Building Resilience, Ambition and Respect

Maths Curriculum

-supplemented with Build a sequence & White Rose

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Haveley Hey Curriculum Statement for Maths

Intent

The 2014 National Curriculum for Maths 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

At Haveley Hey these skills are embedded within Maths lessons and developed consistently over time. We are committed to ensuring that children are able to recognise the importance of Maths in the wider world, how it is essential to everyday life and that they are also able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. We want all children to enjoy Mathematics and to experience success in the subject, with the ability to reason mathematically. We are committed to developing children's curiosity about the subject, as well as an appreciation of the beauty and power of Mathematics.

Implementation

Curriculum

To ensure whole consistency and progression, the school uses the nationally recognised White Rose Maths scheme alongside the Build a Sequence resource. Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. These teaching blocks are broken down into smaller steps, to help children understand concepts better. This approach means that children do not cover too many concepts at once which can lead to cognitive overload. Each lesson phase provides the means for children to achieve greater depth, with children who are quick to grasp new content, being offered rich and sophisticated problems, within the lesson as appropriate.

Key Concepts

The MTP that we use is a cumulative curriculum, so that once a topic is covered, it is met many times again in other contexts. For example, place value is revisited in addition and subtraction and multiplication and division. The curriculum recognises the importance of children's conceptual understanding of number. It is therefore designed to ensure that time is invested in reinforcing this to build competency. We use the White Rose curriculum to supplement ideas and pictorial examples that staff can use.

Subject Specific Approach

Lessons are planned to provide plenty of opportunities to build reasoning and problem solving elements into the curriculum. When introduced to a new concept, children have the opportunity to use concrete objects and manipulatives to help them understand what they are doing. Alongside this, children are encouraged to use pictorial representations. These representations can then be used to help reason and solve problems. Both concrete and pictorial representations support children's understanding of abstract methods.

Impact

Pupil Voice

Haveley Hey mathematicians will be able to show and share their enthusiasm for maths in a range of ways. Maths talk and vocabulary is an integral part of how we teach children to understand Mathematical concepts. We provide opportunities for children to talk, discuss, reason, question, enquire and contradict through paired, small group and whole class teaching.

Evidence of Knowledge and Skills

Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the success of each child. Every child completes summative assessments at the end of each term and at the end of the year. Children at Haveley Hey are actively encouraged to show and prove their understanding and reasoning.

Resilience

The school has a supportive ethos and our approaches supports the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Students can underperform in Mathematics because they think they cannot do it or are not naturally good at it. The school's use of White Rose Maths addresses these preconceptions by ensuring that all children experience challenge and success in Mathematics by developing a growth mind set.

Ambition

Children will be able to explain, describe, justify, prove and create their own problems to show their understanding of Maths. They will be able to deepen their understanding by asking questions and by using mathematical language to articulate this. Through an enriched Maths curriculum, children will not only strengthen their understanding of Mathematical concepts, but will leave Haveley Hey with the vital Mathematical skills needed for the real world and everyday life.

Respect

The exploration of mathematics and the activities involved will help the children to better understand and respect the subject as they move through the school. The opportunities in lessons and across the school will also allow the children to respect the work of others and the importance of working collaboratively to achieve mathematical success.

	Maths Long Term Plan					
	Autumn		Spring		Summer	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Subject content Key stage 1					
Year 1						
Main teaching points	Place value within 10 Additive structure Addition and subtraction within 10	Addition and subtraction within 10 Measure – money Geometry	Place value including length 2s, 5s and 10s Measure - capacity	Addition and subtraction Place value	Multiplication and division Fractions Time Position and direction	Addition and Subtraction Place value Measurement - mass
Year 2						
Main teaching points	Place value Addition and subtraction money	Addition and subtraction Addition and subtraction Multiplication and division	Place value incorporating addition and subtraction Measure Multiplication and division	Fractions Geometry Addition and subtraction	Addition and subtraction Time Position and direction Statistics	Mathematical curiosity
	Subject content Key stage 2:					
Year 3						
Main teaching points	Place value Mental addition and subtraction	Mental addition and subtraction Perimeter Multiplication and division	Fractions Decimals Multiply and divide by 10 Time	Geometry Measure length (including addition and subtraction) Measure mass (including addition and subtraction)	Addition and Subtraction Multiplication and Division Fractions	Money Statistics Capacity
Year 4						
Main teaching points	Place value Mental addition and subtraction	Perimeter Multiplication and division area	Fractions Decimals	Time Multiplication and division Measurement	Addition and subtraction – whole Addition and subtraction - decimals Geometry	Fractions Statistics Position and direction
Year 5						
Main teaching points	Place value – whole Place value – decimals Addition and subtraction Perimeter	Properties of number Powers of 10 Known and related facts Area Volume	Multiplication and division Fractions	Decimals Percentages Measures	Multiplication and Division Fractions Geometry	Statistics Times Position and direction
Year 6						
Main teaching points	Place value – whole Place value – decimals Addition and subtraction Properties of number	Powers of 10 Area Volume Multiplication and division	Fractions Decimals Percentages	Algebra Order of operations Ratio	Measures Geometry Position and direction Statistics	Mathematical curiosity

