

Year 7					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Topic: NUMBER</p> <p>Knowledge and skills covered: Place value systems including base 10 and other bases Addition and subtraction (including decimals) Multiplying and dividing by powers of 10 Multiplication using the grid method (including decimals) Short Division including strategies for decimals Factors, primes and multiples Square and cube numbers Representing the structure of number Establishing the order of operations</p> <p>SOL Intent: We are learning this because By studying other number systems we will gain a better understanding of how number systems work in general.</p> <p>SOL Intent: Factors and multiples are especially important in working with expanding and reducing fractions, as well as finding patterns in numbers. It is a foundation skill required for more advanced applications in mathematics.</p>	<p>Topic: NUMBER</p> <p>Knowledge and skills covered: Negative numbers in context Using negative numbers with all four operations Writing expressions Recognising equivalent expressions Expanding brackets Factorise Forming equations Forming inequalities Recognising sequences Continuing sequences</p> <p>SOL Intent: Learning about integers (negative and positive numbers) make some things easier--in particular, they help us to solve special cases when dealing with subtraction.</p> <p>SOL Intent: learning about equations and expressions helps us to visualize and represent problems in a more user friendly way. It makes the transference from abstract to concrete easier.</p>	<p>Topic: GEOMETRY</p> <p>Knowledge and skills covered: Measuring and drawing angles Angles on a straight line and around a point Angles in parallel lines Creating expressions from angle facts Classifying polygons according to their properties Rotational and line symmetry Internal angle sum of triangles and quadrilaterals Using a ruler, protractor and compasses to construct 2-D shapes Using properties of quadrilaterals and triangles to explore standard constructions.</p> <p>SOL Intent: Angles play vital roles in ascertaining correct sizes, shapes and other essential features of every other object out there.</p> <p>SOL Intent: We learn about constructions and 2D because some of the techniques and principles can be used in more complex constructions; of buildings, furniture, and so on,</p>	<p>Topic: GEOMETRY</p> <p>Knowledge and skills covered: Plotting points in all four quadrants Horizontal and vertical lines Midpoints of line segments Problem solving on a coordinate grid Perimeter of 2D shapes Area of triangles and quadrilaterals Formulae and solving equations Translation, rotation and reflection of an object on a Cartesian plane Enlargement by a positive scale factor</p> <p>SOL Intent: We are learning this because coordinates help with navigation. Coordinates are used on a daily basis to indicate places on maps. The map can show a few streets, a city, or the entire world.</p> <p>SOL Intent: Area is a very important part of building, construction and gardening. Landscaper need to use area to help with their planning buying things like grass and seeds. Also in building and construction they need to know are to work out the amount of materials they need buy for their projects,</p>	<p>Topic: NUMBER</p> <p>Knowledge and skills covered: Prime factor decomposition Equivalent fractions Converting between fractions and decimals Recurring decimals Multiply and divide fractions Fractions of amounts Mixed numbers and improper fractions Addition and subtraction of fractions</p> <p>SOL Intent: Factors and multiples are especially important in working with expanding and reducing fractions, as well as finding patterns in numbers. It is a foundation skill required for more advanced applications in mathematics.</p> <p>SOL Intent: We are learning this as it helps us with our skills in dividing things into equal pieces. It also helps us to make comparisons between quantities.</p>	<p>Topic: RATIO & PROPORTION</p> <p>Knowledge and skills covered: Ratio notation Understand the relationship between ratio and fractions Working with ratios and quantities Equivalence to fractions and decimal fractions Percentage of an amount Percentage increase and decrease Finding the original amount Using percentages, fractions and decimals in different contexts including probability</p> <p>SOL Intent: We are learning this because it allows us to be able to make comparisons between everyday quantities/amounts. Ratios compare values, telling us how much of one thing there is compared to another thing</p> <p>SOL Intent: Percentages are an important part of our everyday lives. They are another way of writing fractions and comparing values like we do with ratios. They are used in the financial, retail and business sectors to give information about products and services.</p>
