

	Year 6 Term Autumn Teacher Ability group	Block A Counting, partitioning and calculating Unit 1 No.of lessons 10 Week beg
<p>Support</p> <ul style="list-style-type: none"> Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34) Use efficient written methods to add and subtract whole numbers and decimals with up to two places Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9) Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000 Extend mental methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12×9), to multiply by 25 (e.g. 16×25), to subtract one near-multiple of 1000 from another (e.g. $6070 - 4097$) Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations Present a spoken argument, sequencing points logically, defending views with evidence and making use of persuasive language 	<p>Core Objectives</p> <ul style="list-style-type: none"> Find the difference between a positive and a negative integer, or two negative integers, in context Use decimal notation for tenths, hundredths and thousandths; partition, round and Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$ Explain reasoning and conclusions, using words, symbols or diagrams as appropriate Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$) Use a calculator to solve problems involving multi-step calculations Use approximations, inverse operations and tests of divisibility to estimate and check results Use a range of oral techniques to present persuasive argument 	<p>Extension</p> <ul style="list-style-type: none"> Understand and use decimal notation and place value; multiply and divide integers and decimals by 10, 100, 1000, and explain the effect. Compare and order decimals in different contexts; know that when comparing measurements they must be in the same units. Understand negative numbers as positions on a number line; order, add and subtract positive and negative integers in context. Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10, and quickly derive associated division facts. Make and justify estimates and approximations of calculations. Use standard column procedures to add and subtract whole numbers and decimals with up to two places. Enter numbers and interpret the display in different contexts (decimals, money). Solve word problems and investigate in a range of contexts: number; compare and evaluate solutions.

	Year 6 Term Autumn Teacher Ability group	Block B Securing number facts, understanding shape Unit 1 No.of lessons 15 Week beg
<p><u>Support</u></p> <ul style="list-style-type: none"> Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9) Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations Use efficient written methods to add and subtract whole numbers and decimals with up to two places Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes Identify different question types and evaluate impact on audience 	<p><u>Core Objectives</u></p> <ul style="list-style-type: none"> Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols (e.g. the cost of c pens at 15 pence each is $15c$ pence) Use knowledge of multiplication facts to derive quickly squares of numbers to 12×12 and the corresponding squares of multiples of 10 Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$) Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers Use approximations, inverse operations and tests of divisibility to estimate and check results Describe, identify and visualise parallel and perpendicular edges or faces; use these properties to classify 2-D shapes and 3-D solids Make and draw shapes with increasing accuracy and apply knowledge of their properties. Use a protractor or angle measurer to measure acute and obtuse angles to the nearest degree. Use a range of oral techniques to present persuasive argument 	<p><u>Extension</u></p> <ul style="list-style-type: none"> Use 2-D representations to visualise 3-D shapes and deduce some of their properties. Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area. Know and use the formula for the area of a rectangle; calculate the perimeter and area of shapes made from rectangles. Calculate the surface area of cubes and cuboids Solve word problems and investigate in a range of contexts: length, perimeter and area. Generate and describe simple integer sequences Generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in the sequence) Generate sequences from practical contexts and describe the general term in simple cases Use letter symbols to represent unknown numbers or variables.

	Year 6 Term Autumn Teacher Ability group	Block C Handling data and measures Unit 1 No.of lessons 10 Week beg
<p><u>Support</u></p> <ul style="list-style-type: none"> Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time Find and interpret the mode of a set of data Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6kg to 2600g) Interpret a reading that lies between two unnumbered divisions on a scale Plan and manage a group task over time by using different levels of planning 	<p><u>Core Objectives</u></p> <ul style="list-style-type: none"> Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa) Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, for example when using different instruments Make notes when listening for a sustained period and discuss how note-taking varies depending on context and purpose 	<p><u>Extension</u></p> <ul style="list-style-type: none"> Calculate statistics for small sets of discrete data: find the mode, median and range, and the modal class for grouped data; Calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. Interpret diagrams and graphs (including pie charts), and draw conclusions based on the shape of graphs and simple statistics for a single distribution. Use vocabulary and ideas of probability, drawing on experience Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event