	Progression Document Maths							
	A Nursery mathematician can:	**A Reception mathematician can:**	**A Year 1 mathematician can:**	**A Year 2 mathematician can:**	**A Year 3 mathematician can:**	**A Year 4 mathematician can:**	**A Year 5 mathematician can:**	**A Year 6 mathematician can:**
	Number and Place Value							
Counting	recite numbers past 5	count objects, action and sounds	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number			count backwards through zero to include negative numbers	interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	use negative numbers in context, and calculate intervals across zero
	Can say one number for each item in order 1,2,3,4,5	count beyond ten	count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward	count from 0 in multiples of 4, 8, 50 and 100;	count in multiples of 6, 7, 9, 25 and 1000	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
	Knows that the last number reached when counting a small set of objects tells you how many there are in total (cardinal principle)		given a number, identify one more and one less		find 10 or 100 more or less than a given number	find 1000 more or less than a given number		
Comparing Numbers	can compare quantities using language such as, 'more than', 'fewer than'	compare numbers understand the 'one more than/ one less than' relationship between consecutive numbers	use the language of: equal to, more than, less than (fewer), most, least	compare and order numbers from 0 up to 100; use <, > and = signs	compare and order numbers up to 1000	order and compare numbers beyond 1000	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)	read, write, order and compare numbers up to 10 000000 and determine the value of each digit (appears also in Reading and Writing Numbers)
Identifying, representing and estimating	displays fast recognition of up to 3 objects, without having to count them individually (subitising) can show 'finger numbers' up to 5	subitise (recognise how many objects there are in a small group without counting) able to subitise up to 5 (ELG)	identify and represent numbers using objects and pictorial representations including the number line	identify, represent and estimate numbers using different representations, including the number line	identify, represent and estimate numbers using different representations	identify, represent and estimate numbers using different representations		

Reading and writing numbers (including Roman Numerals)	can link numerals and amounts up to 5 is experimenting with his/her own symbols and marks as well as numerals	link the number symbol (numeral) with its cardinal value	read and write numbers from 1 to 20 in numerals and words.	read and write numbers to at least 100 in numerals and in words	read and write numbers up to 1000 in numerals and in words *tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks* (copied from Measurement)	read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Comparing Numbers) 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 (appears also in Understanding Place Value)
Understanding Place Value			recognise the place value of each digit in a two-digit number (tens, ones)	recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) *find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths* (copied from Fractions)	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) *recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents* (copied from Fractions)	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) *identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places* (copied from Fractions)	

Rounding						round any number to the nearest 10, 100 or 1 000 *round decimals with one decimal place to the nearest whole number* (copied from Fractions)	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 *round decimals with two decimal places to the nearest whole number and to one decimal place* (copied from Fractions)	round any whole number to a required degree of accuracy *solve problems which require answers to be rounded to specified degrees of accuracy* (copied from Fractions)
Problem Solving	Is able to solve real world mathematical problems with numbers up to 5			use place value and number facts to solve problems	solve number problems and practical problems involving these ideas.	solve number and practical problems that involve all of the above and with increasingly large positive numbers	solve number problems and practical problems that involve all of the above	solve number and practical problems that involve all of the above

	Addition and Subtraction							
Number Bonds		explore the composition of numbers to 10, including the composition of each number (ELG) Recall number bonds for numbers 0-5 and some to 10, including double facts (ELG)	represent and use number bonds and related subtraction facts within 20	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
Mental Calculations			add and subtract one-digit and two-digit numbers to 20, including zero Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds		add and subtract numbers mentally with increasingly large numbers	perform mental calculations, including with mixed operations and large numbers Use their knowledge of the order of operations to carry out calculations involving the four operations
Written Methods			read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)		add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	

Inverse Operations, Estimating and Checking answers				recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	estimate the answer to a calculation and use inverse operations to check answers	estimate and use inverse operations to check answers to a calculation	use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
Problem Solving	Is able to solve real world mathematical problems with numbers up to 5		solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9	solve problems with addition and subtraction: * using concrete objects and pictorial representations, including those involving numbers, quantities and measures * applying their increasing knowledge of mental and written methods	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

	Multiplication and Division							
Multiplication and Division facts			*count in multiples of twos, fives and tens* (copied from Number and Place Value)	*count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value) recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	*count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value) recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	*count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value) recall multiplication and division facts for multiplication tables up to 12 × 12	*count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000* (copied from Number and Place Value)	
Mental Calculations				show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Written Methods)	use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)	multiply and divide numbers mentally drawing upon known facts multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	perform mental calculations, including with mixed operations and large numbers *associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$)* (copied from Fractions)

Written Calculation				calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Mental Methods)	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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 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 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 short division where appropriate for the context 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.

