TWA Curriculum, Skills and Intent – Mathematics

Year Group	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Intent of study year 5	In year 5, pupils will work with increasingly large numbers and practise solving multi-step problems in context. They'll also expand their knowledge of 2D and 3D shapes and practise converting between different units of measurement. This is to ensure that learners have a solid grasp of these fundamental concepts, which are essential for more complex problem-solving in later years. **Intent:** The Year 5 scheme of work follows the White Rose curriculum; however, baseline assessments indicated that the learners were not yet ready to access Year 5 content. In collaboration with the class teacher, we identified the most appropriate level for their needs to ensure they develop a secure foundation in mathematics. **Implementation:** Based on assessment outcomes, we have adapted the curriculum to deliver Year 2 White Rose content. This approach allows learners to consolidate fundamental mathematical concepts, addressing gaps in their understanding before progressing to more advanced topics. Lessons are structured to build confidence, fluency, and problem-solving skills, ensuring accessibility and engagement. **Impact:** By securing these key foundations, learners will be better equipped to access future year group content with greater understanding and confidence. This intervention supports their long-term mathematical progression, enabling them to engage with the curriculum at a developmentally appropriate level while preparing them for success in later years.					
	Place Value, **Addition and subtraction**	**Multiplication and division,** **Fractions A**	**Multiplication and Division B,** **Fractions B**	**Decimals and percentages,** **Perimeter & Area**	**Shape, Position & Direction, Decimals**	**Negative numbers, Converting units, VOLUME**
	Place Value, • Read, write and represent numbers up to 10,000. • To round numbers to the nearest 10, 100 and 1000. • To know the value of each digit in numbers up to 100,000. • To compare and order numbers up to 100,000. • To round numbers within 100,000. • To read, write and represent numbers up to 1 million. • Counting in 10s, 100s, 1000s, 10,000s and 100,000s. • Compare and order numbers up to 1 million. • Round numbers to 1 million. • To recognise negative numbers, placing these on a number line and solving problems using negative numbers. • To be able to read and write Roman Numerals up to 1000. **Addition and subtraction**	**Multiplication and division** • To identify multiples and factors of numbers. • To identify and recognise prime numbers. • To identify and calculate square and cubed numbers. • Multiply and divide numbers by 10, 100 and 1000. • Use knowledge of multiples of 10, 100 and 1000 to solve problems. **Fractions A** • •Find fractions equivalent to a unit fraction • •Find fractions equivalent to a non-unit fraction • •Recognise equivalent fractions • •Convert improper fractions to mixed numbers • •Convert mixed numbers to improper fractions • •Compare fractions less than 1 • Order fractions less than 1 • •Compare and order fractions greater than 1 • •Add and subtract fractions with the same denominator • •Add fractions within 1	**Multiplication and Division B,** • Multiply 2, 3 and 4 digits by 1 digit. • Multiply 2 digits using area model. • Multiply 2, 3 and 4 digits by 2 digits. • Divide 2, 3 and 4 digits by 1 digit. • Divide numbers with remainders. • To know what a faction is. • To be able to identify equivalent fractions. • To recognise fractions greater than 1. • To convert mixed numbers and improper fractions. • To compare and order fractions less than and greater than 1. • To complete number sequences using fractions. • Add and subtract fractions with the same denominator. • To add fractions within 1 with the same and different denominators. • To add two or more fractions where the denominators are a multiple of the other. **Fractions B** • •Multiply a unit fraction by an integer	**Decimals and percentages** • Decimals up to 2 decimal places • Equivalent fractions and decimals (tenths) • Equivalent fractions and decimals (hundredths) • Equivalent fractions and decimals • Thousandths as fractions • Thousandths as decimals • Thousandths on a place value • Order and compare decimals (same number of decimal places) • Order and compare any decimals with up to 3 decimal places • Round to the nearest whole number • Round to 1 decimal place • Understand percentages • Percentages as fractions • Percentages as decimals • Equivalent fractions, decimals and percentages **Perimeter & Area** • Perimeter of rectangles • Perimeter of rectilinear shapes • Perimeter of polygons • Area of rectangles & of compound shapes • To estimate area **Statistics** • Draw line graphs • Read and interpret line graphs	**Shape** • To understand and use degrees • To be able to classify angles • To measure angles up to 180° • To draw lines and angles accurately • To calculate angles around a point • To calculate angles on a straight line • To calculate lengths and angles in shapes • To understand what Regular and irregular polygons are • To deal with 3D shapes **Position & Direction** • To read and plot co-ordinates • To solve problems with coordinates • To spot lines of symmetry in shapes • To reflect in horizontal and vertical lines. **Decimals** • To Use known facts to add and subtract decimals within 1 • find complements to 1 for numbers with up to 3 decimal places	**Negative numbers** • To understand negative numbers • To become more fluent with negative • numbers and explore counting both forwards and backwards • through zero in 1s • To Compare and order negative numbers • To find the difference of numbers. **Converting units** • To convert between metres and kilometres. • To convert between grams and kilograms. • To convert between millilitres and litres and millimetres to metres. • To convert between different units of length and select appropriate unit for measurement. • To begin to develop an understanding of imperial units of measurement such as inches, pounds and pints.

