws of indices to simplify algebraic expressions involving indices. 9. Apply the principles of BODMAS to calculations.	**B - Number – Factors, multiples, Primes, Standard form** 1. Identify odd, even, factors, multiples and primes. 2. List the factors of a given number, list some multiples of a given number. 3. Find the HCF & LCM of 2 numbers by comparing factors and multiples. 4. Prime factor decomposition (product of prime factors). 5. Find the HCF and LCM of up to 3 numbers – by listing and using prime factor decomposition with a venn diagram. 6. Solve problems involving HCF and LCM.
2nd Half Term	**A – Algebra** Recap algebra skills taught in years 7 and 8; i. simplifying expressions by gathering like terms ii. simplifying straightforward expressions using indices iii. simplifying expressions by cancelling iv. substitution v. expanding brackets (common factor only) vi. expanding brackets and simplifying the resultant expression vii. solving linear equations (up to and including unknowns on both sides)	**B – Tables, charts and graphs** 1. Be aware of, design and use different data collection techniques. 2. Use correct notation for time, work out time taken for a journey – in particular from a timetable. 3. Recap data handling work from years 7 & 8; Construct bar charts, histograms, pictograms and tally charts – compare and contrast data presented in these forms, calculate averages and range for small discrete data sets. 4. Produce and interpret a variety of graphs; composite bar charts, line graphs and dual bar charts. 5. Design and use 2 way tables for discrete data. 6. Design and use a frequency/grouped frequency table – including finding the mode/modal class interval. 7. Draw and use a stem and leaf diagram (including back to back)

Year 9 Foundation A Scheme of Work Overview

3rd Half Term	**A – Graphs/Charts** 1. Draw an accurate Pie chart. 2. Interpret pie charts and have an understanding of comparing 2 pie charts. 3. Scatter graphs; i. Draw scatter graphs. ii. Identify outliers and interpret their significance. iii. Identify correlation and comment on relationships. iv. Draw and use lines of best fit for predictions. **These topics have all been taught in yr 8 but they are high frequency exam question which pupils make mistakes on so worth spending time on – in particular the interpretation work.**	**B – Fractions, decimals & percentages** 1. Find equivalent fractions, cancel fractions fully and convert between mixed number and improper fractions. 2. Add, subtract, multiply and divide fractions – including mixed numbers. 3. Express one number as a fraction and percentage of another. 4. Calculate a percentage of a quantity without a calculator - % multiples of 5%. 5. Calculate a percentage of a quantity using a calculator – by first changing the % into a decimal. 6. Calculate % increase and decrease – by first finding the % then either adding on or taking away. 7. Introduce pupils to doing a percentage increase/decrease by first finding a multiplier. 8. Use percentages in real life situations. 9. Convert between fractions, decimals and percentages – both with and without a calculator. 10. Order fractions, decimals and percentages, including using inequality signs. **These topics have all be taught in yrs 7 & 8 but they are key topics so it is vital pupils are very competent with them.**
4th Half Term	**A - Equations and Inequalities** 1. Solve linear equations with positive and negative integer answers; 2 step, equations involving brackets and equations with unknowns on both sides. 2. Solve linear equations with non-integer answers – teach to leave as improper fractions. 3. Write expressions, form and solve equations from a written/practical problem – exam style question involving perimeter etc. 4. Write down whole number integers that satisfy an inequality. 5. Solve a linear inequality, including a compound inequality, represent the answer on a number line. **The equations was has been taught in yrs 7 & 8 but they are key topics so it is vital pupils are very competent with them. Inequalities is new.**	**A - Algebra – Sequences** 1. Generate sequences of numbers, squared integers and sequences derived from diagrams. 2. Recognise simple sequences – odd, even, triangular, square, cube and Fibonacci style sequences. 3. Find the Nth term of a linear sequence. 4. Use the Nth term rule to generate terms in a sequence and to find a specific term. 5. Use the Nth term rule to decide if a number is in a sequence. 6. Continue a quadratic sequence and use the nth term to generate a sequence. **Nth term of a linear sequence taught in 5th HT of year 7.**