Properties of Numbers: Multiples, Factors, Prime, Square and Cube numbers						recognise and use factor pairs and commutativity in mental calculations (repeated)	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 recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	identify common factors, common multiples and prime numbers *use common factors to simplify fractions; use common multiples to express fractions in the same denomination* (copied from Fractions) *calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3* (copied from Measures)
Order of operations								use their knowledge of the order of operations to carry out calculations involving the four operations
Inverse operations, estimating and checking					*estimate the answer to a calculation and use inverse operations to check answers* (copied from Addition and Subtraction)	*estimate and use inverse operations to check answers to a calculation* (copied from Addition and Subtraction)		use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy

Problem Solving			solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	solve problems involving multiplication and division including 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	solve problems involving addition, subtraction, multiplication and division *solve problems involving similar shapes where the scale factor is known or can be found* (copied from Ratio and Proportion)

	Fractions (including Decimals and Percentages)							
Counting in fractional steps				*Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)*	count up and down in tenths	count up and down in hundredths		
Recognising fractions			recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write fractions $^{1}/_{3}$, $^{1}/_{4}$, $^{2}/_{4}$ and $^{3}/_{4}$ of a length, shape, set of objects or quantity	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence)	
					recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.			
			recognise, find and name a quarter as one of four equal parts of an object, shape or quantity		recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators			
Comparing fractions/ decimals					compare and order unit fractions, and fractions with the same denominators	compare numbers with the same number of decimal places up to two decimal places	compare and order fractions whose denominators are all multiples of the same number Read, write, order and compare numbers with up to three decimal places	compare and order fractions, including fractions >1 identify the value of each digit in numbers given to three decimal places
Rounding including decimals						round decimals with one decimal place to the nearest whole number	round decimals with two decimal places to the nearest whole number and to one decimal place	solve problems which require answers to be rounded to specified degrees of accuracy

Equivalence (including fractions, decimals and percentages)				Write simple fractions e.g. $^1/_2$ of 6 = 3 and recognise the equivalence of $^2/_4$ and $^1/_2$.	Recognise and show, using diagrams, equivalent fractions with small denominators	Recognise and show, using diagrams, families of common equivalent fractions Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$	identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents 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 as a decimal fraction	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$) Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Addition and subtraction of fractions					add and subtract fractions with the same denominator within one whole (e.g. $^5/_7 + {}^1/_7 = {}^6/_7$)	add and subtract fractions with the same denominator	add and subtract fractions with the same denominator and multiples of the same number Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^2/_5 + {}^4/_5 = {}^6/_5 = 1{}^1/_5$)	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Multiplication and division of fractions							multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$) Multiply one-digit numbers with up to two decimal places by whole numbers Divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$)

Multiplication and Division of Decimals		find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths		Multiply one-digit numbers with up to two decimal places by whole numbers Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$) Use written division methods in cases where the answer has up to two decimal places

Problem Solving					Solve problems that involve all of the above	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number Solve simple measure and money problems involving fractions and decimals to two decimal places.	solve problems involving numbers up to three decimal places Solve problems which require knowing percentage and decimal equivalents of $^{1}/_{2}$, $^{1}/_{4}$, $^{1}/_{5}$, $^{2}/_{5}$, $^{4}/_{5}$ and those with a denominator of a multiple of 10 or 25.	

	Ratio and Proportion							
Statements only appear in Year 6, but should be connected to previous learning, particularly fractions and multiplication and division.								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.
	Measurement							
Comparing and Estimating	Make comparisons between objects relating to size, length, weight and capacity.	Compare length, weight and capacity.	compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g.	compare and order lengths, mass, volume/capacity and record the results using >, < and = compare and sequence intervals of time	compare durations of events, for example to calculate the time taken by particular events or tasks estimate and read time with increasing accuracy to the nearest minute;	estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and	calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other

			heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] * time [e.g. quicker, slower, earlier, later] sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]		record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)		estimate the area of irregular shapes (also included in measuring) estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water)	units such as mm^3 and km^3.
Measuring and Calculating			measure and begin to record the following: * **lengths and heights** * **mass/weight** * **capacity and volume** * **time** (hours, minutes, seconds**)** recognise and know the value of different denominations of **coins and notes**	choose and use appropriate standard units to estimate and measure **length/height** in any direction (m/cm); **mass** (kg/g); **temperature** (°C); **capacity** (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels recognise and use symbols for pounds **(£) and pence (p)**; combine amounts to	measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml) measure the **perimeter** of simple 2-D shapes add and subtract amounts of **money** to give change, using both £ and p in practical contexts	estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing) measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by	use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling. measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres	solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate (appears also in Converting) recognise that shapes with the same areas can have different **perimeters** and vice versa

				make a particular value find different combinations of coins that equal the same amounts of money **solve simple problems** in a practical context involving addition and subtraction of money of the same unit, including giving change		counting squares	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes *recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})* (copied from Multiplication and Division)	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 [e.g. mm^3 and km^3]. recognise when it is possible to use formulae for area and volume of shapes