	• To add and subtract 4-digit numbers with and without exchanges. • Add and subtract whole numbers with more than 4 digits using column method. • To be able to round to approximate and estimate. • To know inverse operations and use inverse addition and subtraction to check answers. • Complete multi-step addition and subtraction problems. • To be able to interpret charts, including answering sum and comparison questions. • To be able to read and interpret data shown on line graphs. • To be able to draw line graphs to show data. • Use line graphs to solve problems.	• •Add fractions with total greater than 1 • •Add to a mixed number • •Add two mixed numbers • •Subtract fractions • •Subtract from a mixed number • •Subtract from a mixed number - breaking the whole • •Subtract two mixed numbers	• •Multiply a non-unit fraction by an integer • •Multiply a mixed number by an integer • •Calculate a fraction of a quantity • •Fraction of an amount • •Use fractions as operators	• Read and interpret tables • Deal with two way tables • Read and interpret timetables	• To Add and subtract decimals across 1 • To Add decimals with the same number of decimal places • Subtract decimals with the same number of decimal places • Add decimals with different numbers of decimal places • Subtract decimals with different numbers of decimal places • Efficient strategies for adding and subtracting decimals • Decimal sequences • Multiply by 10, 100 and 1,000 • Divide by 10, 100 and 1,000 • Multiply and divide decimals - missing values	• To convert units of time including years, months, weeks, days, hours, minutes and seconds. • To use timetables to retrieve information. • To convert units of time to solve problems involving timetables. **VOLUME** • To understand what volume is. • To compare and order solids made up of cubes using knowledge of volume. • To estimate volume and capacity of different solids and objects. • Estimate capacity using practical equipment such as water and rice. • To know that we often use capacity rather than volume when referring to liquids.

TWA Curriculum, Skills and Intent – Mathematics

Year Group	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Intent of study year 6	In year 6, pupils will continue to work with increasingly large numbers and practise using negative numbers. They will look at the four operations, Fractions, Decimals, Percentages, shapes, Area and Statistics. By introducing new concepts, students begin to expand their mathematical understanding and how different areas of maths are connected.					