<p>Milestones/outcomes:</p> <p>HPA: To know how to make generalisation about the number system and to be able to apply these skills to utilising different types of numbers.</p> <p>MPA: To know other bases and to be able to represent types of numbers.</p> <p>Transition: To know base 10 place value system and to be able to identify factors and multiples.</p>	<p>Milestones/outcomes: HPA: To know the rules for all four operations with negative numbers and to be able to apply the rules in context</p> <p>MPA: To know the rules for multiplying & dividing negative numbers and to be able to the rules in context</p> <p>Transition: To know the rules for addition & subtraction of negative number and to be able to the rules in context</p>	<p>Milestones/outcomes:</p> <p>HPA: To know the properties of polygons, angles, parallel lines and use these properties to create and solve expressions.</p> <p>MPA: To know the properties of polygons, angles, parallel lines and to be able to use these to classify polygons</p> <p>Transition: To know the properties of polygons, angles and to be able to measure and draw angles.</p>	<p>Milestones/outcomes:</p> <p>HPA: To know all of the above and to be able to apply them to problems.</p> <p>MPA: To know how to find the area of triangles, to know the types of transformations and to be able to them to problems</p> <p>Transition: To know formulae for the area of triangles and simple quadrilaterals and use them to find areas of shapes, to be able to plot points in all four quadrants</p>	<p>Milestones/outcomes: HPA:</p> <p>To know the rules for all four operations with fractions and to be able to apply them in context.</p> <p>MPA: To know the rules for all four operations with fractions and to be able to apply them to single stage problems</p> <p>Transition: To know multiples, factors and how to add or subtraction fractions and to be able to apply them</p>	<p>Milestones/outcomes:</p> <p>HPA: To know how to calculate a ratio & a percentage and to be able to apply them in context</p> <p>MPA: To know how to calculate a percentage & the meaning of ratio and to be able to calculate a percentage</p> <p>Transition: To know how to calculate a percentage & how a ratio is written and to be able to calculate a simple percentage</p>
<p>ORACY:</p> <p>Use Talk Threes: pupils talk about their ideas with a partner before feeding back to the class.</p> <p>Careers Links: https://icould.com/stories/yogesh-s/ https://icould.com/stories/chris-h-3/</p>	<p>ORACY:</p> <p>Think, Pair, Share: The think, pair, share strategy gives learners more time to think about their responses so they're encouraged to participate.</p> <p>Careers Links: https://icould.com/stories/patrick-h/ https://icould.com/stories/yasmin-k/</p>	<p>ORACY:</p> <p>Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links: https://icould.com/stories/stephen-t-2/</p>	<p>ORACY:</p> <p>Stem Sentences: Use cloze sentences (sentences where words are blocked out) with the correct vocabulary on show so children can just fill in the gaps</p> <p>Careers Links: https://icould.com/stories/shirel-s/ https://icould.com/stories/matt-h-3/ https://icould.com/stories/steve-h-2/</p>	<p>ORACY:</p> <p>Build On: The 'build on' hand signal involves making fists and alternately hitting one on top of the other to indicate they wish to continue the current class discussion and add to what is being spoken about at the time.</p> <p>Careers Links: https://icould.com/stories/matthew-r/</p>	<p>ORACY:</p> <p>The 5:2 Rule: For every two minutes of teacher talk, there are five minutes for an activity of some description.</p> <p>Careers Links: https://icould.com/stories/banking-andfinance-apprenticeships/</p>

Year 8					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Topic: Number Knowledge and skills covered:</p> <p>Prime factors Fractions Percentages Accuracy and estimation</p> <ul style="list-style-type: none"> • Rounding to a given number of decimal places and significant figures • Upper and lower bounds • Estimation <p>SOL Intent: We learn about accuracy and estimation as we sometimes need to work with really small or large numbers and need a more user friendly way of representing these. Also this helps us with looking at the range of possible values for any number.</p> <p>SOL Intent: Percentages are an important part of our everyday lives. They are another way of writing fractions and comparing values like we do with ratios. They are used in the financial, retail and business sectors to give information about products and services.