Brookhurst Primary School

A place to think and grow

Mathematics

Long Term Plan

Upper Key Stage 2 (Years 5 and 6)

April 2020

To be read in conjunction with the Calculation Policy

Intent

The 2014 National Curriculum for mathematics aims to ensure that all children:
- Become fluent in the fundamentals of Mathematics
- Are able to reason mathematically
- Can solve problems by applying their Mathematics

Brookhurst provides a high-quality mathematics education that builds a foundation for understanding the world and provides children with the ability to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. We aim to develop independent problem solvers who take risks in their learning who challenge themselves and experience success in mathematics whilst harnessing a sense of enjoyment and curiosity about the subject.

As subject leaders we strive to adopt and construct a curriculum that is ambitious and aspirational; designed to give all learners and groups of learners, including the most disadvantaged and those with SEND and higher levels of needs, the knowledge and cultural capital they need to succeed in their future lives.

We continually strive to make adaptations and reasonable adjustments to enable all our pupils to access our school curriculum and we aim to provide a range of enhancement opportunities to engage all children in their learning.

We recognise that all pupils are entitled to a quality of provision that will enable them to achieve their full academic and personal potential.

We firmly believe that childhood should be a happy, investigative and enquiring time in our lives where there are no limits to curiosity and where all children are exposed to new experiences and knowledge through a varied curriculum regardless of barriers to learning.

Implementation

At Brookhurst, mathematics planning is based on the National Curriculum mathematics programmes of study, supported by a clear skills and knowledge progression. This ensures that skills and knowledge are built on year by year and sequenced appropriately to maximise learning for all children.

The main aim of all lessons is to develop children's knowledge, understanding and skills, applying these to a variety of contexts. We focus not only on the mathematical methods but also focus on mathematical vocabulary. We aim for each child to be confident in each yearly objective and develop their ability to use this knowledge to develop a greater depth understanding to solve varied fluency problems as well as problem solving and reasoning questions.

Children are taught mathematics for approximately 1 hour daily, in mixed ability classes. Lessons include a clear learning intention, clear success criteria alongside a balance of oral work and mental calculation work, teaching input and pupil activities. Plenaries will be used throughout the session to assess progress and develop children's thinking. Support is determined during each lesson to ensure secure understanding based on the needs of the child.

We employ a variety of teaching styles and opportunities for children to learn and develop their mathematical skills and competencies, both individually and collaboratively. Each lesson plans for fluency, mastery, problem solving, reasoning and a use of active maths.

We use a range of textbooks and online resources throughout the school to ensure a curriculum that is specific to each child's learning needs. Staff also refer to the Calculation Policy when teaching formal methods, understanding that sometimes children find their own efficient methods along the way.

Each week a Times Tables focus is planned through the '6 or 3 minute club' to give children the opportunity to practise and improve their rapid recall skills with facts up to 12x12. Children enjoy the weekly challenge and strive to improve their score each week.

Multiplication tables check

From the 2019/20 academic year onwards, schools in England will be required to administer an online multiplication tables check (MTC) to year 4 pupils. The purpose of the MTC is to determine whether pupils can recall their times tables fluently, which is essential for future success in mathematics. It will help schools to identify pupils who have not yet mastered their times tables, so that additional support can be provided.   To support the children with their multiplication practice we use 'PiXL Times Tables App' and 'Mathletics' as online and fun learning platforms which also offer resources to be used in the classroom.

Parental Engagement

Parental engagement is at the heart of our school. We are using the Leading Parent Partnership Award (LPPA) to help strengthen our school's partnership with parents. Children in Years 1 to 6 are assigned homework activities using the homework resource 'Maths with Parents', which aims to raise achievement by enhancing pupil engagement and parental support with children's learning. We further consolidate mathematical knowledge by providing a variation of challenge and consolidation activities.

Impact

We have fostered an environment where mathematics is fun and it is OK to be 'wrong' because the journey to finding an answer is most important. Our children have a growth mindset and are resilient towards problem solving and reasoning.

- ❖ All pupils, regardless of their abilities, will be able to succeed in all mathematics lessons because of the level of support they will receive
- ❖ Pupils will demonstrate a quick recall of facts and procedures
- ❖ Pupils will demonstrate a flexibility and fluidity to move between different contexts and representations of mathematics
- ❖ Pupils will have an ability to recognise relationships and make connections in mathematics
- ❖ Pupils will have an understanding of a wide range of mathematical vocabulary
- ❖ Pupils will leave Brookhurst being able to effectively apply mathematical knowledge they have been taught
- ❖ The % of pupils working at ARE within each year group will be at least in line with national averages.
- ❖ The % of pupils working at Greater Depth within each year group will be at least in line with national averages
- ❖ There will be no significant gaps in the progress of different groups of pupils (e.g. disadvantaged vs non-disadvantaged

Aims of National Curriculum

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language

- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Upper Key Stage 2 – years 5 and 6

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Coverage within the mathematics national curriculum

	Number and place value	Addition and subtraction	Multiplication and division	Addition, subtraction, multiplication and division	Fractions	Fractions, including decimals	Fractions, including decimals and percentages	Ratio and proportion	Algebra	Measurement	Geometry – properties of shape	Geometry – position and direction	Statistics
Yr 1	x	x	x		x					x	x	x	
Yr 2	x	x	x	x	x					x	x	x	x
Yr 3	x	x	x		x					x	x		x
Yr 4	x	x	x			x				x	x	x	x
Yr 5	x	x	x				x			x	x	x	x
Yr 6	x			x		x	x	x	x	x	x	x	x

Programme of Study		
	Year 5	**Year 6**
Number and place value	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above
Number - addition and subtraction (Year 6 : Addition, subtraction, multiplication and division)	• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and

		prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
Number - multiplication and division	• identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • multiply and divide numbers mentally drawing upon known facts • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • recognise and use square numbers and cube numbers, and the notation for squared and	

	cubed • solve problems involving multiplication and division using their knowledge of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	
Fractions, including decimals and percentages	• compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5+4/5=6/5= 1 1/5 • add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • read and write decimal numbers as fractions [for example, 0.71 = 71/100 • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4}$ x $\frac{1}{2}$ 1/8 divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6 • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8 • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where