	Place value, the four operations (addition, subtraction, multiplication and division)	**Fractions, measuring with converting units**	**Ratio, Algebra and decimals**	**Fractions, decimals and percentages, Measurement, statistics**	**Geometry**	**Themed projects, consolidation and problem solving**
	• To recap, identify and represent numbers up to 10,000, 100,000 and 1 million. • To learn how to read, write and represent numbers up to 10 million. • To learn how to compare and order numbers and apply this to any given number. • Recap how to round numbers to 10, 100 and 1000. • To learn how to apply knowledge to round any given number. • To recognise negative numbers, placing these on a number line and solving problems using negative numbers. • To learn and apply column method to complete addition and subtraction sums, with and without exchanges. • To learn how to use inverse operations to check answers. • To be able to apply addition and subtraction skills to solve multi-step problems. • To learn how to multiply 4-digit numbers by a 1-digit number. • To learn how to multiply two 2-digit numbers. • To identify and recognise prime numbers. • To identify and calculate square and cubed numbers. • • Learn how to complete division using short and long division methods and use these to solve problems.	• To recognise and identify equivalent fractions. • To learn how to simplify fractions and use this to identify fractions in their simplest form. • To learn how to convert mixed numbers and improper fractions. • To learn how to compare and order fractions. • To learn how to add fractions with the same and different denominators. • To add and subtract mixed numbers. • To multiply and divide fractions by fractions and integers • To find a fraction of an amount • To answer questions with mixed numbers. • To recognise, read and write all metric measures for length, mass and capacity. • To calculate with metric measures • To convert between miles and kilometres • To explore imperial measures and the relationships between imperial and metric measures.	• To understand and use language related to ratio. • To be introduced to the ratio symbol • To understand and use the ratio symbol accurately. • To explore the differences and similarities between ratios and fractions • To be able to solve word problems related to ratio. • To understand what scale factors are and use and calculate these to enlarge shapes. • To solve ration and proportion word problems. • To solve proportion problems related to Recipes. • To explore one and two step function machines. • To form expressions • To find values of expressions by substituting numbers in place of the letters. • To be introduced to formulae using symbols • To form equations from diagrams and word descriptions. • To Solve one and two step equations • To explore equations with two unknown values, recognising that these can have several possible solutions. • To solve problems with two unknowns	• Decimal and fraction equivalents • Fractions as division • Understand percentages • Fractions to percentages • Equivalent fractions, decimals and percentages • Order fractions, decimals and percentages • Percentage of an amount – one step • Percentage of an amount – multi-step • Percentages – missing values **Area, perimeter and volume** • Shapes - same area • Area and perimeter • Area of a triangle – counting squares • Area of a right-angled triangle • Area of any triangle • Area of a parallelogram • Volume – counting cubes • Volume of a cuboid • To learn how to read and interpret line graphs. • To learn how to compare dual bar charts. • To learn how to read and interpret pie charts. • To apply knowledge of percentages to interpret pie charts. • To develop knowledge of angles and apply this to draw pie charts to present data.	• Identify, measure, and classify different types of angles. • Calculate missing angles in given diagrams. • Understand and apply the properties of vertically opposite angles. • Recognise and calculate angles in a triangle. • Identify and calculate angles in special types of triangles (e.g., equilateral, isosceles). • Find missing angles in triangles using known properties. • Calculate angles in quadrilaterals based on their properties. • Identify and calculate angles in polygons. • Understand the basic properties of circles and their angles. • Use a ruler and protractor to draw shapes accurately. • Identify and construct nets of 3D shapes.	**Themed projects to consolidate mathematical skills covered throughout the year:** • **Best Value** – Compare prices and determine the best value for money when purchasing goods. • **Profit & Loss** – Calculate profit and loss in real-life business scenarios, including revenue, costs, and percentage changes. • **Packaging** – Explore volume, surface area, and cost considerations when designing and selecting packaging. • **Cooking Problems** – Apply ratio, proportion, and scaling to solve real-world cooking and recipe-based problems. • **Climate Worksheet** – Interpret and analyse climate data, including temperature changes, rainfall, and graphs. • **Distance Conversion Graph** – Use and interpret conversion graphs to convert between different units of distance. • **Conversion** – Convert between different units of measurement, including metric and imperial systems.