</p>	<p>Topic: Algebra Knowledge and skills covered:</p> <ul style="list-style-type: none"> • Review Year 7 algebra • Forming algebraic equations • Solving equations with unknowns on both sides • Introduce solving equations involving algebraic fractions • Language and symbols • Using a number line • Forming algebraic inequalities • Solving algebraic inequalities with the unknown on both sides • Use graphical representations <p>SOL Intent: Learning algebra helps to develop your critical thinking skills. That includes problem solving, logic, patterns, and reasoning. It allows you to represent abstract concepts with symbols and concrete ideas.</p>	<p>Topic: Geometry & measure Knowledge and skills covered:</p> <p>Unit conversions Perimeter Area Explore relationship between circumference and diameter Calculate area and circumference Area and perimeter of composite shapes Use the formulae to calculate the volume of cubes, prisms and composite solids. Changing between units of volume</p> <p>Recognising and drawing nets of prisms. Use the formulae to calculate the surface area of cubes, prisms and composite solids</p> <p>SOL Intent: We are learning about volume and surface area because they are important concepts in both math and physics. They are useful in constructions and civil engineering.</p> <p>SOL Intent: We are learning about area and circumference because both are the basis for wheels, which are supposed to be the best invention of mankind. Also area of circles is linked to many everyday areas eg. Juice bottles, tunnels and Ferris wheels to name a few.</p>	<p>Topic: DATA HANDLING Knowledge and skills covered: Construct and interpret charts and graphs Mean, mode, median and range Examine outliers Scatter graphs Correlation Constructing a line of best fit Interpolation and extrapolation</p> <p>Basic probability</p> <p>SOL Intent: We are learning this because it is important to be able to analyse and compare different types of data. Univariate data is data related to a single variable. Bivariate data has two variables. We collect bivariate data when we want to examine the relationships between things, or to decide whether one variable may have caused the other.</p>	<p>Topic: GEOMETRY Knowledge and skills covered:</p> <p>Review of Year 7 angles Define the sum of interior and exterior angles of polygons Solve problems involving angles in polygons Understand the conventions of bearings Calculate and measure</p> <p>Construct triangles Constrict quadrilaterals</p> <p>SOL Intent: Angles play vital roles in ascertaining correct sizes, shapes and other essential features of every object such as bridges and buildings.</p> <p>SOL Intent: We are learning this because bearings help with navigation. They are used more by the army, and cruise ships to navigate and give directions,</p>	<p>Topic: Algebra Knowledge and skills covered:</p> <p>Co ordinates Linear graphs Midpoints Equation of a straight line graph. $Y=mx+c$ Measures Real life graphs SDT</p> <p>SOL Intent: We are learning this because coordinates help with navigation. Coordinates are used on a daily basis to indicate places on maps. The map can show a few streets, a city, or the entire world.</p>
<p>Milestones/outcomes: HPA: To know how to calculate percentages and to be able to apply them in context. To be able to use upper and lower bounds in calculations. MPA: To know how to calculate percentages. To be able to identify upper and lower bounds Transition: To know how to calculate percentage and to round numbers.</p>	<p>Milestones/outcomes: HPA: To know how to form & solve equations/inequalities and to be able to form & solve equations/inequalities MPA: To know how to form & solve equations and to be able to form & solve equations Transition: To know how to solve single stage equations and to be able to solve single stage equations</p>	<p>Milestones/outcomes: HPA: To know the formulae for area & circumference, volume & surface area of a 3D shapes and to be able to apply them to composite shapes MPA: To know the formulae for area & circumference, volume & surface area of prisms and to be able to apply them to problems Transition: To know the formulae for area & circumference, volume & surface area of a cuboid and to be able to apply them to simple problems</p>	<p>Milestones/outcomes: HPA: To know graph terminology and to be able to use them to draw conclusions MPA: To know all types of average and to be able to apply to data Transition: To know there are different averages and to be able to calculate each</p>	<p>Milestones/outcomes: HPA: To know the sum of interior and exterior angles of polygons and to be able to apply them to problems involving angles in polygons MPA: To know the conventions of bearings and be able to apply them to problems Transition: To know the rules for angles & parallel lines and to be able to apply them to problems</p>	<p>Milestones/outcomes: HPA: To know how to make links between algebraic & linear representations and to be able to use upper & lower bounds Solve problems with SDT. MPA: To know the key features of a linear graph and to be able to estimate an answer Transition: To know how to plot a linear graph and to be able to calculate speed.</p>