	Year 6 Term Autumn Teacher Ability group	Block D Calculating, measuring and understanding shape Unit 1 No.of lessons 10 Week beg	
<p>Support</p> <ul style="list-style-type: none"> Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000 Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $\frac{3}{4}$ of 150g); interpret the display correctly in the context of measurement Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6kg to 2600g) Interpret a reading that lies between two unnumbered divisions on a scale Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides Plan and manage a group task over time by using different levels of planning 	<p>Core Objectives</p> <ul style="list-style-type: none"> Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use Calculate mentally with integers and decimals: $U \pm U$, $TU \times U$, $TU \div U$, $U \times U$, $U \div U$ Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer Use a calculator to solve problems involving multi-step calculations Use approximations, inverse operations and tests of divisibility to estimate and check results Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa) Solve problems by measuring, estimating and calculating; measure and calculate using imperial units still in everyday use; know their approximate metric values Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, for example when using different instruments Calculate the perimeter and area of rectilinear shapes; estimate the area of an irregular shape by counting squares Use a range of oral techniques to present persuasive argument 	<p>Extension</p> <ul style="list-style-type: none"> Consolidate and extend mental methods of calculation to include decimals, fractions and percentages accompanied where appropriate by suitable jottings; solve simple word problems mentally. Check a result by considering whether it is of the right order of magnitude and by working the problem backwards Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT Present and interpret solutions in the context of the original problem; explain and justify methods and conclusions, orally and in writing. Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes. Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle and recognise vertically opposite angles Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals Use conventions and notation for 2-D coordinates in all four quadrants; find coordinates of points determined by geometric information. Use angle measure; distinguish between and estimate the size of acute, obtuse and reflex angles 	

	Year 6 Term Autumn Teacher Ability group	Block E Securing number facts, relationships and calculating Unit 1 No.of lessons 15 Week beg	
<p>Support</p> <ul style="list-style-type: none"> • Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem • Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use • Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols • Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is $\frac{5}{8}$); find equivalent fractions (e.g. $\frac{7}{10} = \frac{14}{20}$, or $\frac{19}{10} = 1\frac{9}{10}$); relate fractions to their decimal representations • Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts • Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9) • Extend mental methods for whole-number calculations, for example to multiply a two-digit number by a one-digit number (e.g. 12×9), to multiply by 25 (e.g. 16×25), to subtract one near-multiple of 1000 from another (e.g. $6070 - 4097$) • Refine and use efficient written methods to multiply and divide HTU \times U, TU \times TU, U.t \times U and HTU \div U • Find fractions using division (e.g. $\frac{1}{100}$ of 5kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80) • Use a calculator to solve problems, including those involving decimals or fractions (e.g. find $\frac{3}{4}$ of 150g); interpret the display correctly in the context of measurement • Present a spoken argument, sequencing points logically, defending views with evidence and making use of persuasive language 	<p>Core Objectives</p> <ul style="list-style-type: none"> • Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy • Explain reasoning and conclusions, using words, symbols or diagrams as appropriate • Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use • Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$) • Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer • Use a calculator to solve problems involving multi-step calculations • Express a larger whole number as a fraction of a smaller one (e.g. recognise that 8 slices of a 5-slice pizza represents $\frac{8}{5}$ or $1\frac{3}{5}$ pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator • Relate fractions to multiplication and division (e.g. $6 \div 2 = \frac{1}{2}$ of 6 = $6 \times \frac{1}{2}$); express a quotient as a fraction or decimal (e.g. $67 \div 5 = 13.4$ or $13\frac{2}{5}$); find fractions and percentages of whole-number quantities (e.g. $\frac{5}{8}$ of 96, 65% of £260) • Solve simple problems involving direct proportion by scaling quantities up or down • Participate in a whole-class debate using the conventions and language of debate, including Standard English 	<p>Extension</p> <ul style="list-style-type: none"> • Use fraction notation to describe parts of shapes and to express a smaller whole number as a fraction of a larger one; simplify fractions by cancelling all common factors and identify equivalent fractions; convert terminating decimals to fractions e.g. $0.23 = \frac{23}{100}$; use a diagram to compare two or more simple fractions. • Begin to add and subtract simple fractions and those with common denominators; calculate simple fractions of quantities and measurements (whole-number answers); multiply a fraction by an integer. • Understand percentage as the 'number of parts per 100'; recognise the equivalence of percentages, fractions and decimals; calculate simple percentages. • Use letter symbols to represent unknown numbers or variables; know the meanings of the words <i>term</i>, <i>expression</i> and <i>equation</i> • Understand that algebraic operations follow the same conventions and order as arithmetic operations • Simplify linear algebraic expressions by collecting like terms; begin to multiply a single term over a bracket (integer coefficients). • Identify the necessary information to solve a problem; represent problems mathematically, making correct use of symbols, words, diagrams and tables 	