	• To identify multiples and factors of numbers. • To identify order of operations needed to solve word problems. • To solve calculations using mental arithmetic.		• To learn how to read and write decimals up to 3 decimal places. • Learn how to multiply and divide numbers by 10, 100 and 1000. • To round decimals • Learn how to multiply and divide decimals by integers. • Multiply and divide decimals in context.	• To apply knowledge of multiplication and division to find the mean average in a range of contexts.		• **Airport** – Apply time calculations, currency conversions, and scheduling to real-world airport scenarios. • **Accommodation** – Calculate costs for accommodation, including budgeting for different lengths of stay and price comparisons. • **Budget** – Create and manage a budget, considering income, expenses, and financial planning. • **Time Problems** – Solve complex time-related problems, including timetables, durations, and time zone differences. • **Annual Salary** – Understand and calculate annual salaries, deductions, and tax implications. • **Hourly Rates** – Compare different payment structures, including hourly wages, overtime, and salary-based pay. • **Bills** – Interpret and calculate utility bills, direct debits, and monthly expenses. • **Mortgage** – Explore mortgage calculations, including interest rates, repayment plans, and affordability. • **House** – Understand financial considerations when buying or renting a home, including deposits and repayments.

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Year Group	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Intent of study year 7	The intent of the Year 7 Maths curriculum is to lay a strong foundation in mathematical skills and concepts, ensuring that students develop both confidence and competence in their mathematical abilities. These are foundational concepts not just for mathematics, but for understanding financial literacy, science, and other subjects.					
	Sequences **Algebraic Notation Understand and use algebraic notation** **Equality and Equivalence**	**Place Value and Ordering** **Fractions, Decimals and Percentages** **Equivalence**	**Addition and Subtraction** **Multiplication and Division** **Fractions and Percentages of Amounts**	**Operations and equations with Directed Number** **Addition and Subtraction of Fractions**	**Constructing Measuring and using geometric Notation** **Developing Geometric Reasoning**	**Developing Number Sense** **Sets and Probability** **Prime Numbers and Proof**
	Sequences • Describe and continue a sequence given diagrammatically. • Predict and check the next term of a sequence • Recognise the difference between linear and non-linear sequences. • Continue numerical linear / non-linear sequences • Explain the term-to-term rule of numerical sequences in words. **Algebraic Notation Understand and use algebraic notation** • Use One-step function machines (number) • Use One-step function machines (algebra) • Substitute values into single operation expressions. • Find numerical inputs and outputs for a series of two function machines. • Use diagrams and letters with a series of two function machines. • Find the function machines given a two step expression. • Substitute values into two step expressions. **Equality and Equivalence** • Understand the meaning of equality • Understand and use fact families, numerically and algebraically.	**Place Value and Ordering** • Read and write integers to 10,000 • Understand the place value of a digit in an integer to 10,000 • Use < and > to compare two numbers • Order a list of integers • Work out intervals on a number line • Position integers on a number line • Round numbers to the nearest 10 • Round numbers to the nearest 100 • Round numbers to the nearest 10, 100, and 1,000 • Read and write numbers to 1,000,000 • Understand the place value of a digit in integers up to 1,000,000 **Fractions, Decimals and Percentages Equivalence** • Explore equal parts • Fractions on number lines • Understand the meaning of percentage • Explore tenths • Explore hundredths • Explore a half • Explore quarters • Explore fifths • Explore equivalence	**Addition and Subtraction** • Use number bonds • Add integers • Subtract integers • Solve problems with addition and subtraction • Financial maths • Frequency trees. **Multiplication and Division** • Double and halve • Multiply integers and decimals by 10 • Multiply integers and decimals by 10, 100, and 1,000 • Divide integers and decimals by 10 • Divide integers and decimals by 10, 100, and 1,000 • Multiply up to a four-digit number by a one-digit number • Understand sharing and grouping • Short division • Order of operations • Solve multi-step problems **Fractions and Percentages of Amounts** • Find a fraction of a given amount • Find 10%, 25% and 50% of an amount • Use any unit fraction to find the whole.	