	• round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25	the answer has up to two decimal places • solve problems which require answers to be rounded to specific degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Ration and proportion		• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
Algebra		• use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation

		• with two unknowns • enumerate possibilities of combinations of two variables
Measurement	• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes • estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • solve problems involving converting between units of time • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]
Geometry – properties of shapes	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and	• draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets

	reflex angles • draw given angles, and measure them in degrees (°) • identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and ½ a turn (total 180°) other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles	• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
Geometry – position and direction	• identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	• describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes
Statistics	• solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables	• interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average

Year 5

Number and place value

	Autumn Term	Spring Term	Summer Term
Reading and writing numbers Ordering and comparing numbers Place value	Read, write, order and compare multiples of 100 000 to 1 000 000 Interpret negative numbers in context	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Interpret negative numbers in context	Read, write and compare numbers up to 10 000 000 and determine the value of each digit Read, write order and compare decimal numbers Use negative numbers in context
Representing and estimating numbers			
Rounding numbers	Round to nearest 100 000 up to 1 000 000, extend to rounding to nearest 10 000		Round any whole number to a required degree of accuracy
Counting	Count forwards and backwards in steps of 100 000 from any given number (up to a million), introducing extending beyond zero for negative numbers		Count forwards or backwards in steps of 10, 100, 1000, 10 000 or 100 000 using positive and negative whole numbers
Finding other numbers		Round any number to a million to nearest 1000, 100 and 10	Calculate intervals across zero
Solving problems	Solve problems and practical problems that involve all of the above	Count forwards and backwards in steps of 10 000 and 1000 from any given number (up to a million), including extending beyond zero for negative numbers	Solve problems and practical problems that involve all of the above
Roman numerals			Read, write and compare numbers up to 10 000 000 and determine the value of each digit Read, write order and compare

			decimal numbers Use negative numbers in context

Number - addition and subtraction

The rules of arithmetic and symbols			Use brackets in mixed problems
Key facts			
Calculate mentally	Add and subtract mentally multiples of 100, 1000 or 10,000 from larger numbers e.g. 1,000,000	Add or subtract a number with up to two significant digits from a larger number e.g. 1,000,000 - 350,000 =	Add and subtract numbers mentally with increasingly large numbers
Calculate using an algorithm	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Add and subtract decimals up to two decimal places	Add and subtract numbers with 4+ digits using the formal written methods of columnar addition and subtraction where appropriate Add and subtract decimals up to three decimal places	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) including decimals
Estimating and checking (inverse)	Use rounding to check answers to addition and subtraction calculations up to four digits	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
Solving problems	Solve addition and subtraction two-step problems in context	Solve addition and subtraction multi-step problems in context.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Number - multiplication and division

The rules of arithmetic and symbols			Use of brackets in calculation problems
Key facts	Identify multiples and factors including finding all factor pairs of a number, and common factors of two numbers	Identify prime factors and composite (non-prime) numbers Establish whether a number up to 100 is prime and recall prime numbers up to 19	Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3)
Calculate mentally	Multiply and divide numbers mentally drawing upon known facts Multiply and divide whole numbers by 10, 100 and 1000.	Multiply and divide numbers mentally drawing upon known facts Multiply and divide decimal numbers by 10, 100 and 1000	Multiply and divide numbers mentally drawing upon known facts Multiply and divide decimal numbers by 10, 100 and 1000 (consolidation)
Calculate using a written algorithm	Multiply numbers up to four digits by a one-digit number using a formal written method Divide numbers up to four digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	Multiply numbers up to four digits by a two-digit number using a formal written method, including long multiplication for two-digit numbers Divide numbers up to four digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	Consolidate formal methods for multiplication and division To be able to use notation of brackets and apply understanding
Estimating and checking (inverse)	Check and use the inverse	Check and use the inverse	Check and use the inverse
Solving problems	Solve problems including multiplication and division including using their knowledge		Solve problems including multiplication and division including using their knowledge of

	of factors and multiples Solve problems including multiplication and division including understanding the meaning of the = sign Solve problems including multiplication and division. scaling by simple fractions and problems involving simple rates		squares and cubes

Fractions (including decimals, percentages, ratio and proportion)			
Using fractions to describe parts of an object, shape, quantity or length			
Fractions as numbers that can be compared and ordered, and can be used for counting		Compare and order fractions and denominators are all multiples of the same number	
Calculating with fractions	Add and subtract fractions with the same denominator	Add and subtract fractions with the same denominator and denominators that are multiples of the same number	Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
Equivalent fractions	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	Recognise and use thousandths and relate them to tenths and hundredths	Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements more than one as a mixed number (eg $\frac{2}{5}+\frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$)
The relationship between fractions and decimals	Read and write decimal numbers as fraction for example 0.71= 71/100	Recognise and use thousandths and relate them to decimal equivalents	
Decimals as numbers that can be	Read, write, order and compare	Round decimals with 2 decimal	

compared, ordered and rounded, and can be used for counting	numbers with up to 3 decimal places	places to the nearest whole number and to 1 decimal place	
Calculating with decimals	Multiply and divide numbers by 10, 100 and 1000 giving answers up to 3dp		
Percentages			Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal
Solving problems involving fractions, decimals and percentages	Solve problems involving number up to 3 decimal places	Solve problems involving number up to 3 decimal places	Solve problems involving number up to 3 decimal places

Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25 |
| Solving problems involving ratio and proportion | | | |

Algebra			
Use algebraic symbols and letters			
Describe (and generalise) patterns			
Tackle missing number problems and puzzles			

Measurement			
Estimating, measuring, recording and interpreting results	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]	
Converting between units of measure	Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre)	Convert between different units of metric measure (for example, gram and kilogram; litre and millilitre)