Year	6	Block	A Counting, partitioning and calculating
Term	Spring	Unit	2
Teacher		No.of lessons	10
Ability group		Week beg	

Support

- Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols
- Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use
- Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line
- Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers
- Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7 , half of 5.6, double 0.34)
- Use efficient written methods to add and subtract whole numbers and decimals with up to two places
- Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts
- Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9)
- Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000
- Extend mental methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12×9), to multiply by 25 (e.g. 16×25), to subtract one near multiple of 1000 from another (e.g. $6070 - 4097$)
- Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $\frac{3}{4}$ of 150 g); interpret the display correctly in the context of measurement
- Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations
- Analyse the use of persuasive language

Core Objectives

- Explain reasoning and conclusions, using words, symbols or diagrams as appropriate
- Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use
- Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line
- Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7 , $4.8 \div 6$)
- Calculate mentally with integers and decimals: $U \pm U$, $TU \times U$, $TU \div U$, $U \times U$, $U \div U$
- Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer
- Use a calculator to solve problems involving multi-step calculations
- Use approximations, inverse operations and tests of divisibility to estimate and check results
- Participate in a whole-class debate using the conventions and language of debate

Extension

- Round positive whole numbers to the nearest 10, 100 or 1000 and decimals to the nearest whole number or one decimal place.
- Understand addition, subtraction, multiplication and division as they apply to whole numbers and decimals; know how to use the laws of arithmetic and inverse operations.
- Make and justify estimates and approximations of calculations
- Consolidate and extend mental methods of calculation to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple word problems mentally
- Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers
- Know and use the order of operations, including brackets Use the square root key.
- Carry out calculations with more than one step using brackets and the memory; use the square root and sign change keys

	Year 6 Term Spring Teacher Ability group	Block B Securing number facts, understanding shape Unit 2 No.of lessons 15 Week beg
<p><u>Support</u></p> <ul style="list-style-type: none"> Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34) Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation Present a spoken argument, sequencing points logically, defending views with evidence and making use of persuasive language 	<p><u>Core Objectives</u></p> <ul style="list-style-type: none"> Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols (e.g. the cost of c pens at 15 pence each is $15c$ pence) Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy Use knowledge of multiplication facts to derive quickly squares of numbers to 12×12 and the corresponding squares of multiples of 10 Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$) Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers Use approximations, inverse operations and tests of divisibility to estimate and check results Use a calculator to solve problems involving multi-step calculations Describe, identify and visualise parallel and perpendicular edges or faces; use these properties to classify 2-D shapes and 3-D solids Make and draw shapes with increasing accuracy and apply knowledge of their properties Use a variety of ways to criticise constructively and respond to criticism 	<p><u>Extension</u></p> <ul style="list-style-type: none"> Recognise and use multiples, factors (divisors), common factor and primes (less than 100); use simple tests of divisibility Recognise the first few triangular numbers, squares of numbers to at least 12×12, and the corresponding roots. Generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in the sequence). Generate sequences from practical contexts and describe the general term in simple cases. Express simple functions in words, then using symbols; represent them in mappings. Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions, where y is given explicitly in terms of x, on paper and using ICT; recognise straight-line graphs parallel to the x-axis or y-axis Solve word problems and investigate in a range of contexts: number and algebra Identify the necessary information to solve a problem; represent problems mathematically, making correct use of symbols, words, diagrams, tables and graphs Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text. Use 2-D representations to visualise 3-D shapes and deduce some of their properties.