**Operations and equations with Directed Number** • Negative numbers and number lines • Order directed numbers • Perform calculations that cross zero • Negative numbers and zero pairs • Add directed numbers • Subtract directed numbers • Add and subtract directed numbers • Multiply directed numbers • Divide directed numbers • Use the four operations with directed numbers **Addition and Subtraction of Fractions** • Add and subtract fractions with the same denominator • Make a whole • Subtract fractions from a whole • Add and subtract fractions crossing 1 • Convert improper fractions to mixed numbers • Convert mixed numbers to improper fractions • Understand and use equivalent fractions • Simplify a fraction • Add and subtract fractions within 1 using equivalence • Add and subtract fractions beyond 1 using equivalence	**Constructing Measuring and using geometric Notation** • Draw and measure line segments • Estimate distances in centimetres and metres • Convert between millimetres, centimetres, and metres • Classify angles (turns) • Estimate the size of a turn in degrees • Protractors • Measure angles using a protractor • Draw angles • Recognise types of triangles • Recognise types of quadrilaterals • Identify polygons up to an octagon **Developing Geometric Reasoning** • Angles in a full turn • Angles in a quadrilateral • Angles in a half turn • Angles in a triangle • Angles in special triangles • Solve angle problems	Continuing **Developing Geometric Reasoning** • Perimeter on a grid • Measure perimeter • Calculate perimeter • Use perimeter to work out side lengths • Work out unknown sides and angles **Developing Number Sense** • Find the area on a grid • Find the area of a rectangle, parallelogram and triangle. • Solve area problems. **Sets and Probability** • The probability scale (words) • The probability scale (0 to 1) • List outcomes • Equally likely events • Experiments with probability • **Prime Numbers and Proof** • Identify factors • Identify prime numbers • Identify multiples • Identify square numbers • Identify triangular numbers • Identify cube numbers • Understand and use counterexamples

	• Simplify by collecting like terms • Solve one step linear equations involving + / - and x / divide using inverse operations. • Solve any 1-step linear equation					
Year Group	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Intent of study year 8	The intent of the Year 8 Maths curriculum is to develop students' understanding of key mathematical concepts through a range of engaging, practical, and challenging activities. We aim to build upon the foundation laid in Year 7, deepening their knowledge in areas studied. Students will be encouraged to apply their mathematical reasoning to real-world problems, fostering critical thinking and problem-solving skills. Our goal is to ensure that every student becomes fluent in mathematical techniques, can reason mathematically, and can solve problems confidently.					
	Ratio and Scale **Multiplicative Change** **Multiplying and dividing fractions**	**Working in the cartesian plane** **Representing data** **Tables & Probability**	**Brackets, equations and inequalities** **Sequences** **Indices**	**Fractions and percentages** **Standard index form** **Number sense**	**Angles in parallel lines and polygons** **Area of trapezia and circles**	**Line symmetry and reflections** **The data handling cycle** **Measures of location**