Solve problems involving converting between different units of time | To understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints |
Money	Use all four operations to solve problems involving money using decimal notation, including scaling		
Time		See above	
Perimeter, area and volume	Use all four operations to solve problems involving length using decimal notation, including scaling	Use all four operations to solve problems involving volume and mass using decimal notation, including scaling	Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes

Geometry			
2D shapes	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles	Use the properties of rectangles to deduce related facts and find missing lengths and angles	
3D shapes			Identify 3D shapes, including cubes and other cuboids, from 2D representations
Symmetry			
Angles and lines	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°)	Identify angles at a point and one whole turn (total 360°) Identify angles at a point on a straight line and ½ a turn (total 180°) Identify other multiples of 90°	
Position, direction and pattern			
Grids and coordinates			Identify, describe and represent the position of a shape following a reflection or a translation, using the appropriate language, and know that the shape has not changed

Statistics

To represent data in different ways	Complete information in tables	Complete information in timetables	
To interpret data	Read and interpret information in tables	Read and interpret information in timetables	
To ask and answer questions			To solve comparison, sum and difference problems using information presented in a line graph

Year 6

Number and place value			
	Autumn Term	**Spring Term**	**Summer Term**
Reading and writing numbers Ordering and comparing numbers Place value	Read, write and compare numbers up to 10 000 000 and determine the value of each digit Read, write order and compare decimal numbers with 2dp Use negative numbers in context	Read, write and compare numbers up to 10 000 000 and determine the value of each digit Read, write order and compare decimal numbers up to 3 dp Use negative numbers in context	Read, write and compare numbers up to 10 000 000 and determine the value of each digit Read, write order and compare decimal numbers with three decimal places Use negative numbers in context
Representing and estimating numbers			
Rounding numbers			Round any number to a required degree of accuracy including decimals to the nearest tenth, hundredth and thousandth
Counting			
Finding other numbers	Round numbers to the nearest whole and to 1 or 2 decimal places Revise rounding any number up 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 00		Calculate intervals across zero
Solving problems			Solve problems and practical problems that involve all of the above
Roman numerals			

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Number - addition and subtraction

The rules of arithmetic and symbols	Use their knowledge of the order of operations to carry out calculations involving the four operations (BODMAS)	Use their knowledge of the order of operations to carry out calculations involving the four operations (BODMAS)	Use their knowledge of the order of operations to carry out calculations involving the four operations (BODMAS)
Key facts			
Calculate mentally	Perform mental calculations, including with mixed operations and large numbers with 4 digits	Perform mental calculations, including with mixed operations and large numbers with more than 4 digits	Perform mental calculations, including with mixed operations and large numbers more than 4 digits
Calculate using an algorithm	Use a formal written method to add and subtract pairs of numbers including decimals	Use a formal written method to add and subtract groups of numbers including decimals	Use a formal written method to add and subtract groups of numbers including decimals
Estimating and checking (inverse)	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
Solving problems	Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division	Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division

Number - multiplication and division

The rules of arithmetic and symbols	Use their knowledge of the order of operations to carry out calculations involving the four operations (BODMAS)	Use their knowledge of the order of operations to carry out calculations involving the four operations (BODMAS)	Use their knowledge of the order of operations to carry out calculations involving the four operations (BODMAS)
Key facts	Identify common factors, common multiples and prime numbers		Identify common factors, common multiples and prime numbers
Calculate mentally	Perform mental calculations, including with mixed operations and large numbers with 4 digits		Perform mental calculations, including with mixed operations and large numbers
Calculate using a written algorithm	Multiply multi-digit numbers up to 4-digits by a 1 or 2-digit whole number using the formal written method of long multiplication

Divide numbers up to 4-digits by a 1-digit whole number using the formal written method of long division | Divide numbers up to 4-digits by a 2-digit number using the formal written method of short / long division where appropriate, interpreting remainders according to the context (e.g. as whole number remainders, fractions or by rounding as appropriate)

Multiply multi-digit numbers up to 4-digits by a 2-digit whole number using the formal written method of long multiplication | Divide numbers up to 4-digits by a 2-digit number using the formal written method of short / long division where appropriate, interpreting remainders according to the context (e.g. as whole number remainders, fractions or by rounding as appropriate)

Multiply multi-digit numbers up to 4-digits by a 2-digit whole number using the formal written method of long multiplication |
| Estimating and checking (inverse) | | Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy | Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy |
| Solving problems | Solve problems involving addition, subtraction, multiplication and division | Solve problems involving addition, subtraction, multiplication and division | Solve problems involving addition, subtraction, multiplication and division |

Fractions (including decimals, percentages, ratio and proportion)

Using fractions to describe parts of an object, shape, quantity or length			
Fractions as numbers that can be compared and ordered, and can be used for counting	Compare and order fractions, including fractions ≥1	Compare and order fractions, including fractions ≥1	
Calculating with fractions		Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	Multiply simple pairs of proper fractions, writing the answer in its simplest form (eg $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) Divide proper fractions by whole numbers (eg $\frac{1}{3} \div 2 = \frac{1}{6}$)
Equivalent fractions	Use common factors to simplify fractions Use common multiples to express fractions in the same denomination	Use common factors to simplify fractions Use common multiples to express fractions in the same denomination	Use common factors to simplify fractions Use common multiples to express fractions in the same denomination
The relationship between fractions and decimals	Associate a fraction with division and calculate decimal fraction equivalents for example $0.375 = \frac{3}{8}$	Recall and use equivalences between simple fractions and decimals, including in different contexts	Recall and use equivalences between simple fractions and decimals, including in different contexts
Decimals as numbers that can be compared, ordered and rounded, and can be used for counting	Identify the value of each digit in numbers given to two decimal places	Identify the value of each digit in numbers given to 3 decimal places	
Calculating with decimals	Multiply 1-digit numbers with up to 2dp by whole numbers Use written division methods in cases where the answer has up to 2 decimal places	To multiply and divide numbers by 10,100 and 1000 giving answers up to 3 decimal places	