Year 9 Foundation A Scheme of Work Overview

5th Half Term	**A - Angles – Parallel lines** 1. Recap basic angle facts taught in yrs 7 & 8; Accurately measuring and drawing angles, angles in a triangle (including isosceles), straight line, round a point and vertically opposite, classify quadrilaterals. 2. Angles made between parallel lines & a transversal – with particular focus on exam style questions with parallel lines inside triangles. **Angles with parallel sides taught in 3rd HT of year 8**	**B - Angles – Polygons** 1. Recognise and name Polygons up to 10 sides. 2. Understand the terms regular & irregular in relation to polygons. 3. Find the size of missing exterior angles in regular and irregular Polygons. 4. Find the size of missing interior angles in regular and irregular Polygons 5. Apply the above to work out the number of sides a regular polygon has from the size of its exterior/interior angles. 6. Find missing angles where shapes are made from different tessellating polygons. **Interior/exterior angles of polygons taught in 6th HT of year 7.**
6th Half Term	**Perimeter, Area and circles** 1. Recap area and perimeter work covered in years 7 & 8; area and perimeter of rectangles, triangles, parallelograms and trapeziums. 2. Recap the area and circumference of a circle (covered in year 8). 3. Recap the area and perimeter of compound shapes made from rectangles (covered in year 7). 4. Recap the volume and surface area of a cuboid (covered in year 8). 5. Identify and name common solids. 6. Make accurate drawings and sketches of the nets of prisms and pyramids 7. Calculate the volume of a range of prisms, including a cylinder.	**B – Graphs** 1. Identify and plot points in all 4 quadrants using co-ordinates. 2. Find the mid-point and gradient of a line segment. 3. Draw & interpret straight line graphs for real life situations – conversion graphs, phone bills, fixed charge and cost per item. 4. Draw and interpret distance/time and velocity/time graphs – calculate speed and acceleration from parts of these graphs. **Note – gradient/rates of change is real extension work for these pupils.**

Year 9 Foundation B Scheme of Work Overview

-1st Half Term	**A - Number – Decimals, Indices, Roots, reciprocals & BODMAS** 1. Order positive and negative integers and decimal numbers. 2. Multiply and divide by powers of 10. 3. Add, subtract, multiply and divide positive integers then decimal numbers. 4. Rounding off – decimal places 5. Find the answers to calculations involving indices – both with and without a calculator. 6. Use laws of indices to simplify algebraic expressions involving indices. 7. Apply the principles of BODMAS to calculations. 8. Effectively use a basic calculator – applying principles of BODMAS	**B - Number – Factors, multiples, Primes** 1. Identify odd, even, factors, multiples and primes. 2. List the factors of a given number, list some multiples of a given number. 3. Find the HCF & LCM of 2 numbers by comparing factors and multiples. 4. Prime factor decomposition (product of prime factors).
2nd Half Term	**A – Algebra** Reteach algebra skills taught in years 7 and 8; i. simplifying expressions by gathering like terms ii. simplifying straightforward expressions using indices iii. substitution iv. expanding brackets (common factor only) v. solving linear equations – one and 2 step only	**B – Tables, charts and graphs** 1. Be aware of and use different data collection techniques. 2. Use correct notation for time, work out time taken for a journey – in particular from a timetable. 3. Recap data handling work from years 7 & 8; Construct bar charts, histograms, pictograms and tally charts – compare and contrast data presented in these forms, calculate averages and range for small discrete data sets. 4. Produce and interpret a variety of graphs; composite bar charts, line graphs and dual bar charts. 5. Interpret 2 way tables for discrete data.