	Year 6 Term Spring Teacher Ability group	Block C Handling data and measures Unit 2 No.of lessons 10 Week beg	
<p><u>Support</u></p> <ul style="list-style-type: none"> Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time Describe the occurrence of familiar events using the language of chance or likelihood Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6kg to 2600g) Interpret a reading that lies between two unnumbered divisions on a scale Understand the process of decision making 	<p><u>Core Objectives</u></p> <ul style="list-style-type: none"> Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa) Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, for example when using different instruments Describe and predict outcomes from data using the language of chance or likelihood Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts Describe and interpret results and solutions to problems using the mode, range, median and mean Use a calculator to solve problems involving multi-step calculations Use a range of oral techniques to present persuasive argument 	<p><u>Extension</u></p> <ul style="list-style-type: none"> Given a problem that can be addressed by statistical methods, suggest possible answers Decide which data would be relevant to an enquiry and possible sources Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data, grouped where appropriate in equal class intervals Collect small sets of data from surveys and experiments as planned Construct, on paper and using ICT, graphs and diagrams to represent data, including: bar-line graphs and frequency diagrams for grouped discrete data - use ICT to generate pie charts Interpret diagrams and graphs (including pie charts) and draw simple conclusions based on the shape of the graphs Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area, mass, capacity and time; <ul style="list-style-type: none"> convert one metric unit to another (e.g. grams to kilograms); Read and interpret scales on a range of measuring instruments. 	

	Year 6 Term Spring Teacher Ability group	Block D Calculating, measuring and understanding shape Unit 2 No.of lessons 10 Week beg
<p>Support</p> <ul style="list-style-type: none"> Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000 Use efficient written methods to add and subtract whole numbers and decimals with up to two places Refine and use efficient written methods to multiply and divide $HTU \times U$, $TU \times TU$, $U.t \times U$ and $HTU \div U$ Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $\frac{3}{4}$ of 150g); interpret the display correctly in the context of measurement Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6kg to 2600g) Interpret a reading that lies between two unnumbered divisions on a scale Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area Understand the process of decision making 	<p>Core Objectives</p> <ul style="list-style-type: none"> Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$ Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer Use a calculator to solve problems involving multi-step calculations Use approximations, inverse operations and tests of divisibility to estimate and check results Estimate angles, and use a protractor to measure and draw them, on their own and in shapes; calculate angles in a triangle or around a point Use coordinates in the first quadrant to draw, locate and complete shapes that meet given properties Read and plot co-ordinates in all four quadrants Visualise and draw on grids of different types where a shape will be after reflection, after translations, or after rotation through 90° or 180° about its centre or one of its vertices Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa) Participate in a whole-class debate using the conventions and language of debate 	<p>Extension</p> <ul style="list-style-type: none"> Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT Present and interpret solutions in the context of the original problem; explain and justify methods and conclusions, orally and in writing Check a result by considering whether it is of the right order of magnitude and by working the problem backwards Use a ruler and protractor to: measure and draw lines to nearest millimetre and angles, including reflex angles, to the nearest degree; construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA); explore these constructions using ICT Solve word problems and investigate in a range of contexts: handling data