Telling the time			Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Recognise and use language relating to dates, including days of the week, weeks, months and years	Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. Know the number of minutes in an hour and the number of hours in a day. (appears also in Converting)	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating)	Read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting) Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting)	Solve problems involving converting between units of time	

Converting				know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)	know the number of seconds in a minute and the number of days in each month, year and leap year	convert between different units of measure (e.g. kilometre to metre; hour to minute) read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting) solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) solve problems involving converting between units of time understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	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 solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating) convert between miles and kilometres
	Geometry: Properties of Shapes							
Identifying shapes and their properties	Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.	Select, rotate and manipulate shapes to develop spatial reasoning skills. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.	recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]		identify lines of symmetry in 2-D shapes presented in different orientations	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing) Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

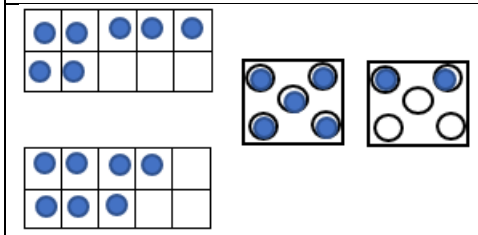
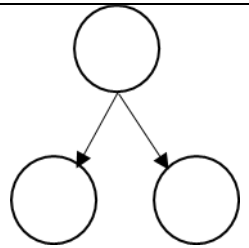
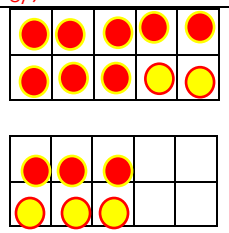
Drawing and Constructing	Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc.				draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	complete a simple symmetric figure with respect to a specific line of symmetry	draw given angles, and measure them in degrees ($^{\circ}$)	draw 2-D shapes using given dimensions and angles Recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)
Comparing and Classifying				compare and sort common 2-D and 3-D shapes and everyday objects		compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	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

Angles					Recognise angles as a property of shape or a description of a turn Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	identify acute and obtuse angles and compare and order angles up to two right angles by size	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles 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°	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							
Position, direction and movement	Understand position through words alone – for example, "The bag is under the table," – with no pointing. Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'.		describe position, direction and movement, including half, quarter and three-quarter turns.	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)		describe positions on a 2-D grid as coordinates in the first quadrant describe movements between positions as translations of a given unit to the left/right and up/down plot specified points and draw sides to complete a given polygon	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.

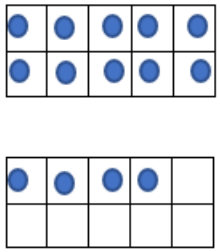
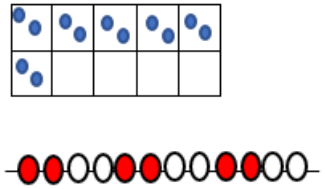
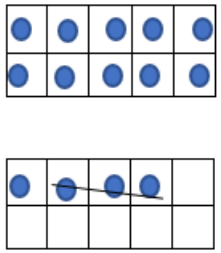
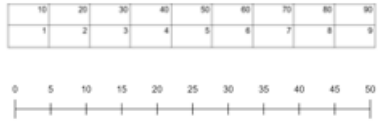
Pattern	Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	Continue, copy and create repeating patterns.		order and arrange combinations of mathematical objects in patterns and sequences				
	Statistics							
Interpreting, constructing and presenting data				interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data	interpret and present data using bar charts, pictograms and tables	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	complete, read and interpret information in tables, including timetables	interpret and construct pie charts and line graphs and use these to solve problems

