

Year 7	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
TOPIC	<p><u>W1/2 - Presentation of data</u> <u>W3/4 - Visualising and constructing</u> <u>W4/5 - Numbers and the number system</u> <u>W6/7 - Counting and comparing</u> <u>W8 - Calculating</u></p>	<p><u>W1/2 - Measuring space</u> <u>W2/3 - Calculating space</u> <u>W3/4 - Investigating properties of shapes</u> <u>W5 - Visualising pt2</u> <u>W6/7 - Angles</u></p>	<p><u>W1/2 - Numbers and the number system</u> <u>W3 - Checking</u> <u>W4 - Exploring FDP</u> <u>W5/6 - Calculating</u></p>	<p><u>W1 - Presenting data (pie charts)</u> <u>W2 - Measuring data</u> <u>W3-5 - Mathematical movement</u> <u>W6 - Counting and comparing</u></p>	<p><u>W1/2 - Algebraic proficiency: tinkering</u> <u>W3/4 - Properties of shape</u> <u>W5 - Patterns</u></p>	<p><u>W1 - Exploring FDP</u> <u>W2 - Proportional reasoning</u> <u>W3 - Understanding risk</u> <u>W5/6 - Solving equations</u> <u>W6/7 - Calculating FDP</u></p>
KNOWLEDGE TAUGHT	<p>Presentation of data</p> <ul style="list-style-type: none"> Interpret and construct frequency tables Construct and interpret bar charts and know their appropriate use Construct and interpret comparative bar charts Construct and interpret vertical line charts Choose appropriate graphs or charts to represent data <p>Visualising and constructing</p> <ul style="list-style-type: none"> Identify line and rotational symmetry in polygons Understand and use labelling notation for lengths and angles <p>Numbers and the number system</p> <ul style="list-style-type: none"> Recognise and use triangular numbers Recognise and use square and cube numbers Read, write and evaluate powers Define and find square roots (including using the $\sqrt{\quad}$ symbol) Define and find cube roots (including using the $\sqrt[3]{\quad}$ symbol), including the use of a scientific calculator Define and find other roots (including using the $\sqrt{\quad}$ symbol), including the use of a scientific calculator <p>Counting and comparing</p> <ul style="list-style-type: none"> Use the signs $<$, $>$ and $=$ to compare numbers Use a compound inequality to compare three or more numbers (e.g. $-1 < 0.5 < 4$) Order a set of integers Order a set of decimals <p>Calculating</p> <ul style="list-style-type: none"> Multiply a positive integer by a power of 10 Divide a positive integer by a power of 10 Add numbers up to six-digits using a formal written method Subtract numbers up to six-digits using a formal written method Multiply a number up to four-digits by a one or two-digit number using a formal written method Divide a number up to four-digits by a one or two-digit number using a formal written method 	<p>Measuring space</p> <ul style="list-style-type: none"> Convert fluently between metric units of length Convert fluently between metric units of mass Convert fluently between metric units of volume / capacity Convert fluently between units of time Convert fluently between units of money <p>Calculating space</p> <ul style="list-style-type: none"> Calculate perimeters of 2D shapes Use and apply the formula to calculate the area of triangles Use and apply the formula to calculate the area of trapezia <p>Investigating properties of shapes</p> <ul style="list-style-type: none"> Know the connection between faces, edges and vertices in 3D shapes Recognise and use nets of 3D shapes Know and solve problems using the properties and definitions of triangles Know and solve problems using the properties and definitions of special types of quadrilaterals (including diagonals) Know and solve problems using the properties of other plane figures <p>Visualising pt2</p> <ul style="list-style-type: none"> Use ruler and protractor to construct triangles, and other shapes, from written descriptions Use ruler and compasses to construct triangles when all three sides known <p>Angles</p> <ul style="list-style-type: none"> Recognise and solve problems using vertically opposite angles Recognise and solve problems using angles at a point 	<p>Numbers and the number system</p> <ul style="list-style-type: none"> Find prime numbers and test numbers to see if they are prime Find common factors of numbers Find the highest common factor of numbers in simple cases, including co-prime examples Find common multiples of numbers Recognise and solve problems involving the lowest common multiple <p>Checking</p> <ul style="list-style-type: none"> Round a number to a specified number of decimal places Round a number to one significant figure Estimate calculations by rounding numbers to one significant figure <p>Exploring FDP</p> <ul style="list-style-type: none"> Write one quantity as a fraction of another where the fraction is less than 1 Write one quantity as a fraction of another where the fraction is greater than 1 <p>Calculating</p> <ul style="list-style-type: none"> Multiply a decimal by a power of 10 Divide a decimal by a power of 10 Add decimals with the same, and different, number of decimal places Subtract decimals with the same, and different, number of decimal places Transform a multiplication involving decimals to a corresponding multiplication with integers Multiply a large integer up to four-digits by a decimal of up to 2dp using integer multiplication 	