	Multiply and divide numbers by 10, 100 and 1000 giving answers up to 2 decimal places		
Percentages		Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Solving problems involving fractions, decimals and percentages	Solve problems which require answers to be rounded to 2 decimal places	Solve problems which require answers to be rounded to 3 decimal places	Solve problems which require answers to be rounded to specified degrees of accuracy
Solving problems involving ratio and proportion		Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentage for comparison	Solve problems involving similar shapes where the scale factor is known or can be found Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples

Algebra			
Use algebraic symbols and letters		Use simple formulae	Use simple formulae
Describe (and generalise) patterns		Generate and describe linear number sequences	Generate and describe linear number sequences
Tackle missing number problems and puzzles		Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns	Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns

		Enumerate possibilities of combinations of two variables	Enumerate possibilities of combinations of two variables

Measurement			
Estimating, measuring, recording and interpreting results	Solve problems involving measure (length, mass, volume, time and money) using decimal notation including scaling		
Converting between units of measure	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to two decimal places where appropriate Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to two decimal places	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places	Convert between miles and kilometres Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
Money			
Time			
Perimeter, area and volume	Recognise that shapes with the same areas can have different perimeters and vice versa Calculate the area of parallelograms	Calculate the area of triangles Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and	Recognise when it is possible to use formulae for area and volume of shapes Calculate, estimate and compare volume of cubes and cuboids using

		cubic metres (m³)	standard units, including cubic centimetres (cm³) and cubic metres (m³) and extending to other units (eg mm³ and km³)

Geometry

2D shapes	Draw 2-D shapes using given dimensions and angles Compare and classify geometric shapes based on their properties and sizes	Find unknown angles in any triangles, quadrilaterals, and regular polygons Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	Find unknown angles in any triangles, quadrilaterals, and regular polygons Construct angles Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
3D shapes	Recognise and describe 3-D shapes Build simple nets of cubes and cuboids	Recognise, describe and build simple 3-D shapes, including making nets of cones, pyramids, cylinders and prisms	Recognise, describe and build simple 3-D shapes, including making nets of cones, pyramids, cylinders and prisms
Symmetry			
Angles and lines	Recognise angles where they meet at a point or on a straight line and find missing angles	Recognise angles in a triangle	Recognise angles that are vertically opposite and find missing angles
Position, direction and pattern			
Grids and coordinates	Describe positions on the full coordinate grid (all four quadrants)	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes in all 4 quadrants	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes in all 4 quadrants

Statistics			
To represent data in different ways	Construct line graphs		Construct pie charts
To interpret data	Interpret line graphs	Calculate and interpret the mean as an average	Interpret pie charts
To ask and answer questions	Use line graphs to solve problems		Use pie charts to solve problems

Vocabulary

The charts below outline the key vocabulary for each year group, with the words/terms in bold/highlighted in blue, being those that are specifically taught and used. The charts are cumulative and therefore teachers revisit and require children to use the vocabulary learned in earlier year groups.

Number – Number and place value

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Count	Count	Count	Count	Count	Count
	Count in steps	Count in steps	Count in steps	Count in steps	Count in steps
		Count in multiples	Count in multiples	Count in multiples	Count in multiples
			Count backwards	Count backwards	Count backwards
			Negative numbers	Negative numbers	Negative numbers
					Calculate intervals
					Whole number
Forwards	Forwards	Forwards	Forwards	Forwards	Forwards
Backwards	Backwards	Backwards	Backwards	Backwards	Backwards
Numerals	Numerals	Numerals	Numerals	Numerals	Numerals
Multiples	Multiples	Multiples	Multiples	Multiples	Multiples
One more	One more	One more	One more	One more	One more
One less	One less	One less	One less	One less	One less
		10 or 100 more	10 or 100 more	10 or 100 more	10 or 100 more
		10 or 100 less	10 or 100 less	10 or 100 less	10 or 100 less
			1000 more	1000 more	1000 more
			1000 less	1000 less	1000 less
Equal to	Equal to	Equal to	Equal to	Equal to	Equal to
More than	More than	More than	More than	More than	More than
Less than (fewer)	Less than (fewer)	Less than (fewer)	Less than (fewer)	Less than (fewer)	Less than (fewer)
	Place value	Place value	Place value	Place value	Place value
	Digit	Digit	Digit	Digit	Digit
	Two digit	Two digit	Two digit	Two digit	Two digit
		Three digit	Three digit	Three digit	Three digit
			Four digit	Four digit	Four digit
	Estimate	Estimate	Estimate	Estimate	Estimate
	Compare	Compare	Compare	Compare	Compare
			Round	Round	Round
			Roman numerals	Roman numerals	Roman numerals
				Powers of	Powers of

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Number – addition and subtraction

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Add	Add	Add	Add	Add	Add
Subtract	Subtract	Subtract	Subtract	Subtract	Subtract
Equals	Equals	Equals	Equals	Equals	Equals
Number bonds	Number bonds	Number bonds	Number bonds	Number bonds	Number bonds
	Facts	Facts	Facts	Facts	Facts
Problems	Problems	Problems	Problems	Problems	Problems
Missing number problems	Missing number problems	Missing number problems	Missing number problems	Missing number problems	Missing number problems
	2 digit number	2 digit number	2 digit number	2 digit number	2 digit number
		3 digit number	3 digit number	3 digit number	3 digit number
			4 digit number	4 digit number	4 digit number
	Commutative	Commutative	Commutative	Commutative	Commutative
	Inverse	Inverse	Inverse	Inverse	Inverse
		Columnar addition	Columnar addition	Columnar addition	Columnar addition
		Columnar subtraction	Columnar subtraction	Columnar subtraction	Columnar subtraction
		Estimate	Estimate	Estimate	Estimate
			Operations	Operations	Operations
			Methods	Methods	Methods
				Rounding	Rounding
					Accuracy