Solving Problems					solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	solve comparison, sum and difference problems using information presented in a line graph	calculate and interpret the mean as an average
	Algebra							
Equations			*solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and* ***missing number problems*** *such as* $7 = \square - 9$ (copied from Addition and Subtraction) *Represent and use number bonds and related subtraction facts within 20* (copied from Addition and Subtraction)	*recognise and use the inverse relationship between addition and subtraction and use this to check calculations and* ***missing number*** *problems.* (copied from Addition and Subtraction) R*recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100* (copied from Addition and Subtraction)	solve problems, *including* ***missing number*** *problems, using number facts, place value, and more complex addition and subtraction.* (copied from Addition and Subtraction) *solve problems, including* ***missing number*** *problems, involving multiplication and division, including integer scaling* (copied from Multiplication and Division)		*use the properties of rectangles to deduce related facts and find* ***missing lengths and angles*** (copied from Geometry: Properties of Shapes)	express missing number problems algebraically Find pairs of numbers that satisfy number sentences involving two unknowns Enumerate all possibilities of combinations of two variables
Formulae						*Perimeter can be expressed algebraically as* $2(a + b)$ *where a and b are the dimensions in the same unit. (Copied from NSG measurement)*		use simple formulae *recognise when it is possible to use* ***formulae*** *for area and volume of shapes* (copied from Measurement)

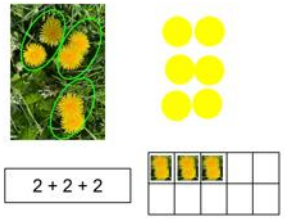
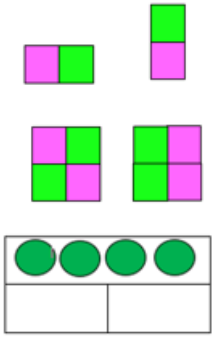
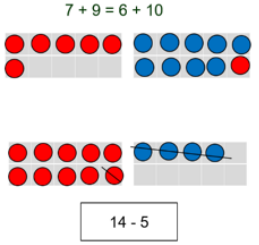
Sequences			*sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening* (copied from Measurement)	*compare and sequence intervals of time* (copied from Measurement) *order and arrange combinations of mathematical objects in patterns* (copied from Geometry: position and direction)				generate and describe linear number sequences

Year 1 – Autumn Term				
Place Value within 10	Additive structure	Addition and Subtraction within 10	Measure - money	Geometry
Count to and across 10, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 10 in numerals. Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least 1-PV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs 1AS-2 Read, write and interpret equations containing addition (), subtraction () and equals () symbols, and relate additive expressions and equations to real-life contexts	Represent and use number bonds and related subtraction facts within 10 1-NF1Develop fluency in addition and subtraction facts within 10. 1AS-1Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9. Within 5 + 1 – 1 Doubles Within 10 Five and a bit 6/7 8/9	Recognise and know the value of different denominations of coins and notes	Recognise and name common 2-D and 3-D shapes, including: • 2-D shapes [for example, rectangles (including squares), circles and triangles] • 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. **1G–2** Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular
				
… forwards backwards equal to equivalent to most, least many	Addition Subtraction equal to equivalent to	Subtract near double half, halve equals is the same as number bonds/pairs missing number		
Make links to measurement across every number unit and statistics in place value and addition/subtraction Include reasoning and problem solving in all units Green statements are ready to progress, and red are additional information				

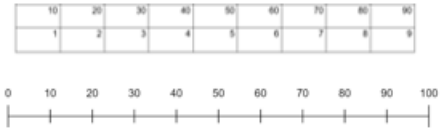
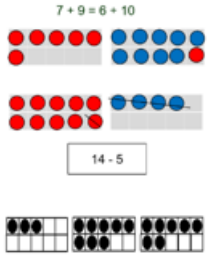
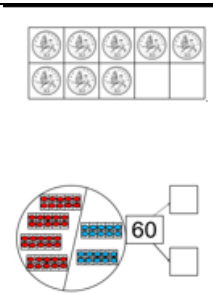
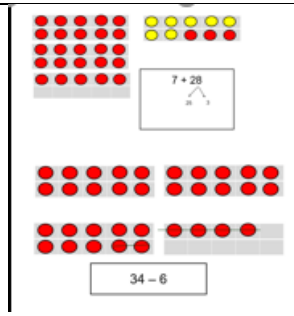
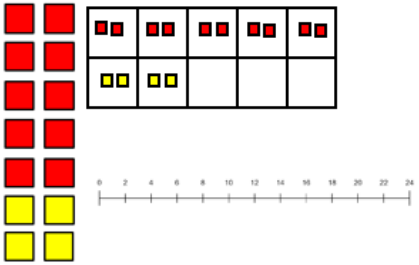
Year 1 Spring Term

Place Value including length	Place value – counting in 2s 5s, 10s	Measure - Capacity	Addition and Subtraction	Place value
Count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 20 in numerals. Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least 1-PV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = Measure and begin to record the following: • lengths and heights	Count in multiples of twos, fives and tens 1-NF2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers	Compare, describe and solve practical problems for: • capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] Measure and begin to record the following • capacity and volume • time (hours, minutes	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs 1AS-2 Read, write and interpret equations containing addition (), subtraction () and equals () symbols, and relate additive expressions and equations to real-life contexts Add and subtract one-digit and two-digit numbers to 20, including zero. Not crossing the tens boundary and drawing on bonds to 10 Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9.	Count to and across 50, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 50 in numerals. Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least 1-PV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =
				
teen numbers Measurement centimetre	Count in ones, twos, fives, tens Multiple of	litre, half litre , capacity, volume , more than , less than, quarter full		twenty-one, twenty-two ……