Year 9 Foundation B Scheme of Work Overview

3rd Half Term	**A – Graphs/Charts** 1. Draw an accurate Pie chart. 2. Interpret pie charts 3. Scatter graphs; i. Draw scatter graphs. ii. Identify outliers and interpret their significance. iii. Identify correlation and comment on relationships. iv. Draw and use lines of best fit for predictions.	**B – Fractions, decimals & percentages** 1. Find equivalent fractions, cancel fractions fully and convert between mixed number and improper fractions. 2. Add, subtract, multiply and divide fractions – including mixed numbers. 3. Express one number as a fraction and percentage of another. 4. Calculate a percentage of a quantity without a calculator - % multiples of 5%. 5. Calculate a percentage of a quantity using a calculator – by first changing the % into a decimal. 6. Calculate % increase and decrease – by first finding the % then either adding on or taking away. 7. Convert between fractions, decimals and percentages – both with and without a calculator. 8. Order fractions, decimals and percentages, including using inequality signs.
4th Half Term	**A - Equations and Inequalities** 1. Solve linear equations with positive integer answers; 2 step and equations involving brackets. 2. Write down whole number integers that satisfy an inequality. 3. Solve a linear inequality – up to 2 step - represent the answer on a number line.	**A - Algebra – Sequences** 1. Generate sequences of numbers, squared integers and sequences derived from diagrams. 2. Recognise simple sequences – odd, even, triangular, square, cube and Fibonacci style sequences. 3. Find the Nth term of a linear sequence. 4. Use the Nth term rule to generate terms in a sequence and to find a specific term. 5. Continue a quadratic sequence.

Year 9 Foundation B Scheme of Work Overview

5th Half Term	**A - Angles** 1. Accurately measure and draw angles. 2. Identify parallel and perpendicular lines 3. Name all the quadrilaterals and know their properties. 4. Recall angle facts to find missing angles; on a line, at a point, vertically opposite. 5. Find missing angles in a triangle. 6. Corresponding and Alternate angles.	**B - Angles – Polygons** 1. Recognise and name Polygons up to 10 sides. 2. Understand the terms regular & irregular in relation to polygons. 3. Find the size of missing exterior angles in regular and irregular Polygons. 4. Find the size of missing interior angles in regular and irregular Polygons
6th Half Term	**A - Perimeter, Area and volume** 1. Measure the lengths of given shapes. 2. Measure shapes to find perimeters and areas. 3. Find the perimeter of rectangles. 4. Use the formula to find the area of rectangles and triangles. 5. Find the area of a parallelogram. 6. Find the area and perimeter of compound shapes made from rectangles. 7. Identify and name common solids. 8. Know the properties of common solids including vertices, edges and faces. 9. Find the volume of cuboids.	**B – Graphs** 1. Identify and plot points in all 4 quadrants using co-ordinates.

Year 9 Higher A Scheme of Work Overview

1st Half Term	**A - Number – Decimals, Indices, Roots, reciprocals & BODMAS** 1. Estimation – rounding to 1 sf then estimating answer, calculations involving powers & roots. 2. Effectively use power and root buttons on a scientific calculator.	3. Find the answers to calculations involving indices – both with and without a calculator – indices including +ve, -ve and fractional. 4. Use laws of indices to simplify algebraic expressions involving indices. 5. Apply the principles of BODMAS to calculations.
	B - Number – Factors, multiples, Primes, Standard form and surds 1. Prime factor decomposition (product of prime factors). 2. Find the HCF and LCM of up to 3 numbers – by listing and using prime factor decomposition with a venn diagram. 3. Solve problems involving HCF and LCM.	4. Convert numbers in and out of standard form. 5. The 4 operations with numbers in standard form, both with and without a calculator – with particular emphasis on questions in problem form. 6. Simplify surd expressions involving square numbers.
	C - Algebra – Sequences 1. Generate sequences of numbers, squared integers and sequences derived from diagrams. 2. Recognise simple sequences – odd, even, triangular, square, cube and Fibonacci style sequences.	3. Find and use Nth term of a linear sequence (including deciding if a given number is in a sequence). 4. Continue a quadratic sequence and use the nth term to generate a sequence. 5. Find the Nth term of a quadratic sequence.
2nd Half Term	**A - Algebra – Solving Equations and Formulae** 1. Recap algebra skills taught in years 7 and 8; simplifying expressions by gathering like terms and using indices, substitution, expanding brackets and factorising - common factor and quadratics, forming and solving linear equations (up to and including unknowns on both sides) 2. Factorise a quadratic expression and use to solve a quadratic equation, including co-eff of $x^2 > 1$ and the difference of 2 squares. 3. Change the subject of a formula, including cases when the subject is on both sides of the original formula.	4. Simple algebraic proofs – the sort that say 'show that'. 5. Use iteration to find approximate solutions to equations – up to and including cubics. 6. Introduce students to recursive iteration – obtaining a recursive formula and using several times.
	B - Handling Data – Averages & spread 1. Recap data handling skills taught in years 7 & 8; averages for small data sets, drawing stem & leaf diagrams and calculating median and mode from them, drawing and interpreting scatter diagrams, drawing and interpreting pie charts. 2. Draw and interpret back to back stem & leaf diagrams - calculate the averages from the diagram, compare 2 sets of data represented in stem and leaf diagrams.	3. Calculate the mean, median, mode and range for a set of data represented in a frequency table; use these to make comparisons between 2 sets of data. 4. Calculate an estimated mean for continuous grouped data. 5. Draw and interpret a frequency Polygon.