Number – multiplication and division

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication	Multiplication	Multiplication	Multiplication	Multiplication	Multiplication
Division	Division	Division	Division	Division	Division
Arrays	Arrays	Arrays	Arrays	Arrays	Arrays
	Multiplication tables	Multiplication tables	Multiplication tables	Multiplication tables	Multiplication tables
	Odd numbers	Odd numbers	Odd numbers	Odd numbers	Odd numbers
	Even numbers	Even numbers	Even numbers	Even numbers	Even numbers
	Commutative	Commutative	Commutative	Commutative	Commutative
	Repeated addition	Repeated addition	Repeated addition	Repeated addition	Repeated addition
		Mathematical statements	Mathematical statements	Mathematical statements	Mathematical statements
		Missing number problems	Missing number problems	Missing number problems	Missing number problems
		Integer scaling problems	Integer scaling problems	Integer scaling problems	Integer scaling problems
		Correspondence problems	Correspondence problems	Correspondence problems	Correspondence problems
		n objects	n objects	n objects	n objects
			Place value	Place value	Place value
			Derived facts	Derived facts	Derived facts
			Factor pairs	Factor pairs	Factor pairs
			Formal written layout	Formal written layout	Formal written layout
			Distributive law	Distributive law	Distributive law
				Multiples	Multiples
				Factors	Factors
				Prime numbers	Prime numbers
				Short division	Short division
				Remainders	Remainders
				Decimals	Decimals
					Multi digit numbers
					Long multiplication
					Long division

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Number – Fractions (including decimals and percentages)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Half	Half	Half	Half	Half	Half
Quarter	Quarter	Quarter	Quarter	Quarter	Quarter
	Three quarters	Three quarters	Three quarters	Three quarters	Three quarters
	Third	Third	Third	Third	Third
				Fifth	Fifth
Equal parts	Equal parts	Equal parts	Equal parts	Equal parts	Equal parts
	Equivalence	Equivalence	Equivalence	Equivalence	Equivalence
			Decimal equivalence	Decimal equivalence	Decimal equivalence
		Tenths	Tenths	Tenths	Tenths
			Hundredths	Hundredths	Hundredths
				Thousandths	Thousandths
		Unit fractions	Unit fractions	Unit fractions	Unit fractions
		Non unit fractions	Non unit fractions	Non unit fractions	Non unit fractions
		Denominators	Denominators	Denominators	Denominators
		Equivalent fractions	Equivalent fractions	Equivalent fractions	Equivalent fractions
		One whole	One whole	One whole	One whole
				Convert	Convert
				Proper fractions	Proper fractions
				Mixed numbers	Mixed numbers
				Per cent %	Per cent %
					Factors

Ratio and proportion

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Relative size
					Missing values
					Integer multiplication
					Percentages
					Scale factor
					Unequal sharing & grouping

Algebra

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Formulae
					Linear number sequences
					Algebraically
					Equation
					Unknowns
					Combinations
					Variables

Measurement 1

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measure	Measure	Measure	Measure	Measure	Measure
	Standard units	Standard units	Standard units	Standard units	Standard units
	Estimate	Estimate	Estimate	Estimate	Estimate
	Measure	Measure	Measure	Measure	Measure
	Compare	Compare	Compare	Compare	Compare
	Order	Order	Order	Order	Order
	Record results	Record results	Record results	Record results	Record results
				Decimal notation	Decimal notation
				Scaling	Scaling
				Metric units	Metric units
				Imperial units	Imperial units
				Inches	Inches
				Pounds	Pounds
				Pints	Pints
					Conversion
Length	Length	Length	Length	Length	Length
	Centimetre cm	Centimetre cm	Centimetre cm	Centimetre cm	Centimetre cm
	Metre m	Metre m	Metre m	Metre m	Metre m
		Millimetre mm	Millimetre mm	Millimetre mm	Millimetre mm
		Perimeter	Perimeter	Perimeter	Perimeter
					Miles
					Kilometres km
			Rectilinear figure	Rectilinear figure	Rectilinear figure
			Area	Area	Area
				Composite rectilinear shape	Composite rectilinear shape
				Irregular shapes	Irregular shapes
				Square centimetres	Square centimetres
				Square metres	Square metres
					Formulae
					Parallelograms
					Triangles

Measurement 2

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Height	Height	Height	Height	Height	Height
Long(er)/short(er)	Long(er)/short(er)	Long(er)/short(er)	Long(er)/short(er)	Long(er)/short(er)	Long(er)/short(er)
Tall(er)/short(er)	Tall(er)/short(er)	Tall(er)/short(er)	Tall(er)/short(er)	Tall(er)/short(er)	Tall(er)/short(er)
Double/half	Double/half	Double/half	Double/half	Double/half	Double/half
Mass	Mass	Mass	Mass	Mass	Mass
Weight	Weight	Weight	Weight	Weight	Weight
Heavy/light	Heavy/light	Heavy/light	Heavy/light	Heavy/light	Heavy/light
Heavier than	Heavier than	Heavier than	Heavier than	Heavier than	Heavier than
Lighter than	Lighter than	Lighter than	Lighter than	Lighter than	Lighter than
	Kilogram kg	Kilogram kg	Kilogram kg	Kilogram kg	Kilogram kg
	Gram g	Gram g	Gram g	Gram g	Gram g
Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Volume	Volume	Volume	Volume	Volume	Volume
Full/empty	Full/empty	Full/empty	Full/empty	Full/empty	Full/empty
More than	More than	More than	More than	More than	More than
Less than	Less than	Less than	Less than	Less than	Less than
Half/half full/quarter	Half/half full/quarter	Half/half full/quarter	Half/half full/quarter	Half/half full/quarter	Half/half full/quarter
	Litres l	Litres l	Litres l	Litres l	Litres l
	Millilitres ml	Millilitres ml	Millilitres ml	Millilitres ml	Millilitres ml
				Volume	Volume
				Cubic centimetre	Cubic centimetre
					Cubic metre
					Cubic millimetre
					Cubic kilometre
	Temperature	Temperature	Temperature	Temperature	Temperature
	Celsius	Celsius	Celsius	Celsius	Celsius