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

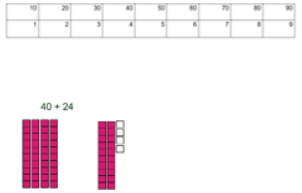
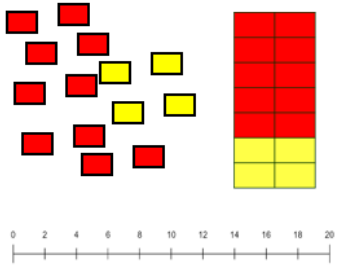
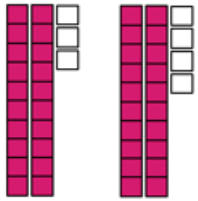
Year 1 Summer Term						
Multiplication and Division	Fractions	Time	Position and Direction	Addition and Subtraction	Place Value	Measurement - mass
Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find, and name a quarter as one of four equal parts of an object, shape or quantity.	Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon, and evening] Recognise and use language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times Compare, describe and solve practical problems for: • time [for example, quicker, slower, earlier, later] Measure and begin to record the following: • time (hours, minutes, seconds)	Describe position, direction, and movement, including whole, half, quarter, and three-quarter turns.	Add and subtract one-digit and two-digit numbers to 20, including zero. Cross the boundary for example 7 + 8 or 14 – 6	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number I-PV1 Count within 100, forwards and backwards, starting with any number. Count, read and write numbers to 100 in numerals.	Compare, describe, and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than] Measure and begin to record the following: mass/weight
						
multiplication multiply multiplied by multiple division dividing grouping, array	Fraction equal part equal grouping equal sharing parts of a whole half one of two equal parts quarter one of four equal parts	seasons: spring, summer, autumn, winter hour hand, minute hand hours, minutes half past	Underneath Centre	Across the ten	Fifty-one, fifty-two	Kilogram Half kilogram
Make links to measurement across every number unit and statistics in place value and addition/subtraction Include reasoning and problem solving in all units Green statements are ready to progress, and red are additional information						

Year 2 – Autumn Term

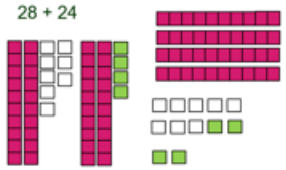
Place Value	Addition and Subtraction	Money	Addition and Subtraction	Addition and Subtraction	Multiplication and Division
Recognise the place value of each digit in a two-digit number (tens, ones) Recognise the place value of each digit in two-digit numbers and compose and decompose two-digit numbers using standard partitioning. Non-standard partitioning removed so it can be taught in Spring term Identify, represent and estimate numbers using different representations, including the number line Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10. Compare and order numbers from 0 up to 100; use <, > and = signs Read and write numbers to at least 100 in numerals and in words Use place value and number facts to solve problems. Compare and order lengths, mass, volume/capacity and record the results using >, < and =	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Secure fluency in addition and subtraction facts within 10, through continued practice. Add and subtract across 10. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: □ adding three one-digit numbers	Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that equal the same amounts of money	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: □ a two-digit number and tens Just pairs of multiples if 10 at thus stage, extended to three multiples of 10	Solve problems with addition and subtraction: □ using concrete objects and pictorial representations, including those involving numbers, quantities and measures □ applying their increasing knowledge of mental and written methods Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?". Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: □ a two-digit number and ones Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot I
					
…one or two-digit number place,					groups of times once, twice, three times … ten times repeated addition divide, divided by, divided into share, share equally left, left over one each, two each, three each … ten each group in pairs, threes … tens equal groups of row, column number Factor, product, patterns, multiplication table

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

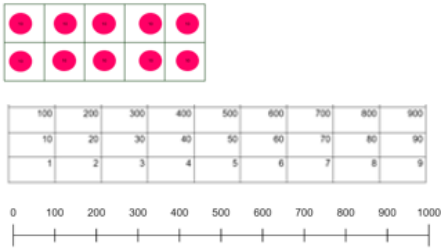
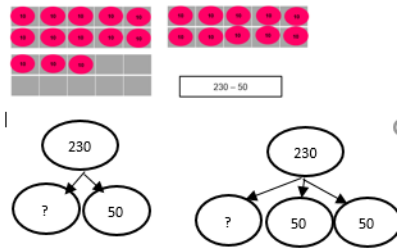
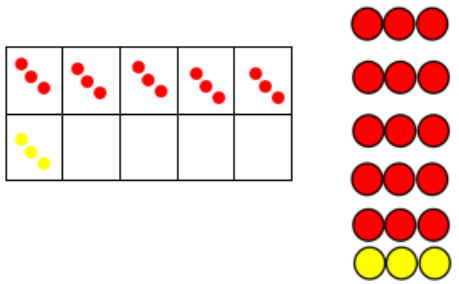
Year 2 Spring