Year 9 Higher A Scheme of Work Overview

3rd Half Term	**A - Fractions and Percentages**	
	1. Recap fractions and percentages work taught in years 7 & 8; convert between mixed number and improper, multiply and divide fractions and mixed numbers, add and subtract fractions and mixed numbers, find a % of a quantity with and without a calculator, % increase and decrease, fraction decimal and percentage equivalent. 2. Using all the above skills in a practical context.	3. Write one number as a fraction and % of another, writing a numerical change as a % change including profit/loss. 4. Finding and using a multiplier for a % increase/decrease, applying this to a repeated % change (interest, depreciation etc) 5. Solve % problems involving reverse %.
	B - Ratio and Proportion	
	1. Recap ratio skills taught in years 7 and 8; simplifying a ratio, sharing an amount in a given ratio (both sorts), understanding the links between fractions and ratio, practical proportion.	2. More complex ratio questions – in particular questions that involve scaling up ratios to get equivalent ratios or questions that link ratio to fractions. 3. Proportion problem solving – currency conversion, recipes, scales.
	C - Angles – Polygons and parallel lines	
	1. Recap angle facts taught in yrs 7 & 8; angles in a triangle (including isosceles), straight line, round a point and vertically opposite, classify quadrilaterals, angles made between parallel lines & a transversal. 2. Understand the terms regular & irregular in relation to polygons.	3. Find the size of missing interior and exterior angles in regular and irregular Polygons. 4. Apply the above to work out the number of sides a regular polygon has from the size of its exterior/interior angles. 5. Find missing angles where shapes are made from different tessellating polygons.
4th Half Term	**A - Pythagoras and Trigonometry**	
	1. Use Pythagoras' Theorem to find the length of missing sides in a right angled triangle. 2. Know and use Pythagorean triples. 3. Apply Pythagoras to a practical context – ladders, scaffolding etc. 4. Use Trigonometry to find missing angles and missing sides in right angled triangles	5. Apply Trigonometry to a practical context – including angles of elevation and depression. 6. Know the exact Trigonometrical values for sin/cos/tan – 0, 30, 45, 60 and 90 (but not Trig 90) – introduce to Trig graphs to support this.
	B - Graphs	
	1. Recap graph work from year 8; All things y = mx +c – drawing straight line graphs and finding the equation of a straight line graph, finding the mid-point of a line segment, finding the equation of parallel lines, finding the gradient of perpendicular lines. 2. Recap compound measures work from year 8 – speed and density. 3. Draw & interpret straight line graphs for real life situations – conversion graphs, phone bills, fixed charge and cost per item – pupils need an understanding of what the y-intercept and gradient represent in the context of the graph.	4. Draw and interpret distance/time and velocity/time graphs – calculate speed and acceleration from parts of these graphs (gradient = rate of change.) 5. Draw graphs of linear functions given in different forms; y = 3, x = -2 and ax + by = c (by both rearranging and the quicker method of making x and y = 0) 6. Find the equation of a straight line from a co-ordinate and a gradient. 7. Find the equation of a straight line from 2 given points on the line (2 sets of co-ordinates) 8. Find the equation of a perpendicular line.