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Measurement 3

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Time	Time	Time	Time	Time	Time
Quicker	Quicker	Quicker	Quicker	Quicker	Quicker
Slower	Slower	Slower	Slower	Slower	Slower
Earlier	Earlier	Earlier	Earlier	Earlier	Earlier
Later	Later	Later	Later	Later	Later
Chronological order	Chronological order	Chronological order	Chronological order	Chronological order	Chronological order
Before	Before	Before	Before	Before	Before
After	After	After	After	After	After
First	First	First	First	First	First
Next	Next	Next	Next	Next	Next
Today	Today	Today	Today	Today	Today
Yesterday	Yesterday	Yesterday	Yesterday	Yesterday	Yesterday
Tomorrow	Tomorrow	Tomorrow	Tomorrow	Tomorrow	Tomorrow
Morning	Morning	Morning	Morning	Morning	Morning
Afternoon	Afternoon	Afternoon	Afternoon	Afternoon	Afternoon
Evening	Evening	Evening	Evening	Evening	Evening
Days of the week	Days of the week	Days of the week	Days of the week	Days of the week	Days of the week
Months of the year	Months of the year	Months of the year	Months of the year	Months of the year	Months of the year
Day	Day	Day	Day	Day	Day
Week	Week	Week	Week	Week	Week
Month	Month	Month	Month	Month	Month
Year	Year	Year	Year	Year	Year
O'clock	O'clock	O'clock	O'clock	O'clock	O'clock
Half past	Half past	Half past	Half past	Half past	Half past
Minute	Minute	Minute	Minute	Minute	Minute

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Measurement 4					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Intervals of time	Intervals of time	Intervals of time	Intervals of time	Intervals of time
	Quarter past/to	Quarter past/to	Quarter past/to	Quarter past/to	Quarter past/to
		Analogue clock	Analogue clock	Analogue clock	Analogue clock
		Roman numerals	Roman numerals	Roman numerals	Roman numerals
		12-hour clock	12-hour clock	12-hour clock	12-hour clock
		24-hour clock	24-hour clock	24-hour clock	24-hour clock
		a.m./p.m.	a.m./p.m.	a.m./p.m.	a.m./p.m.
		Noon	Noon	Noon	Noon
		Midnight	Midnight	Midnight	Midnight
		Leap year	Leap year	Leap year	Leap year
		Duration	Duration	Duration	Duration
			Digital	Digital	Digital
			Convert	Convert	Convert
Money	Money	Money	Money	Money	Money
Coins	Coins	Coins	Coins	Coins	Coins
Notes	Notes	Notes	Notes	Notes	Notes
Chronological order	Chronological order	Chronological order	Chronological order	Chronological order	Chronological order
	Pounds £	Pounds £	Pounds £	Pounds £	Pounds £
	Pence p	Pence p	Pence p	Pence p	Pence p
	Value	Value	Value	Value	Value
	Change	Change	Change	Change	Change
	Combinations	Combinations	Combinations	Combinations	Combinations

Geometry – Properties of shape 1

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
2-D shapes	2-D shapes	2-D shapes	2-D shapes	2-D shapes	2-D shapes
Rectangle	Rectangle	Rectangle	Rectangle	Rectangle	Rectangle
Square	Square	Square	Square	Square	Square
Circle	Circle	Circle	Circle	Circle	Circle
Triangle	Triangle	Triangle	Triangle	Triangle	Triangle
	Sides	Sides	Sides	Sides	Sides
	Lines of symmetry	Lines of symmetry	Lines of symmetry	Lines of symmetry	Lines of symmetry
			Geometric shapes	Geometric shapes	Geometric shapes
			Quadrilaterals	Quadrilaterals	Quadrilaterals
			Properties	Properties	Properties
3-D shapes	3-D shapes	3-D shapes	3-D shapes	3-D shapes	3-D shapes
Cuboids	Cuboids	Cuboids	Cuboids	Cuboids	Cuboids
Cubes	Cubes	Cubes	Cubes	Cubes	Cubes
Pyramids	Pyramids	Pyramids	Pyramids	Pyramids	Pyramids
Spheres	Spheres	Spheres	Spheres	Spheres	Spheres
	Cylinder	Cylinder	Cylinder	Cylinder	Cylinder
	Pyramid	Pyramid	Pyramid	Pyramid	Pyramid
	Edges	Edges	Edges	Edges	Edges
	Vertices	Vertices	Vertices	Vertices	Vertices
	Faces	Faces	Faces	Faces	Faces
					Radius
					Diameter
					Circumference
			Regular polygon	Regular polygon	
			Irregular polygon	Irregular polygon	
					Quadrilateral
					Dimensions
					Net

Geometry – Properties of shape 2

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Orientations	Orientations	Orientations	Orientations
		Angles	Angles	Angles	Angles
			Acute angle	Acute angle	Acute angle
			Obtuse angle	Obtuse angle	Obtuse angle
				Reflex angles	Reflex angles
				Degrees	Degrees
				One whole turn	One whole turn
				Angles on straight line	Angles on straight line
					Vertically opposite
					Missing angles
		Turn	Turn	Turn	Turn
		Right angles	Right angles	Right angles	Right angles
		Half turn	Half turn	Half turn	Half turn
		Three quarters of a turn	Three quarters of a turn	Three quarters of a turn	Three quarters of a turn
		Greater than right angle	Greater than right angle	Greater than right angle	Greater than right angle
		Less than right angle	Less than right angle	Less than right angle	Less than right angle
		Horizontal lines	Horizontal lines	Horizontal lines	Horizontal lines
		Vertical lines	Vertical lines	Vertical lines	Vertical lines
		Perpendicular lines	Perpendicular lines	Perpendicular lines	Perpendicular lines
		Parallel lines	Parallel lines	Parallel lines	Parallel lines