	Year 6 Term Spring Teacher Ability group	Block E Securing number facts, relationships and calculating Unit 2 No.of lessons 15 Week beg
<p>Support</p> <ul style="list-style-type: none"> • Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem • Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols • Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is $\frac{5}{8}$); find equivalent fractions (e.g. $\frac{7}{10} = \frac{14}{20}$, or $\frac{19}{10} = 1\frac{9}{10}$); relate fractions to their decimal representations • Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages • Use sequences to scale numbers up or down; solve problems involving proportions of quantities (e.g. decrease quantities in a recipe designed to feed six people) • Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34) • Find fractions using division (e.g. $\frac{1}{100}$ of 5kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80) • Use a calculator to solve problems, including those involving decimals or fractions (e.g. find $\frac{3}{4}$ of 150g); interpret the display correctly in the context of measurement • Understand the process of decision making 	<p>Core Objectives</p> <ul style="list-style-type: none"> • Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy • Explain reasoning and conclusions, using words, symbols or diagrams as appropriate • Use a calculator to solve problems involving multi-step calculations • Express a larger whole number as a fraction of a smaller one (e.g. recognise that 8 slices of a 5-slice pizza represents $\frac{8}{5}$ or $1\frac{3}{5}$ pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator • Relate fractions to multiplication and division (e.g. $6 \div 2 = \frac{1}{2}$ of $6 = 6 \times \frac{1}{2}$); express a quotient as a fraction or decimal (e.g. $67 \div 5 = 13.4$ or $13\frac{2}{5}$); find fractions and percentages of whole-number quantities (e.g. $\frac{5}{8}$ of 96, 65% of £260) Relate fractions to multiplication and division (e.g. $6 \div 2 = \frac{1}{2}$ of $6 = 6 \times \frac{1}{2}$); express a quotient as a fraction or decimal (e.g. $67 \div 5 = 13.4$ or $13\frac{2}{5}$); find fractions and percentages of whole-number quantities (e.g. $\frac{5}{8}$ of 96, 65% of £260) • Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions • Solve simple problems involving ratio and proportion • Solve simple problems involving direct proportion by scaling quantities up or down • Understand and use a variety of ways to criticise constructively and respond to criticism 	<p>Extension</p> <ul style="list-style-type: none"> • Recognise the equivalence of percentages, fractions and decimals calculate simple percentages and use percentages to compare simple proportions. • Understand the relationship between ratio and proportion; use direct proportion in simple contexts; use ratio notation, reduce a ratio to its simplest form and divide a quantity into two parts in a given ratio; solve simple problems about ratio and proportion using informal strategies. • Check a result by considering whether it is of the right order of magnitude and by working the problem backwards • Use letter symbols to represent unknown numbers or variables; know the meanings of the words <i>term</i>, <i>expression</i> and <i>equation</i> • Understand that algebraic operations follow the same conventions and order as arithmetic operations • Simplify linear algebraic expressions by collecting like terms; begin to multiply a single term over a bracket (integer coefficients). • Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations).

	Year 6 Term Summer Teacher Ability group	Block A Counting, partitioning and calculating Unit 3 No.of lessons 10 Week beg
<u>Support</u> <ul style="list-style-type: none"> Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34) Refine and use efficient written methods to multiply and divide $HTU \times U$, $TU \times TU$, $U.t \times U$ and $HTU \div U$ Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $\frac{3}{4}$ of 150g); interpret the display correctly in the context of measurement Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations Understand the process of decision making 	<u>Core Objectives</u> <ul style="list-style-type: none"> Explain reasoning and conclusions, using words, symbols or diagrams as appropriate Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$ Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer Use a calculator to solve problems involving multi-step calculations Use approximations, inverse operations and tests of divisibility to estimate and check results Analyse and evaluate how speakers present points effectively through use of language, gesture, models and images 	<u>Extension</u> <ul style="list-style-type: none"> Recognise and use multiples, factors (divisors), common factor, highest common factor and lowest common multiple in simple cases, and primes (less than 100); use simple tests of divisibility Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10, and quickly derive associated division facts Consolidate and extend mental methods to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple word problems mentally Make and justify estimates and approximations of calculations Use standard column procedures to add and subtract whole numbers and decimals with up to two places Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers Check a result by considering whether it is of the right order of magnitude and by working the problem backwards Carry out calculations with more than one step using brackets and the memory; use the square root and sign change keys