Year 9 Higher A Scheme of Work Overview

5th Half Term	**A – Graphs** 1. Recap the drawing the graph of a quadratic function by drawing a table and substituting a value of x to get co-ordinates. 2. Recognise graphs from their shape – linear, quadratic, cubic, reciprocal, circle and exponential.	3. Draw the graph of simple cubic functions from a table of values 4. Draw the graph of simple reciprocal functions from a table of values 5. Draw circles, centre the origin using the equation $x^2 + y^2 = r^2$
	B – Accuracy and bounds 1. Calculate the upper and lower bounds of numbers given to varying degrees of accuracy. 2. Find the upper and lower bounds of simple calculations involving the 4 operations (be careful with – and ÷)	3. Find the upper and lower bounds of more complex calculations – real life situations – area, volumes, speed, density etc.
6th Half Term	**A – Perimeter, area and circles** 1. Recap area, perimeter and circle work from yrs 7 & 8; Area and perimeter of rectangles, triangles, parallelograms and trapeziums, area and perimeter of compound shapes made from these, area and circumference of circles, area and perimeter of semi-circles and quadrants. 2. Calculate areas and perimeters of composite shapes made from circles and parts of circles. 3. The above without a calculator – leaving answers in terms of π.	4. Calculate arc length and area of a sector – both with and without a calculator. 5. Calculate the angle of a sector or radius from either arc length or area of sector. 6. Form and solve equations from all of the above situations – both linear equations and quadratics.
	B - Volume and surface area 1. Recap volume and surface area of prisms from yr 8; volume of a prism (including a cylinder), surface area of a cuboid, triangular prism and cylinder. 2. Find the volume of a pyramid. 3. Find the volume of a sphere and hemisphere.	4. Find the surface area of pyramids, spheres and hemisphere 5. Find the volume of the frustum of a cone.

Year 9 Higher B Scheme of Work Overview

-1st Half Term	**A - Number – Decimals, Indices, Roots, reciprocals & BODMAS** 1. Add and subtract decimal numbers – with a focus on written problems. 2. Rounding off – decimal places and significant figures. 3. Estimation – rounding to 1 sf then estimating answer, calculations involving powers & roots. 4. Effectively use power and root buttons on a scientific calculator. 5. Find the answers to calculations involving indices – both with and without a calculator – indices including +ve, -ve and fractional. 6. Use laws of indices to simplify algebraic expressions involving indices. 7. Apply the principles of BODMAS to calculations.	**B - Number – Factors, multiples, Primes, Standard form** 1. Identify factors, multiples and primes. 2. Prime factor decomposition (product of prime factors). 3. Find the HCF and LCM of up to 3 numbers – by listing and using prime factor decomposition with a venn diagram. 4. Solve problems involving HCF and LCM. 5. Convert numbers in and out of standard form. 6. The 4 operations with numbers in standard form, both with and without a calculator – with particular emphasis on questions in problem form.
2nd Half Term	**A - Algebra – Sequences** 1. Generate sequences of numbers, squared integers and sequences derived from diagrams. 2. Recognise simple sequences – odd, even, triangular, square, cube and Fibonacci style sequences. 3. Find and use Nth term of a linear sequence (including deciding if a given number is in a sequence). 4. Continue a quadratic sequence and use the nth term to generate a sequence. 5. Find the Nth term of a quadratic sequence.	**B - Algebra – Solving Equations and Formulae** 1. Recap algebra skills taught in years 7 and 8; simplifying expressions by gathering like terms and using indices, substitution, expanding brackets and factorising (common factor only), solving linear equations (up to and including unknowns on both sides) 2. Use the above skills in a exam question scenario – form an expression for area, then solve it etc. 3. Factorise a quadratic expression, including the difference of 2 squares (co-eff of $x^2 = 1$) 4. Change the subject of a formula.
3rd Half Term	**A - Handling Data – Averages & spread** 1. Understand the different types of data and how to manipulate each sort. 2. Calculate the mean, median, mode and range for a small set of discrete data; use these to make comparisons between 2 sets of data. 3. Construct and interpret stem & Leaf diagrams (including back to back diagrams) - calculate the averages from the diagram, compare 2 sets of data represented in stem and leaf diagrams. 4. Calculate the mean, median, mode and range for a set of data represented in a frequency table; use these to make comparisons between 2 sets of data. 5. Calculate an estimated mean for continuous grouped data.	**B - Ratio and Proportion** 1. Recap ratio skills taught in years 7 and 8; simplifying a ratio, sharing an amount in a given ratio (both sorts), understanding the links between fractions and ratio, practical proportion. 2. More complex ratio questions – in particular questions that involve scaling up ratios to get equivalent ratios or questions that link ratio to fractions. 3. Proportion problem solving – currency conversion, recipes, scales.