<p>ORACY: Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links: https://icould.com/stories/yasmin-k/</p>	<p>ORACY: Build On: The 'build on' hand signal involves making fists and alternately hitting one on top of the other to indicate they wish to continue the current class discussion and add to what is being spoken about at the time.</p> <p>Careers Links: https://icould.com/stories/yogesh-s/</p>	<p>ORACY: Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links: https://icould.com/stories/stephen-t-2/</p>	<p>ORACY: The 5:2 Rule: For every two minutes of teacher talk, there are five minutes for an activity of some description.</p> <p>Careers Links: https://icould.com/stories/daniel-g/ https://icould.com/stories/anthony-w/</p>	<p>ORACY: Think, Pair, Share: The think, pair, share strategy gives learners more time to think about their responses so they're encouraged to participate.</p> <p>Careers Links: https://icould.com/stories/shirel-s/ https://icould.com/stories/ronnie-g/ https://icould.com/stories/steve-h-2/</p>	<p>ORACY: Use Talk Threes: pupils talk about their ideas with a partner before feeding back to the class</p> <p>Careers Links: https://icould.com/stories/maggiaderin-pocock-mbe/</p>

Year 9					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Topic: NUMBER</p> <p>Knowledge and skills covered:</p> <p>Place Value (including decimals)</p> <p>Estimation</p> <p>Factors and multiples (including HCF and LCM)</p> <p>Multiplication using the grid method (including decimals)</p> <p>Short Division including strategies for decimals</p> <p>Powers and roots</p> <p>Order of operations</p> <p>Calculating with indices</p> <p>Standard form</p> <p>Surds</p> <p>High – Bounds</p> <p>Fractions & recurring decimals</p> <p>Fractional/negative indices</p> <p>SOL Intent: We are learning this as it helps us with our skills in dividing things into equal pieces. It also helps us to make comparisons between quantities.</p> <p>SOL Intent: Learning about indices and standard form is important as indices are another way of showing repeated multiplication and writing large or small numbers in a more concise way. Standard form is also another way of writing very large or small numbers and is often used in engineering, construction and in the medical profession.</p>	<p>Topic: ALGEBRA</p> <p>Knowledge and skills covered:</p> <p>Writing expressions</p> <p>Recognising equivalent expressions</p> <p>Expanding brackets</p> <p>Factorise</p> <p>Forming and solving equations</p> <p>Forming and solving inequalities</p> <p>Changing the subject of the formula</p> <p>Recognising sequences</p> <p>Continuing sequences</p> <p>Nth term</p> <p>High – Quadratics nth term</p> <p>SOL Intent: Learning algebra helps to develop your critical thinking skills. That includes problem solving, logic, patterns, and reasoning. It allows you to represent abstract concepts with symbols and concrete ideas.</p>	<p>Topic: GEOMETRY</p> <p>Knowledge and skills covered:</p> <p>Ruler and compass constructions</p> <p>Congruence</p> <p>Loci</p> <p>Basic angle rules</p> <p>Angles in parallel lines</p> <p>Angles in polygons</p> <p>Using Pythagoras to find missing sides in right angle triangles</p> <p>Using Pythagoras to solve problems with 3D objects</p> <p>Using trigonometric ratios to find unknown angles and sides</p> <p>Solving problems using trigonometric ratios</p> <p>SOL Intent: We learn about constructions and 2D because some of the techniques and principles can be used in more complex constructions; of buildings, furniture, and so on,</p> <p>SOL Intent: We learn about Pythagoras' Theorem because it is essential part in a wide range of fields, from construction and manufacturing to navigation. It is also foundational in other branches of mathematics, much of physics, geology, mechanical and aeronautical engineering. Carpenters use it and so do machinists.