Place Value and addition/subtraction	Measure	Multiplication and Division	Scale	Fractions	Geometry	Addition and Subtraction
Recognise the place value of each digit in a two-digit number (tens, ones) Recognise the place value of each digit in two-digit numbers and compose and decompose two-digit numbers using standard and non-standard partitioning. Emphasis on non-standard partitioning Identify, represent and estimate numbers using different representations, including the number line Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10. . Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: □ a two-digit number and tens	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using >, < and =	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, and $\frac{3}{4}$ of a length, shape, set of objects or quantity Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties. Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] Compare and sort common 2-D and 3-D shapes and everyday objects.	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: □ two two-digit numbers Not crossing boundaries Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
						
…sequence continue predict				equivalent fraction numerator, denominator two halves two quarters, three quarters	Rectangular, pentagon hexagon octagon	bought sold

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

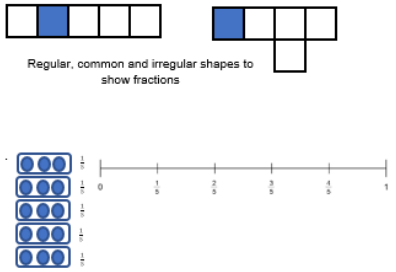
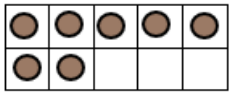
Year 2 summer				
Addition and Subtraction	Measure - Time	Position and Direction	Statistics	
Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: □ two two-digit numbers Cross 10 boundaries Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.	Compare and sequence intervals of time Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times Know the number of minutes in an hour and the number of hours in a day.	order and arrange combinations of mathematical objects in patterns and sequences Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data.	
				
	quarter past, quarter to 5, 10, 15 … minutes past	Clockwise Anti-clockwise right angle straight line	graph, block graph, pictogram represent, tally time label, title most popular, most common least popular, least common	
Make links to measurement across every number unit and statistics in place value and addition/subtraction Include reasoning and problem solving in all units Green statements are ready to progress, and red are additional information				

Year 3 – Autumn Term

Place Value	Addition and Subtraction - mental	Perimeter	Multiplication and Division
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10. Recognise the place value of each digit in *three*-digit numbers, and compose and decompose *three*-digit numbers using standard and non-standard partitioning. Compare and order numbers up to 1000 Reason about the location of any *three*-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and in words Solve number problems and practical problems involving these ideas. Round any number to the nearest 10, 100 or 1000 Solve number and practical problems that involve all of the above and with increasingly large positive numbers	Secure fluency in addition and subtraction facts that bridge 10, through continued practice. Calculate complements to 100. Add and subtract numbers mentally, including: □□a three-digit number and ones □□a three-digit number and tens □□a three-digit number and hundreds Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction	Measure the perimeter of simple 2-D shapes	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).
			
one hundred more, one hundred less approximate, approximately round, nearest, round to the nearest ten, hundred round up, round down	hundreds boundary	Perimeter	Factor Product

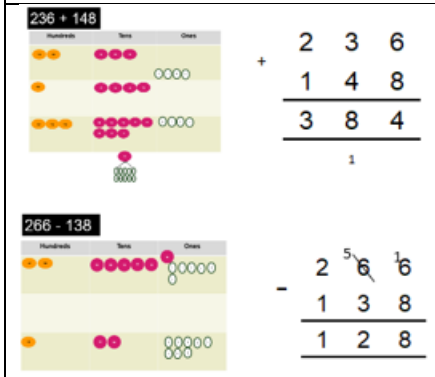
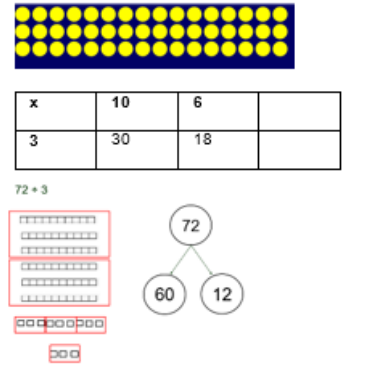
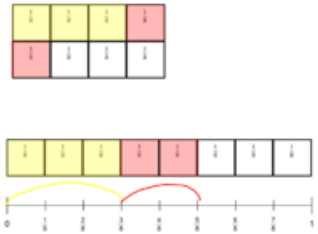
Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress and red are additional information