	Ratio and Scale • Understand ratio • Link ratio and fractions • Simplify ratios • Divide in a given ratio • Use a part to find other amounts Multiplicative Change • The unitary method • Use multipliers • Use recipes • Convert currency • Conversion graphs • Scale diagrams **Multiplying and dividing fractions** • Representations of fractions • Convert improper fractions to mixed numbers • Convert mixed numbers to improper fractions • Simplify fractions • Multiply a fraction by an integer • Multiply a fraction by a fraction	• Work with coordinates in the 1st quadrant • Work with coordinates in all four quadrants • Understand coordinates in all four quadrants • Lines parallel to the axes • Tables of values • Plot graphs of the form y = mx • Plot graphs of the form y = x + c • Plot graphs of the form y = mx + c • Draw straight line graphs • Read and interpret tables and scatter graphs • Plot scatter graphs • Understand linear correlation • Draw and use a line of best fit • Two-way tables • Probability review • Sample space diagrams	Brackets, equations and inequalities • Add and subtract with directed numbers • Collect like terms • Multiply and divide with directed numbers • Expand a single bracket (numerical co-efficient of bracket) • Factorise into a single bracket • Use bar models • Solve 1-step equations • Solve 2-step equations • Solve equations with brackets • Solve equations with fractions • Solve equations in context Sequences • Generate sequences given a rule in words • Generate sequences given a simple algebraic rule • Identify changes in sequences and	Fractions and percentages • Convert fractions and decimals (using equivalence) • Convert fractions and decimals (using a calculator) • Fraction of an amount • Increase or decrease an amount by a fraction • Understand percentages (equivalence) • Find a percentage of an amount with a calculator • Find a percentage of an amount without a calculator • Increase or decrease an amount by a percentage Standard index form • Investigate positive powers of 10 • Multiply by powers of 10 • Convert large numbers to standard form Number sense • Add decimals • Subtract decimals	Angles in parallel lines and polygons • Measure and draw angles • Angles on a straight line • Vertically opposite angles • Angles around a point • Angles in a triangle • Angles in a quadrilateral • Alternate angles • Corresponding angles • Co-interior angles • Angles in parallel lines Area of trapezia and circles • Find the area of squares, rectangles, and parallelograms • Find unknown lengths in rectilinear shapes • Find the area of a rectilinear shape • Find the area of a triangle • Find the area of a compound shape • Find the area of a trapezium	Line symmetry and reflections • Recognise line symmetry • Reflect a shape in a horizontal or vertical line • Reflect a shape in a diagonal line • Reflect a shape in a diagonal line (touching the shape) • Reflect a shape in a diagonal line (not touching the shape) The data handling cycle • Data collection • Ungrouped frequency tables • Grouped frequency tables • Represent data in pictograms • Interpret pictograms • Represent data in bar charts • Interpret bar charts • Represent data in dual bar charts • Interpret dual bar charts • Represent data in pie charts (1) • Angles in sectors of pie charts • Represent data in pie charts (2) • Interpret pie charts Measures of location • Range • Mode • Median • Mean

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			work out the next term Indices • Understanding index notation • Simplifying expressions • Collecting like terms , evaluating expressions learning how to substitute positive and negative numbers into expressions involving powers	• Solve addition and subtraction problems with decimals • Multiply decimals • Divide decimals • Round with decimals		• Use averages and range • Mean from an ungrouped frequency table
Year Group	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Intent of study year 9	The intent of the Year 9 Maths curriculum is to deepen students' understanding of mathematical concepts and prepare them for the challenges of Key Stage 4. Students will build on the knowledge acquired in previous years. Building on earlier learning ensures that students have the foundation needed to approach these complex topics confidently and effectively.					
	Straight Line Graphs Forming and Solving Equations Testing Conjectures	**Three Dimensional Shapes Constructions and Congruency**	**Numbers Using Percentages Maths and Money**	**Deduction Rotation and Translation Pythagoras' Theorem**	**Enlargement and Similarity Solving Ration and Proportion Problems Rates**	**Probability Algebraic Representation Circle Geometry Polygon Geometry**