Geometry – Position and direction

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Position	Position	Position	Position	Position	Position
Direction	Direction	Direction	Direction	Direction	Direction
Movement	Movement	Movement	Movement	Movement	Movement
Whole turn	Whole turn	Whole turn	Whole turn	Whole turn	Whole turn
Half turn	Half turn	Half turn	Half turn	Half turn	Half turn
Three quarter turn	Three quarter turn	Three quarter turn	Three quarter turn	Three quarter turn	Three quarter turn
	Straight line	Straight line	Straight line	Straight line	Straight line
	Rotation	Rotation	Rotation	Rotation	Rotation
	Order	Order	Order	Order	Order
	Arrange	Arrange	Arrange	Arrange	Arrange
	Patterns	Patterns	Patterns	Patterns	Patterns
	Sequences	Sequences	Sequences	Sequences	Sequences
			Co-ordinates	Co-ordinates	Co-ordinates
			First quadrant	First quadrant	First quadrant
					Four quadrants
			Translation	Translation	Translation
			Plot	Plot	Plot
			Polygon	Polygon	Polygon
				Reflection	Reflection
					Co-ordinate plane
					Axes

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Statistics

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Pictograms	Pictograms	Pictograms	Pictograms	Pictograms
	Tally chart	Tally chart	Tally chart	Tally chart	Tally chart
	Block diagram	Block diagram	Block diagram	Block diagram	Block diagram
	Simple table	Simple table	Simple table	Simple table	Simple table
		Table	Table	Table	Table
				Timetable	Timetable
		Bar chart	Bar chart	Bar chart	Bar chart
			Time graph	Time graph	Time graph
			Discrete data	Discrete data	Discrete data
			Continuous data	Continuous data	Continuous data
				Line graph	Line graph
					Pie chart
	Category	Category	Category	Category	Category
	Sorting	Sorting	Sorting	Sorting	Sorting
	Totalling	Totalling	Totalling	Totalling	Totalling
	Comparing	Comparing	Comparing	Comparing	Comparing
			Comparison problems	Comparison problems	Comparison problems
			Sum problem	Sum problem	Sum problem
			Difference problem	Difference problem	Difference problem
		One step problem	One step problem	One step problem	One step problem
		Two step problem	Two step problem	Two step problem	Two step problem
					Calculate
					Interpret
					Mean as an average

Appendix A – further vocabulary

Number		
Number	Numeral	Zero
One, two, three……	Teens numbers	Twenty-one, twenty-two
One hundred, two hundred etc	One thousand, ten thousand etc	Hundred thousand, million
None	How many……?	Count, count (up) to, count on(from, to) count back (from, to)
Forwards	Backwards	Count in ones, twos etc
Equal to	Equivalent to	Is the same as
More, less	Most, least	Tally
Many	Odd, even	Multiple of, factor of
Factor pair	Sequence	Continue
Predict	Few	Pattern
Pair, rule	Relationship	Next, consecutive
> greater than	< less than	≥greater than or equal to
≤ less than or equal to	Roman numerals	Integer, positive, negative
Above/below zero, minus	Negative numbers	Formula
Divisibility	Square number	Prime number
Ascending / descending order	Factorise	Prime factor
Digit total		

Place Value		
Ones	Tens, hundreds	Digit
One-two or three digit number	Place, place value	Stands for, represents
Exchange	The same number as, as many as	More, larger, bigger, greater
Fewer, smaller, less	Fewest, smallest, least	Most, biggest, largest, greatest
One more, ten more, one hundred more, one thousand more	One less, ten less, one hundred less, one thousand less	Equal to
Compare	Order	Size
First, second, third….twentieth	Twenty-first, twenty-second….	Last, last but one
Before, after	Next	Between
Halfway between	Above, below	

Estimating		
Guess	How many….?	Estimate
Nearly	Roughly	Close to
Approximate, approximately	About the same as	Just over, just under
Exact, exactly	Too many, too few	Enough, not enough
Round, nearest, round to the nearest ten, hundred, thousand, ten thousand	Round up, round down	

Addition and Subtraction		
Addition	Add, more, and	Make, sum, total
Altogether	Double	Near double
Half, halve	One more, two more….ten more….one hundred more	How many more to make…?
How many more is….than….?	How much more is….?	Subtract
Take away	How many are/left over?	How many have gone?
One less, two less, ten less….one hundred less	How many fewer is…than…?	Difference between
Equals	Is the same as	Number bonds/pairs/facts
Missing number	Tens boundary, hundreds boundary, ones boundary, tenths boundary	inverse

Multiplication and Division		
Multiplication	Multiply	Multiplied by
Multiple, factor	Groups of	Times
Product	Once, twice, three times…..ten times	Repeated addition
Division	Dividing, divide, divided by, divided into, left, left over, remainder	Grouping
Sharing, share, share equally	One each, two each, three each…..ten each	Group in pairs, threes….tens
Equal groups of	Doubling	Halving
Array	Row, column	Number patterns
Multiplication table	Multiplication fact, division fact	Inverse
Square, squared	Cube, cubed	

Fractions (including decimals and percentages)		
Fraction, proper/improper fraction	Equivalent fraction	Mixed number
Numerator, denominator	Equivalent , reduced to , cancel	Equal part
Equal grouping	Equal sharing	Parts of a whole

Half, two halves	One of two equal parts	Quarter, two quarters, three quarters
One of four equal parts	One third, two thirds	One of three equal parts
Sixths, sevenths, eights, tenths…..hundredths, thousandths	Decimal, decimal fraction, decimal point, decimal place, decimal equivalent	Proportion, in every, for every
Percentage, per cent %	Ratio	

Algebra		
Formula, formulae	Equation	Unknown
variable		

Measurement		
Measure	Measurement	Size
Compare	Unit, standard unit	Metric unit, imperial unit
Measuring scale, division,	Guess, estimate	Enough, not enough
Too much, too little	Too many, too few	Nearly, close to, about the same as, approximately
Roughly	Just over, just under	