</p>	<p>Topic: Algebra</p> <p>Knowledge and skills covered:</p> <p>Inequalities</p> <p>Construct and solve equations and inequalities</p> <p>Coordinates</p> <p>Linear graphs</p> <p>Solving quadratic equations</p> <p>Solve simultaneous equations graphically</p> <p>Solve simultaneous equations algebraically</p> <p>Quadratic graphs</p> <p>Cubic and reciprocal graphs</p> <p>Inequalities</p> <p>Construct and solve equations and inequalities</p> <p>Solving quadratic equations</p> <p>Solve simultaneous equations graphically</p> <p>Solve simultaneous equations algebraically</p> <p>Quadratic graphs</p> <p>High - Solve quadratics by completing the square and using the formula</p> <p>Exponential Graphs</p> <p>SOL Intent: Learning algebra helps to develop your critical thinking skills. That includes problem solving, logic, patterns, and reasoning. Quadratic expressions and equations are also the most common equation to be found in the real world. Bridges, projectile motion, and other kinematic equations uses quadratic equations for precise calculations. Quadratic equations are also needed when you pursue a career path that makes use of science and math such as engineering and physics.</p>	<p>Topic: GEOMETRY</p> <p>Knowledge and skills covered:</p> <p>Perimeter of 2D shapes</p> <p>Area of 2D shapes</p> <p>Perimeter/area of compound shapes</p> <p>Identifying parts of a circle</p> <p>Circumference of a circle</p> <p>Area of a circle</p> <p>Plans, Elevations</p> <p>Nets</p> <p>Surface area of 2D shapes</p> <p>Volume of 3D shapes</p> <p>Surface area and volumes of cones and spheres</p> <p>Volume of pyramids</p> <p>Transformations</p> <p>High - Similar areas and volumes</p> <p>Upper and lower bounds</p> <p>SOL Intent: We are learning about volume and surface area because they are important concepts in both math and physics. They are useful in constructions and civil engineering.</p> <p>SOL Intent: We are learning about area and circumference because both are the basis for wheels, which are supposed to be the best invention of mankind. Also area of circles is linked to many everyday areas eg. Juice bottles, tunnels and Ferris wheels to name a few.</p>	<p>Topic: Statistics</p> <p>Knowledge and skills covered:</p> <p>Averages</p> <p>Frequency tables</p> <p>Two way tables</p> <p>Sampling</p> <p>Stem and leaf</p> <p>Mean from grouped data</p> <p>Comparing data distributions</p> <p>Scatter graphs</p> <p>Identifying correlation</p> <p>Estimating from a line of best fit</p> <p>High – Cumulative frequency</p> <p>Box plots</p> <p>Histograms</p> <p>SOL Intent: We are learning this because it is important to be able to analyse and compare different types of data. Univariate data is data related to a single variable. Bivariate data has two variables. We collect bivariate data when we want to examine the relationships between things, or to decide whether one variable may have caused the other.</p>
<p>Milestones/outcomes: HPA:</p> <p>To know how to calculate standard form & apply laws of indices.</p> <p>MPA: To know how to round and apply to estimation, calculate with powers and roots.</p> <p>Transition: To know how to estimate numbers and understand powers and roots.</p>	<p>Milestones/outcomes:</p> <p>HPA: To know how to form & solve equations/inequalities and to be able to form & solve equations/inequalities</p> <p>MPA: To know how to form & solve equations and to be able to form & solve equations</p> <p>Transition: To know how to solve single stage equations and to be able to solve single stage equations</p>	<p>Milestones/outcomes:</p> <p>HPA: To know constructions & Pythagoras theorem and to be able to use Pythagoras with 3D problems</p> <p>MPA: To know Pythagoras theorem and to be able to find any missing side</p> <p>Transition: To know Pythagoras theorem and to be able to apply to calculating the hypotenuse</p>	<p>Milestones/outcomes:</p> <p>HPA: To know how to set up a simultaneous equations and to be able to solve it algebraically or graphically</p> <p>MPA: To know how to set up a simultaneous equations and to be able to solve it algebraically</p> <p>Transition: To recognise simultaneous equations and to be able to solve them algebraically.</p>	<p>Milestones/outcomes: HPA: To know the formulae for area & circumference, volume & surface area of a 3D shapes and to be able to apply them to composite shapes</p> <p>MPA: To know the formulae for area & circumference, volume & surface area of prisms and to be able to apply them to problems</p> <p>Transition: To know the formulae for area & circumference, volume & surface area of a cuboid.</p>	<p>Milestones/outcomes:</p> <p>HPA: To read and interpret histograms. Draw cumulative frequency graphs.</p> <p>MPA: To know all types of average and to be able to apply to data. To compare data distributions.</p> <p>Transition: To know there are different averages and to be able to calculate each</p>