	Straight Line Graphs • Plot and read coordinates in four quadrants • Lines parallel to the axes • Plot lines of the form y = mx • Plot lines of the form y = x + c • Plot lines of the form y = mx + c • Plot lines of the form x + y = a, y − x = a and x − y = a **Forming and Solving Equations** • Solve 1- and 2-step equations • Solve equations with brackets • Interpret inequalities • Represent inequalities on a number line • Solve 1-step inequalities Solve inequalities with more than one step **Testing Conjectures** • Develop their understanding of factors • and multiples.	**Three Dimensional Shapes** • Identify and name 2-D shapes Identify and name 3-D shapes • Faces, edges and vertices • Nets of cubes and cuboids • Nets of other 3-D shapes • Plans and elevations • Find the area of 2-D shapes • Find the surface area of cubes and cuboids • Find the volume of cubes and cuboids by counting cubes • Find the volume of cubes and cuboids **Constructions and Congruency** • Measure and draw angles up to 180° • Measure and draw angles between 180° and 360° Draw circles and parts of circles Draw SAS triangles Draw ASA triangles Draw SSS triangles	**Numbers** • Order of operations • Use the four operations with integers • Use the four operations with decimals • Add and subtract fractions • Multiply fractions Divide a fraction by an integer • Divide a fraction by a fraction **Using Percentages** • Fraction, decimal and percentage equivalence • Find a percentage of an amount • Find the whole given a percentage • Increase or decrease an amount by a percentage • Express one quantity as a percentage of another • Solve percentage problems **Maths and Money** • Earnings • Taxes • Bills • Budgets • Loans • Holidays	**Deduction** • 1-step angle problems • Angles in triangles • Angles in quadrilaterals • Multi-step angle problems • Solve problems with angles and shapes • Identify angles in parallel lines • Solve problems with angles in parallel lines (with reasons) **Rotation and Translation** • Identify the order of rotational symmetry of a shape • Recognise line symmetry of shapes • Rotate a shape about a point on the shape • Rotate a shape about a point not on the shape • Translate points and line segments • Translate a shape • Describe a translation **Pythagoras' Theorem** • Evaluate squares and square roots • Solve equations with squares and square roots • Identify the hypotenuse of a right-angled triangle • Calculate the hypotenuse of a right-angled triangle • Calculate a shorter side of a right-angled triangle • Calculate an unknown side of a right-angled triangle	**Enlargement and Similarity** • Enlarge a shape on a grid • Enlarge a shape about a point on a grid • Enlarge a shape on coordinate axes • Describe an enlargement • Recognise similar shapes • Work out unknown lengths and angles **Solving Ration and Proportion Problems** • Solve problems with direct proportion • Conversion graphs • Best buy problems • Sharing in a ratio • Solving ratio problems • Inverse proportion **Rates** • Solve speed, distance and time problems without a calculator • Solve speed, distance and time problems with a calculator • Interpret distance-time graphs	**Probability** • Single event probability • Probabilities from Venn diagrams • Probability of an event not happening • Probability experiments • Expected outcomes **Algebraic Representation** • Expand brackets and simplify (numerical coefficient of bracket) • Expand brackets (algebraic coefficient of bracket) • Expand double brackets • Plot quadratic graphs **Circle Geometry** • Find the circumference of a circle • Find the area of a circle • Find the area of composite shapes • Volume of prisms • Volume of cylinders **Polygon Geometry**

	• Develop their knowledge of prime • numbers • Prime numbers Write a number as a product of its prime factors • Create & Interpret Venn diagrams	• Understand congruency Recognise a pair of congruent triangles			• Draw distance–time graphs	• Exterior angles in regular polygons • Interior angles in regular polygons
Year Group	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Intent of study year 10	The intent of the Year 10 Maths curriculum is to provide students with a solid foundation in the key concepts and techniques required for success in the GCSE Mathematics course. Building on their prior knowledge, students will deepen their understanding of topics such as Algebra, Geometry, Probability, Statistics, and number operations, while exploring more advanced areas like quadratic equations, Trigonometry, and Ratio. The curriculum is designed to challenge students and develop their problem-solving skills, logical reasoning, and mathematical fluency, ensuring they are well-prepared for both the exams and real-life applications. These concepts form the basis for the further mathematical study they will encounter in Year 11 and beyond.					