<p>Presenting data (pie charts)</p> <ul style="list-style-type: none"> Construct and interpret pie charts and know their appropriate use <p>Measuring data</p> <ul style="list-style-type: none"> Find the mode of set of data Find the median of a set of data including when there are an even number of numbers in the data set Calculate the mean from a frequency table Find the mode from a frequency table Find the median from a frequency table Calculate and understand the range as a measure of spread (or consistency) <p>Analyse and compare sets of data, appreciating the limitations of different statistics (mean, median)</p> <p>Mathematical movement</p> <ul style="list-style-type: none"> Solve geometrical problems on coordinate axes Write the equation of a line parallel to the x-axis or the y-axis Identify and draw the lines $y = x$ and $y = -x$ Construct and describe reflections in horizontal, vertical and diagonal mirror lines (45° from horizontal) Describe a translation as a 2D vector Construct and describe rotations using a given angle, direction and centre of rotation Solve problems involving rotations, reflections and translations <p>Counting and comparing</p> <ul style="list-style-type: none"> Order a set of integers and decimals 	<p>Algebraic proficiency: tinkering</p> <ul style="list-style-type: none"> Know the meaning of expression, term, formula, equation, function Know and use basic algebraic notation (the 'rules' of algebra) Simplify a simple expression by collecting like terms Simplify more complex expressions by collecting like terms Substitute positive numbers into expressions and formulae Given a function, establish outputs from given inputs and inputs from given outputs <p>Properties of shape</p> <ul style="list-style-type: none"> Know the connection between faces, edges and vertices in 3D shapes Recognise and use nets of 3D shapes Know and solve problems using the properties and definitions of triangles Know and solve problems using the properties and definitions of special types of quadrilaterals (including diagonals) Know and solve problems using the properties of other plane figures <p>Patterns</p> <ul style="list-style-type: none"> Recognise simple arithmetic progressions Use a term-to-term rule to generate a linear sequence Use a term-to-term rule to generate a non-linear sequence 	<p>Exploring FDP</p> <ul style="list-style-type: none"> Write a percentage as a fraction Write a quantity as a percentage of another <p>Proportional reasoning</p> <ul style="list-style-type: none"> Describe a comparison of measurements or objects using ratio notation a:b Simplify a ratio by cancelling common factors Divide a quantity in two parts in a given part:part ratio Divide a quantity in two parts in a given part:whole ratio <p>Understanding risk</p> <ul style="list-style-type: none"> Know and use the vocabulary of probability Understand the use of the 0-1 scale to measure probability List all the outcomes for an experiment, including the use of tables Work out theoretical probabilities for events with equally likely outcomes Know that the sum of probabilities for all outcomes is 1 Apply the fact that the sum of probabilities for all outcomes is 1 <p>Solving equations</p> <ul style="list-style-type: none"> Solve one-step equations when the solution is a positive integer or fraction Solve two-step equations when the solution is a positive integer or fraction Solve three-step equations when the solution is a positive integer or fraction Solve multi-step equations including the use of brackets when the solution is a positive integer or fraction Solve equations when the solution is an integer or fraction

	<ul style="list-style-type: none"> Apply the order of operations to multi-step calculations involving up to four operations and brackets 	<ul style="list-style-type: none"> Recognise and solve problems using angles at a point on a line 	<ul style="list-style-type: none"> Use a formal method to divide a decimal by an integer < 10 Use a formal method to divide a decimal by an integer greater than 10 Transform a calculation involving the division of decimals to an equivalent division involving integers Apply the order of operations to multi-step calculations involving up to four operations and brackets 	<ul style="list-style-type: none"> Order fractions with the same denominator or denominators are a multiple of each other Order fractions where the denominators are not multiples of each other Order mixed numbers and fractions Order a combination of integers, decimals, fractions and mixed numbers 		<p>Calculating FDP</p> <ul style="list-style-type: none"> Add proper and improper fractions Add mixed numbers Subtract proper and improper fractions Subtract mixed numbers Multiply proper and improper fractions Multiply mixed numbers Divide a proper fraction by a proper fraction Divide improper fractions Divide a mixed number by a proper fraction/mixed number