<p>ORACY:</p> <p>Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links:</p> <p>https://icould.com/stories/yasmin-k/</p>	<p>ORACY:</p> <p>Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links:</p> <p>https://icould.com/stories/yogesh-s/</p>	<p>ORACY:</p> <p>The 5:2 Rule: For every two minutes of teacher talk, there are five minutes for an activity of some description.</p> <p>Careers Links:</p> <p>https://icould.com/stories/shirel-s/</p> <p>https://icould.com/stories/barbara-r/</p>	<p>ORACY:</p> <p>Stem Sentences: Use cloze sentences (sentences where words are blocked out) with the correct vocabulary on show</p> <p>Careers Links:</p> <p>https://icould.com/stories/maggie-aderinpocock-mbe/</p> <p>https://icould.com/stories/anthony-w/</p>	<p>ORACY:</p> <p>Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links:</p> <p>https://icould.com/stories/stephen-t-2/</p>	<p>ORACY:</p> <p>The 5:2 Rule: For every two minutes of teacher talk, there are five minutes for an activity of some description.</p> <p>Careers Links:</p> <p>https://icould.com/stories/daniel-g/</p> <p>https://icould.com/stories/anthony-w/</p>

Year 10					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Topic: NUMBER</p> <p>Knowledge and skills covered: Fractions, decimals & percentages Calculate percentages Percentage increase/decrease Compound interest Reverse percentages Ratio (term 2 2020) Proportion</p> <p><i>SOL Intent: Percentages are an important part of our everyday lives. They are another way of writing fractions and comparing values like we do with ratios. They are used in the financial, retail and business sectors to give information about products and services. SOL Intent: We are learning this because it allows us to be able to make comparisons between everyday quantities/amounts. Ratios compare values, telling us how much of one thing there is compared to another thing.</i></p>	<p>Topic: GEOMETRY</p> <p>Knowledge and skills covered: Ratio proportion Congruent shapes Similar shapes Angle and algebraic proofs Pythagoras theorem Trigonometry Vectors (Term 4 2020)</p> <p>High - 3D Pythagoras and trigonometry Understanding exact values Trigonometric graphs</p> <p><i>SOL Intent: We learn about constructions and 2D because some of the techniques and principles can be used in more complex constructions; of buildings, furniture, and so on,</i></p> <p><i>SOL Intent: We learn about Pythagoras' Theorem because it is essential part in a wide range of fields, from construction and manufacturing to navigation. It is also foundational in other branches of mathematics, much of physics, geology, mechanical and aeronautical engineering. Carpenters use it and so do machinists.</i></p>	<p>Topic: PROBABILITY</p> <p>Knowledge and skills covered: Fractions recap Equivalent Adding/subtracting fractions Multiplying/dividing fractions Theoretical and experimental probability Listing outcomes Two-way tables Frequency trees Venn diagrams and set notations Combined events including tree diagrams</p> <p>High – Conditional probability</p> <p><i>SOL Intent: We are learning this because it is important to be able to analyse and compare different types of data. Univariate data is data related to a single variable. Bivariate data has two variables. We collect bivariate data when we want to examine the relationships between things, or to decide whether one variable may have caused the other.</i></p>	<p>Topic: GEOMETRY</p> <p>Knowledge and skills covered: Translations Rotations Reflections Enlargement Perimeter Area Volume Surface area Vectors</p> <p>High - Combing transformations Negative scale factor for enlargement Circle theorems</p> <p><i>SOL Intent: Area and perimeter are very important parts of the building, construction and gardening industries. Landscaper need to use area to help with their planning buying things like grass and seeds. Also in building and construction they need to know are to work out the amount of materials they need buy for their projects,</i></p>	<p>Topic: ALGEBRA</p> <p>Knowledge and skills covered: Algebra review Expand and factorise quadratics Solving quadratic equations Quadratic graphs Cubic and reciprocal graphs Simultaneous equations</p> <p>High - Exponential graphs Solving quadratics with x^2 coefficient >1 Completing the square Using the quadratic formula Quadratic inequalities Algebraic fractions</p> <p><i>SOL Intent: Learning algebra helps to develop your critical thinking skills. That includes problem solving, logic, patterns, and reasoning. Quadratic expressions and equations re also the most common equation to be found in the real world. Bridges, projectile motion, and other kinematic equations uses quadratic equations for precise calculations. Quadratic equations are also needed when you pursue a career path that makes use of science and math such as engineering and physics.</i></p>	<p>Topic:</p> <p>Knowledge and skills covered: Convert unit lengths, area and volume Imperial/ Metric Speed, distance and time – calculations and graphs – problem solving Density, mass and volume – problems</p> <p>High – Algebraic proof and reasoning Recurrence relations Functions Transformations of graphs Further graphs</p>