	Congruence, similarity & enlargement **Trigonometry**	**Representing solutions of equations & inequalities**	**Angles & bearings** **Working with circles** **VECTORS**	**<u>Ratios and fractions</u>** **<u>Percentages & Interest</u>** **<u>Probability</u>**	**Collecting, representing & interpreting data**	**Non-calculator methods** **Types of number & sequences** **Indices and roots** **Manipulating expressions**
	Congruence, similarity & enlargement • •Enlarge a shape by a positive integer scale factor (R) • Enlarge a shape by a fractional scale factor (R) • •Identify similar shapes • •Work out missing sides and angles in a given pair of similar shapes • Use parallel line rules to work out missing angles (R) • Establish a pair of triangles are similar • Understand the difference between congruence and similarity • •Understand and use conditions for congruent triangles	**Representing solutions of equations & inequalities** • Understand the meaning of a solution • Form and solve one-step and two-step equations (R) • Form and solve one-step and two-step inequalities (R) • Show solutions to inequalities on a number line • Interpret representation on number lines as inequalities • Draw straight line graphs (R) • • Find solutions to equations using straight line graphs • • Form and solve equations with unknowns on both sides (R) •	**Angles & bearings** • Use cardinal directions and related angles (R) • Draw and interpret scale diagrams (R) • Understand and represent bearings • Measure and read bearings • Make scale drawings using bearings • Calculate bearings using angle rules • Solve bearings problems using Pythagoras and trigonometry • **Working with circles** • Recognise and label parts of a circle (R) • Calculate fractional parts of a circle	**Ratios and fractions** • Compare quantities using a ratio (R) • Link ratios and fractions (R) • Share in a ratio (given total or one part) • Solve best buy problems **<u>Percentages & Interest</u>** • Convert and compare fractions, decimals and percentages (R) • Work out percentages of amounts (with and without a calculator) (R) • Increase and decrease by a given percentage (R) • Express one number as a percentage of another (R) • Calculate simple and compound interest • Find the original value after a percentage **<u>Probability</u>** • Know how to add, subtract and multiply fractions (R) • Find probabilities using equally likely outcomes (R) • Use the property that probabilities sum to 1 (R) • Using experimental data to estimate probabilities	**Collecting, representing & interpreting data** • To Understand populations and samples • To look at primary and secondary data • To Construct and interpret frequency tables and frequency polygons • To Construct and interpret line and bar charts (including composite bar charts) • To Construct and interpret pie charts (R) • To Find and interpret averages from a list (R) • To Find and interpret averages from a table (R) • To Construct and interpret stem-and-leaf diagrams • To Compare distributions using charts and measures	**Non-calculator methods** • Mental/written methods of integer/decimal multiplication and division • The four rules of fraction arithmetic (R) • Estimating answers to calculations (R) • Solve financial maths problems **Types of number & sequences** • To understand the difference between factors and multiples • To Understand primes and express a number as a product of its prime factors (R) • To find the HCF and the LCM of a set of numbers **Indices & roots** • Square and cube numbers (R) • Powers of ten and standard form (R)

	• **Trigonometry** • •Explore ratio in similar right-angled triangles • •Work fluently with the hypotenuse, opposite and adjacent sides • •Use the tangent ratio to find missing side lengths • •Use the sine and cosine ratio to find missing side lengths • •Use the sine, cosine and tangent to find missing side lengths • •Use the sine, cosine and tangent to find missing angles • •Calculate sides in right-angled triangles using Pythagoras' Theorem (R) • •Select the appropriate method to solve right-angled triangle problems • •Work with key angles in right-angled triangles ○	• Form and solve inequalities with unknowns on both sides • • Form and solve more complex equations and inequalities • Simultaneous equations • Understand that equations can have more than one solution • Determine whether a given (x, y) is a solution to a pair of linear simultaneous equations • Solve a pair of linear simultaneous equations by substituting a known variable • Solve a pair of linear simultaneous equations by substituting an expression • Solve a pair of linear simultaneous equations using graphs • Solve a pair of linear simultaneous equations by subtracting equations • Solve a pair of linear simultaneous equations by adding equations • Use a given equation to derive related facts (R) • Solve a pair of linear simultaneous equations by adjusting one equation • Solve a pair of linear simultaneous equations by adjusting both equations • Form a pair of linear simultaneous equations from given information • Form and solve pair of linear simultaneous equations from given information	• Calculate the length of an arc • Calculate the area of a sector • Understand and use the volume of a cylinder and cone • • Understand and use the volume of a sphere • Understand and use the surface area of a sphere • Understand and use the surface area of a cylinder and cone **VECTORS** • Understand and represent vectors • Use and read vector notation • Draw and understand vectors multiplied by a scalar • Draw and understand addition of vectors • Draw and understand addition and subtraction of vectors	• Calculate probability with independent events • Use tree diagrams for independent events	• To Construct and interpret scatter graphs (R) • To Draw and use a line of best fit (R)	• Calculate with numbers in standard form (R) **Manipulating expressions** • To simplify algebraic expressions • To use identities (Collecting like terms) • To Form and solve equations and inequalities with fractions. • To Represent numbers algebraically