Year 9 Higher B Scheme of Work Overview

4th Half Term	**A - Fractions and Percentages** 1. Recap fractions and percentages work taught in years 7 & 8; convert between mixed number and improper, multiply and divide fractions and mixed numbers, add and subtract fractions and mixed numbers, find a % of a quantity with and without a calculator, % increase and decrease, fraction decimal and percentage equivalent. 2. Using all the above skills in a practical context. 3. Write one number as a fraction and % of another, writing a numerical change as a % change including profit/loss. 4. Finding and using a multiplier for a % increase/decrease, applying this to a repeated % change (interest, depreciation etc) 5. Solve % problems involving reverse %.	**B - Angles – Polygons and parallel lines** 1. Recap basic angle facts taught in yrs 7 & 8; angles in a triangle (including isosceles), straight line, round a point and vertically opposite, classify quadrilaterals. 2. Angles made between parallel lines & a transversal – with particular focus on exam style questions with parallel lines inside triangles. 3. Understand the terms regular & irregular in relation to polygons. 4. Find the size of missing interior and exterior angles in regular and irregular Polygons. 5. Apply the above to work out the number of sides a regular polygon has from the size of its exterior/interior angles. 6. Find missing angles where shapes are made from different tessellating polygons.
5th Half Term	**A - Pythagoras and Trigonometry** 1. Use Pythagoras' Theorem to find the length of missing sides in a right angled triangle. 2. Use Pythagorean triples. 3. Apply Pythagoras to a practical context – ladders, scaffolding etc. 4. Use Trigonometry to find missing angles and missing sides in right angled triangles. 5. Apply Trigonometry to a practical context.	**B - Graphs** 1. Recap the gradient and mid-point of a line segment (from yr 8). 2. Draw & interpret straight line graphs for real life situations – conversion graphs, phone bills, fixed charge and cost per item. 3. Draw and interpret distance/time and velocity/time graphs – calculate speed and acceleration from parts of these graphs.
6th Half Term	**A - Graphs** 1. Draw and describe lines parallel to the axes; y = a, x = -b etc, plus y = x and y = -x. 2. Recap drawing the graph of a linear function by drawing a table and substituting values of x in (from yr 8). 3. Begin to look for links between straight line graphs – y-intercept and gradient. 4. Draw a straight line graph from gradient and y-intercept. 5. Find the equation of a straight line graph from gradient and y-intercept. 6. Draw the graph of a quadratic function by drawing a table and substituting a value of x to get co-ordinates.	**B - Handling Data** 1. Recap drawing a scatter diagram (from yr 8) 2. Comment on correlation and relationships from scatter diagrams. 3. Draw and use lines of best fit – comment on outliers. **Recap of Key Topics from Yr 9 – exposure to exam style questions** 1. Factorising a quadratic 2. Re-arranging formulae 3. The 4 operations with fractions 4. Repeated percentage change 5. Averages from a frequency table – including grouped data. 6. Trigonometry & Pythagoras