<p>Milestones/outcomes:</p> <p>HPA: To know how to calculate ratio/proportion & percentage and to be able to apply them in context</p> <p>MPA: To know how to calculate percentages & ratio. Transition: To know how to calculate percentages</p>	<p>Milestones/outcomes:</p> <p>HPA: To know constructions & Pythagoras theorem and to be able to use Pythagoras with 3D problems</p> <p>MPA: To know Pythagoras theorem and to be able to find any missing side</p> <p>Transition: To know Pythagoras theorem and to be able to apply to calculating the hypotenuse</p>	<p>Milestones/outcomes:</p> <p>HPA: To know how to calculate the probability of combined events and to be able to use tree diagrams</p> <p>MPA: To know the difference between theoretical & experimental probability and to be able to use two way tables</p> <p>Transition: To know how to calculate the probability of single events and to be able to use sample space diagrams</p>	<p>Milestones/outcomes:</p> <p>HPA: To know all of the above and to be able to apply them to problems</p> <p>MPA: To know the formulae needed to find the area of triangles, circles and trapezium.</p> <p>Transition: To know formulae for the area of triangles and simple quadrilaterals</p>	<p>Milestones/outcomes:</p> <p>HPA: To know how to set up a simultaneous equations and to be able to solve it algebraically or graphically</p> <p>MPA: To know how to set up a simultaneous equations and to be able to solve it algebraically</p> <p>Transition: To recognise simultaneous equations and to be able to solve them algebraically.</p>	<p>Milestones/outcomes:</p> <p>HPA: To know how to calculate SDT, MDV and solve problems in context.</p> <p>MPA: To know how to calculate SDT, MDV.</p> <p>Transition: To recognise simultaneous equations and to be able to convert between units and use the formulae for SDT.</p>
<p>ORACY:</p> <p>Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links:</p> <p>https://icould.com/stories/yasmin-k/</p>	<p>ORACY:</p> <p>The 5:2 Rule: For every two minutes of teacher talk, there are five minutes for an activity of some description.</p> <p>Careers Links:</p> <p>https://icould.com/stories/shirel-s/</p> <p>https://icould.com/stories/barbara-r/</p>	<p>ORACY:</p> <p>Give Prompts: Instead of asking a closed or leading question, use prompts such as 'tell me more', or "how did you get to that answer?"</p> <p>Careers Links:</p> <p>https://icould.com/stories/maggie-aderinpocock-mbe/</p>	<p>ORACY:</p> <p>Use Talk Threes: pupils talk about their ideas with a partner before feeding back to the class</p> <p>Careers Links:</p> <p>https://icould.com/stories/naomi-r/</p>	<p>ORACY:</p> <p>Stem Sentences: Use cloze sentences (sentences where words are blocked out) with the correct vocabulary on show</p> <p>Careers Links:</p> <p>https://icould.com/stories/maggie-aderinpocock-mbe/</p> <p>https://icould.com/stories/anthony-w/</p>	<p>ORACY:</p> <p>Use Talk Threes: pupils talk about their ideas with a partner before feeding back to the class</p> <p>Careers Links:</p> <p>https://icould.com/stories/maggie-aderin-pocock-mbe/</p>

Year 11					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Topic: NUMBER</p> <p>Knowledge and skills covered: Special numbers, HCF, LCM Place value Long multiplication/division Product of prime factors Number problems Fractions – adding/subtracting/multiplying/dividing Mixed and improper fractions Problems with fractions Fractions, decimals & percentages Calculate percentages Percentage increase/decrease Compound interest Reverse percentages Angles – basic rules, parallel lines, triangles and quadrilaterals. Angles in polygons Bearings</p> <p>High – Compound growth and decay Standard form Recurring decimals Upper and lower bounds</p> <p>SOL Intent: Percentages are an important part of our everyday lives. They are another way of writing fractions and comparing values like we do with ratios. They are used in the financial, retail and business sectors to give information about products and services.