Length		
Millimetre, centimetre, metre, kilometre, mile	Length, height, width, depth, breadth	Long, short, tall
High, low	Wide, narrow	Thick, thin
Longer, shorter, taller, higher….and so on	Longest, shortest, tallest, highest,…..and so on	Far, further, furthest, near, close
Distance apart…..between….to….from	Edge, perimeter	Area, covers
Square centimeter (cm²), square metre (m²), square millimetre (mm²)	Ruler	Metre stick, tape measure
Yard, foot, feet, inch, inches	Circumference	

Weight		
Mass: big, bigger, small, smaller	Weight: heavy/light, heavier/lighter, heaviest/lightest	Kilogram, half kilogram, gram
Weigh, weighs, balances	Heavy, light	Heavier than, lighter than
Heaviest, lightest	scales	Tone, pound, ounce

Capacity and volume		
Litre, half litre, millilitre	Capacity	Volume
Full	Empty	More than
Less than	Half full	Quarter full
Holds, contains	Container, measuring cylinder	Pint, gallon
Centiliter	Cubic centimeters (cm³) cubic metres (m³) cubic millimeters (mm³) cubic kilometres (km³)	

Temperature		
Temperature	Degree	centigrade

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Time		
Time	Days of the week	Months of the year
Seasons	Day, week, weekend, fortnight, year, leap year, century, millennium	Birthday, holiday
Morning, afternoon, evening, night	Bedtime, dinner time, playtime	Today, yesterday, tomorrow
Before, after	Earlier, later	Next, first, last
Noon, midnight	Calendar, date, date of birth	Now, soon, early, late, earliest, latest
Quick, quicker, quickest, quickly	Slow, slower, slowest, slowly	Old, older, oldest
New, newer, newest	Takes longer, takes less time	How long ago?
How long will it be to….?	How long will it take to….?	How often?
Always, never, often, sometimes	Usually	Once, twice
Hour, O'clock, half past, quarter past, quarter to	5, 10, 15…..minutes past	a.m. , p.m.
Clock, clock face, watch, hands	Digital/analogue clock/watch, timer	Hour hand, minute hand
Hours, minutes, seconds	Timetable, arrive, depart	Roman numerals,
12-hour clock time, 24-hour clock time	Greenwich Mean Time, British Summer Time, International date Line	

Money		
Money	Coin	Penny, pence, pound
Price, cost	Buy, bought, sell, sold	Spend, spent
Pay	Change	Dear, costs more
Cheap, costs less, cheaper	Costs the same as	How much…..?
How many….?	Total	Discount
currency	Profit, loss	

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Geometry : Properties of shape		
Shape, pattern	Flat, line	Curved, straight
Round	Hollow, solid	Sort
Make, build, construct, draw, sketch	Perimeter	Centre, radius, diameter
Surface	Angle, right-angled	Congruent
Base, square-based	Soze	Bigger, larger, smaller
Symmetry, symmetrical, symmetrical pattern	Line symmetry	Reflect, reflection
Axis of symmetry, reflective symmetry	Pattern, repeating pattern	Match
Regular, irregular	Circumference, concentric, arc	Net, open
Intersecting, intersection	plane	

2-D shape		
2-D, two-dimensional	Corner, side	Point, pointed
Rectangle (inc. square), rectangular, oblong	Rectilinear	Circle, circular
Triangle, triangular	Equilateral triangle, isosceles triangle, scalene triangle	Pentagon, pentagonal
Hexagon, hexagonal	Heptagon	Octagon, octagonal
Quadrilateral	Parallelogram, rhombus, trapezium	Polygon
Right-angled	Parallel, perpendicular	x-axis, y-axis, quadrant
Dodecahedron	Net, open, closed	

3-D shapes		
3-D, three-dimensional	Face, edge, vertex, vertices	Cube, cuboid
Pyramid	Sphere, hemisphere, spherical	Cone
Cylinder, cylindrical	Prism, triangular prism	Tetrahedron, polyhedron
Octahedron		

Brookhurst Primary School — *A place to think and grow*

Position and direction		
Position	Over, under, underneath	Above, below
Top, bottom, side	On, in	Outside, inside
Around	In front, behind	Front, back
Beside, next to	Opposite	Apart
Between	Middle, edge	Centre
Corner	Direction	Journey, route
Left, right	Up, down	Higher, lower
Forwards, backwards, sideways	Across	Next to, close, near, far
Along	Through	To, from, towards, away from
Clockwise, anticlockwise	Compass point	North, South, East, West, N, S, E, W
North-East, North-West, South-East, South-West, NE, NW, SE, SW	Horizontal, vertical, diagonal	Translate, translation
Coordinate	Movement	Slide
Roll	Turn	Stretch, bend
Whole turn, half turn, quarter turn, three-quarter turn	Rotate, rotation	Angle, is a greater/smaller angle than
Degree	Right angle	Acute angle
Obtuse angle	Reflection	Straight line
Ruler, set square	Angle measurer, compass, protractor	Reflex angle

Statistics		
Count, tally, sort, vote	Survey, questionnaire, data, database	Graph, block graph, pictogram
Represent	Group, set	List, table, chart, bar chart, frequency table, bar line chart
Carroll diagram, Venn diagram	Line graph	Label, title, axis, axes
Diagram	Most popular, most common	Least proper, least common
Maximum/minimum value	outcome	Pie chart
Mean (mode, median, range as estimates for this)	Statistics, distribution	

MATHEMATICS   LONG TERM PLAN

General		
Pattern	Puzzle	Problem, problem solving
Mental, mentally	What could we try next?	How did you work it out?
Show how you…..	Explain your thinking	Explain your method
Describe the pattern	Describe the rule	Investigate
Recognise	Describe	Draw
Compare	Sort	Greatest value, least value
Mental calculation	Written calculation	Statement
Justify	Make a statement	Explain your reasoning