	Year 6 Term Summer Teacher Ability group	Block B Securing number facts, understanding shape Unit 3 No.of lessons 15 Week beg
<p>Support</p> <ul style="list-style-type: none"> • Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false • Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem • Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34) • Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts • Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations • Use efficient written methods to add and subtract whole numbers and decimals with up to two places • Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $\frac{3}{4}$ of 150g); interpret the display correctly in the context of measurement • Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes • Identify different question types and evaluate impact on audience • Understand the process of decision making 	<p>Core Objectives</p> <ul style="list-style-type: none"> • Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy • Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols (e.g. the cost of c pens at 15 pence each is $15c$ pence) • Use knowledge of multiplication facts to derive quickly squares of numbers to 12×12 and the corresponding squares of multiples of 10 • Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$) • Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers • Use a calculator to solve problems involving multi-step calculations • Use approximations, inverse operations and tests of divisibility to estimate and check results • Describe, identify and visualise parallel and perpendicular edges or faces; use these properties to classify 2-D shapes and 3-D solids • Make and draw shapes with increasing accuracy and apply knowledge of their properties • Use a range of oral techniques to present persuasive arguments and engaging narratives 	<p>Extension</p> <ul style="list-style-type: none"> • Understand and use the language and notation associated with reflections, translations and rotations • Recognise and visualise the transformation and symmetry of a 2-D shape: <ul style="list-style-type: none"> • reflection in given mirror lines, and line symmetry; • rotation about a given point, and rotation symmetry; • translation; explore these transformations and symmetries using ICT • Reason about position and movement and transform shapes • Solve word problems and investigate in a range of contexts: shape and space • Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example

	Year 6 Term Summer Teacher Ability group	Block C Handling data and measures Unit 3 No.of lessons 10 Week beg
<p>Support</p> <ul style="list-style-type: none"> Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time Find and interpret the mode of a set of data Describe the occurrence of familiar events using the language of chance or likelihood Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6kg to 2600g) Interpret a reading that lies between two unnumbered divisions on a scale Understand different ways to take the lead and support others in a group 	<p>Core Objectives</p> <ul style="list-style-type: none"> Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask Describe and predict outcomes from data using the language of chance or likelihood Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts Describe and interpret results and solutions to problems using the mode, range, median and mean Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa) Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, for example when using different instruments Use a calculator to solve problems involving multi-step calculations Participate in whole-class debate using the conventions and language of debate, including Standard English 	<p>Extension</p> <ul style="list-style-type: none"> Decide which data would be relevant to an enquiry and possible sources Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data, grouped where appropriate in equal class intervals Calculate statistics for small sets of discrete data: Find the mode, median and range, and the modal class for grouped data; calculate the mean, including from a simple frequency table, using a calculator for a larger number of items Construct, on paper and using ICT, graphs and diagrams to represent data, including: <ul style="list-style-type: none"> bar-line graphs; frequency diagrams for grouped discrete data; use ICT to generate pie charts Interpret diagrams and graphs (including pie charts), and draw conclusions based on the shape of graphs and simple statistics for a single distribution Compare two simple distributions using the range and one of the mode, median or mean s Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts, using ICT as appropriate; justify the choice of what is presented Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data Compare experimental and theoretical probabilities in simple contexts.