</p>	<p>Topic: ALGEBRA & GEOMETRY</p> <p>Knowledge and skills covered: Algebra – collecting like terms, single brackets, double brackets, factorising. Solving equations Solving quadratics Coordinates Linear graphs Quadratic, cubic and reciprocal graphs. Inequalities – drawing and writing Solving inequalities Shape – Area and Perimeter – Rectangle, triangles, parallelogram, trapezium, circles. Compound shapes. Problem solving. 3D shapes –plans and elevations. Nets Volume Surface area High – Change the subject of a formula The quadratic formula Completing the square Simultaneous equations Algebraic fractions Iterative methods</p> <p>SOL Intent: Learning algebra helps to develop your critical thinking skills. That includes problem solving, logic, patterns, and reasoning. SOL Intent: Area and perimeter are very important parts of the building, construction and gardening industries. Landscaper need to use area to help with their planning buying things like grass and seeds. Also in building and construction they need to know are to work out the amount of materials they need buy for their projects,</p>	<p>Topic: RATIO, DATA & PROBABILITY</p> <p>Graphs and charts Types of data Averages Ratio – Simplifying Writing as fractions Calculating amounts Solving problems Direct and inverse proportion Theoretical and experimental probability Listing outcomes Two-way tables Frequency trees Venn diagrams and set notations Combined events including tree diagrams High – Box plots, interquartile range Histograms Cumulative frequency Conditional probability Congruency Similar shapes</p> <p>SOL Intent: We are learning this because it is important to be able to analyse and compare different types of data. Univariate data is data related to a single variable. Bivariate data has two variables. We collect bivariate data when we want to examine the relationships between things, or to decide whether one variable may have caused the other.</p>	<p>Topic: GEOMETRY</p> <p>Knowledge and skills covered: Sequences Pythagoras Trigonometry Translations Rotations Reflections Enlargement Vectors Construction and loci Midpoint Gradient Equation of a line Convert unit lengths, area and volume Imperial/ Metric Speed, distance and time – calculations and graphs – problem solving Density, mass and volume – problems</p> <p>High – Negative enlargements Quadratic nth term Higher trigonometry Combing transformations Negative scale factor for enlargement Circle theorems</p> <p>SOL Intent: We learn about constructions and 2D because some of the techniques and principles can be used in more complex constructions; of buildings, furniture, and so on, SOL Intent: We learn about Pythagoras' Theorem because it is essential part in a wide range of fields, from construction and manufacturing to navigation. It is also foundational in other branches of mathematics, much of physics, geology, mechanical and aeronautical engineering. Carpenters use it and so do machinists.</p>	<p>Topic: ALGEBRA</p> <p>Knowledge and skills covered: Exam focused revision. Use of past papers and practise questions. A wide range of topics to be covered.</p>	<p>Topic:</p> <p>Knowledge and skills covered: Exams</p>
<p><u>Milestones/outcomes:</u> HPA: To know all of the above and to be able to apply them to problems MPA: To know how to calculate percentages, fractions, use angle rules</p>	<p><u>Milestones/outcomes:</u> HPA: To use the quadratic formula, expand triple brackets, factorise double brackets. Solve problems involving volume and surface area.</p>	<p><u>Milestones/outcomes:</u> HPA: To know how to calculate the probability of combined events and to be able to use tree diagrams. To draw and interpret cumulative frequency and histograms. MPA: To know the difference between theoretical & experimental</p>	<p><u>Milestones/outcomes:</u> HPA: To know all of the above and to be able to apply them to problems MPA: To know apply transformations. Transition: To know reflections and rotations</p>	<p><u>Milestones/outcomes:</u> HPA: To identify gaps and make improvements. MPA: To identify gaps and make improvements Transition: To revise basic rules, formulas and continue practising exam questions.</p>	

<p>Transition: To know how to use place value, solve number problems, calculate percentages</p>	<p>MPA: To know simplify algebraic expressions, solve linear equations, solve problems with area and perimeter. Transition: To know how to calculate area and perimeter, collect like terms.</p>	<p>probability and to be able to use two way tables Transition: To know how to calculate the probability of single events and to be able to use sample space diagrams</p>			
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