<p>SKILLS DEVELOPED (Include any trips and visits.)</p>	<ul style="list-style-type: none"> Use positive integer powers and associated real roots Check calculations using approximation, estimation or inverse operations Understand and use geometric notation for labelling angles, lengths, equal lengths and parallel lines Interpret different tables and charts 	<ul style="list-style-type: none"> Apply the four operations with decimal numbers Calculate perimeters and areas. Understand and apply the rules of angles. 	<ul style="list-style-type: none"> Write a quantity as a fraction or percentage of another Calculate with decimals 	<ul style="list-style-type: none"> Solve linear equations in one unknown Understand and use lines parallel to the axes, $y = x$ and $y = -x$ 	<ul style="list-style-type: none"> Simplify and manipulate expressions by collecting like terms Substitute numbers into formulae 	<ul style="list-style-type: none"> Add, subtract, multiply and divide with fractions and mixed numbers Use multiplicative reasoning to interpret percentage change
<p>ASSESSMENTS (Minimum two per half term, with focussed marking.)</p>	1. Baseline test	1. Knowledge check 1 2. PUMA Autumn	1. Knowledge check 1 2. Knowledge check 2	1. Knowledge check 1 2. PUMA Spring	1. Knowledge check 1 2. Knowledge check 2	1. Knowledge check 1 2. PUMA Summer
<p>HOME LEARNING (To be made available via Century Tech; one per week.)</p>	1. Hegarty homework x2 2. Hegarty homework x2 3. Hegarty homework x2 4. Hegarty homework x2 5. Hegarty homework x2 6. Hegarty homework x2 7. Hegarty homework x2 8. Hegarty homework x2	1. Hegarty homework x2 2. Hegarty homework x2 3. Hegarty homework x2 4. Hegarty homework x2 5. Hegarty homework x2 6. Hegarty homework x2 7. Hegarty homework x2	1. Hegarty homework x2 2. Hegarty homework x2 3. Hegarty homework x2 4. Hegarty homework x2 5. Hegarty homework x2 6. Hegarty homework x2	1. Hegarty homework x2 2. Hegarty homework x2 3. Hegarty homework x2 4. Hegarty homework x2 5. Hegarty homework x2 6. Hegarty homework x2	1. Hegarty homework x2 2. Hegarty homework x2 3. Hegarty homework x2 4. Hegarty homework x2 5. Hegarty homework x2	1. Hegarty homework x2 2. Hegarty homework x2 3. Hegarty homework x2 4. Hegarty homework x2 5. Hegarty homework x2 6. Hegarty homework x2 7. Hegarty homework x2
<p>SEQUENCING (What must students already have been taught in order to begin to learn this topic? Identify opportunities to address knowledge gaps)</p>	<p>Presentation of data</p> <ul style="list-style-type: none"> Construct and interpret a pictogram Construct and interpret a bar chart Construct and interpret a line graph Understand that pie charts are used to show proportions Use a template to construct a pie chart by scaling frequencies <p>Visualising and constructing</p> <ul style="list-style-type: none"> Use a ruler to measure and draw lengths to the nearest millimetre Use a protractor to measure and draw angles to the nearest degree <p>Number and the number system</p> <ul style="list-style-type: none"> Know how to find common multiples of two given numbers 	<p>Measuring space</p> <ul style="list-style-type: none"> Convert between metric units Use decimal notation up to three decimal places when converting metric units Convert between common Imperial units; e.g. feet and inches, pounds and ounces, pints and gallons Convert between units of time Use 12- and 24-hour clocks, both analogue and digital <p>Calculating space</p> <ul style="list-style-type: none"> Understand the meaning of area, perimeter, volume and capacity 	<p>Numbers and the number system</p> <ul style="list-style-type: none"> Know how to find common multiples of two given numbers Know how to find common factors of two given numbers Recall multiplication facts to 12×12 and associated division facts <p>Checking</p> <ul style="list-style-type: none"> Approximate any number by rounding to the nearest 10, 100 or 1000, 10 000, 100 000 or 1 000 000 Approximate any number with one or two decimal places by rounding to the nearest whole number 	<p>Presentation of data</p> <ul style="list-style-type: none"> Understand that pie charts are used to show proportions Use a template to construct a pie chart by scaling frequencies <p>Measuring data</p> <ul style="list-style-type: none"> Understand the meaning of 'average' as a typicality (or location) Calculate the mean of a set of data <p>Mathematical movement</p> <ul style="list-style-type: none"> Work with coordinates in all four quadrants Carry out a reflection in a given vertical or horizontal mirror line Carry out a translation 	<p>Algebraic proficiency: tinkering</p> <ul style="list-style-type: none"> Use symbols (including letters) to represent missing numbers Substitute numbers into worded formulae Substitute numbers into simple algebraic formulae Know the order of operations <p>Properties of shape</p> <ul style="list-style-type: none"> Know the names of common 3D shapes Know the meaning of face, edge, vertex Understand the principle of a net Know the names of special triangles 	<p>Exploring FDP</p> <ul style="list-style-type: none"> Understand the concept of a fraction as a proportion Understand the concept of equivalent fractions Understand the concept of equivalence between fractions and percentages <p>Proportional reasoning</p> <ul style="list-style-type: none"> Find common factors of pairs of numbers Convert between standard metric units of measurement Convert between units of time Recall multiplication facts for multiplication tables up to 12×12