	Year 6 Term Summer Teacher Ability group	Block D Calculating, measuring and understanding shape Unit 3 No.of lessons 10 Week beg
<u>Support</u> <ul style="list-style-type: none"> Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations Use efficient written methods to add and subtract whole numbers and decimals with up to two places Refine and use efficient written methods to multiply and divide $HTU \times U$, $TU \times TU$, $U.t \times U$ and $HTU \div U$ Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $\frac{3}{4}$ of 150g); interpret the display correctly in the context of measurement Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6kg to 2600g) Interpret a reading that lies between two unnumbered divisions on a scale. Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals. Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line Understand different ways to take the lead and support others in a group 	<u>Core Objectives</u> <ul style="list-style-type: none"> Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$ Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer Use a calculator to solve problems involving multi-step calculations Use approximations, inverse operations and tests of divisibility to estimate and check results Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa) Solve problems by measuring, estimating and calculating; measure and calculate using imperial units still in everyday use; know their approximate metric values Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, for example when using different instruments Calculate the perimeter and area of rectilinear shapes; estimate the area of an irregular shape by counting squares Analyse and evaluate how speakers present points effectively through use of language, gesture, models and images 	<u>Extension</u> <ul style="list-style-type: none"> Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text. Explore transformations and symmetries using ICT. Use a ruler and protractor to: <ul style="list-style-type: none"> construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA); explore these constructions using ICT. Use a ruler and protractor to construct simple nets of 3-D shapes, e.g. cuboids, regular tetrahedron, square-based pyramid, triangular prism.

	Year 6 Term Summer Teacher Ability group	Block E Securing number facts, relationships and calculating Unit 3 No.of lessons 15 Week beg
<p><u>Support</u></p> <ul style="list-style-type: none"> • Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem • Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use • Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is $\frac{5}{8}$); find equivalent fractions (e.g. $\frac{7}{10} = \frac{14}{20}$, or $\frac{19}{10} = 1\frac{9}{10}$); relate fractions to their decimal representations • Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages • Refine and use efficient written methods to multiply and divide $HTU \times U$, $TU \times TU$, $U \div U$ and $HTU \div U$ • Use sequences to scale numbers up or down; solve problems involving proportions of quantities (e.g. decrease quantities in a recipe designed to feed six people) • Find fractions using division (e.g. $\frac{1}{100}$ of 5kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80) • Present a spoken argument, sequencing points logically, defending views with evidence and making use of persuasive language 	<p><u>Core Objectives</u></p> <ul style="list-style-type: none"> • Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy • Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use • Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$) • Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer • Use a calculator to solve problems involving multi-step calculations • Express a larger whole number as a fraction of a smaller one (e.g. recognise that 8 slices of a 5-slice pizza represents $\frac{8}{5}$ or $1\frac{3}{5}$ pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator • Relate fractions to multiplication and division (e.g. $6 \div 2 = \frac{1}{2}$ of $6 = 6 \times \frac{1}{2}$); express a quotient as a fraction or decimal (e.g. $67 \div 5 = 13.4$ or $13\frac{2}{5}$); find fractions and percentages of whole-number quantities (e.g. $\frac{5}{8}$ of 96, 65% of £260) • Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions • Solve simple problems involving direct proportion by scaling quantities up or down • Use a range of oral techniques to present persuasive arguments 	<p><u>Extension</u></p> <ul style="list-style-type: none"> • Interpret the display of a calculator in different contexts (decimals, percentages). • Calculate simple fractions of quantities and measurements (whole-number answers); multiply a fraction by an integer. • Recognise the equivalence of percentages, fractions and decimals, calculate simple percentages and use percentages to compare simple proportions • Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT. • Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations). • Use simple formulae from mathematics and other subjects, substitute positive integers in simple linear expressions and formulae and, in simple cases, derive a formula • Generate sequences from practical contexts and describe the general term in simple cases • Express simple functions (in words, then) using symbols; represent them in mappings • Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions, where y is given explicitly in terms of x, on paper and using ICT; recognise straight-line graphs parallel to the x-axis or y-axis • Begin to plot and interpret the graphs of simple linear functions arising from real-life situations • Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example