Year 3- Spring

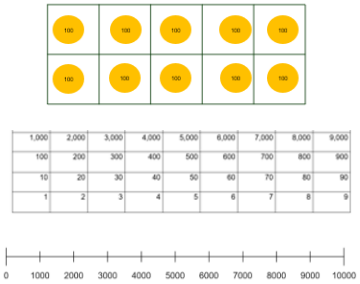
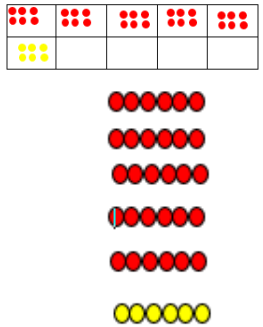
Fractions	Decimals	Multiply and divide by 10	Time	Geometry	Measurement - length	Measurement - mass
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Find unit fractions of quantities using known division facts (multiplication tables fluency). Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. Recognise and show, using diagrams, equivalent fractions with small denominators Compare and order unit fractions, and fractions with the same denominators Reason about the location of any fraction within 1 in the linear number system.	Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them Recognise angles as a property of shape or a description of a turn Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. Draw polygons by joining marked points, and identify parallel and perpendicular sides.	**M**easure, compare, add and subtract: lengths (m/cm/mm);	**M**easure, compare, add and subtract: mass (kg/g);
						
Fifths, sixths, sevenths, eighths, tenths …			Century, calendar, , earliest, latest, a.m., p.m., 12-hour clock time, 24-hour clock	compass point north, south, east, west, N, S, E, W horizontal, vertical, diagonal angle … is a greater/smaller angle tha	Millimetre, kilometre, mile, distance apart … between … to … Division	

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress and red are additional information

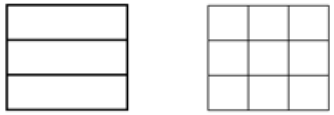
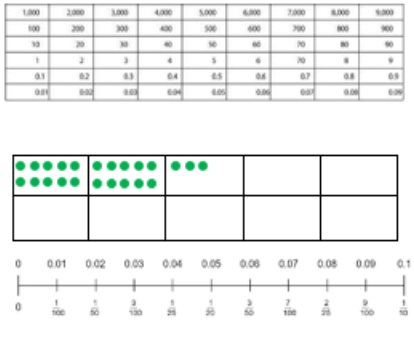
Year 3- Summer

Addition and Subtraction	Multiplication and Division	Fractions	Measure money	Statistics	Measurement - capacity
Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Add and subtract up to three-digit numbers using columnar methods. Estimate the answer to a calculation and use inverse operations to check answers Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times and divided by one-digit numbers, using mental and progressing to formal written methods Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division	Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 =6/7 Add and subtract fractions with the same denominator, within 1	Add and subtract amounts of money to give change, using both £ and p in practical contexts	Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	**M**easure, compare, add and subtract: volume/capacity (l/ml)
					
	remainder			chart, bar chart, frequency table Carroll diagram, Venn diagram, axis, axes diagram	

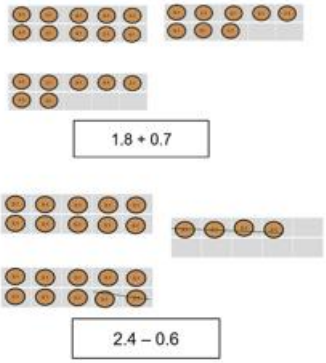
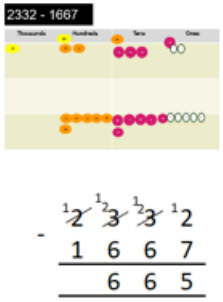
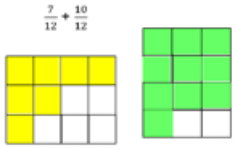
links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

YEAR 4 – AUTUMN TERM				
Place Value	Addition and Subtraction Mental	Perimeter	Multiplication and Division	Area
Identify, represent and estimate numbers using different representations **Order and compare numbers beyond 1000** Reason about the location of any *four*-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. **Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)** Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. Recognise the place value of each digit in *four*-digit numbers, and compose and decompose *four*-digit numbers using standard and non-standard partitioning.	**Find 1000 more or less than a given number** Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction **where appropriate** **Addition/Subtraction of multiples of 1000s and 100s** **Mental strategies for up to 4 digits** Estimate and use inverse operations to check answers to a calculation Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	**Recall multiplication and division facts for multiplication tables up to 12 × 12 (facts for 6,7,9,11,12 are new)** Recall multiplication and division facts up to 12 x12 , and recognise products in multiplication tables as multiples of the corresponding number. Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) **Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers** **Recognise and use factor pairs and commutativity in mental calculations**	Find the area of rectilinear shapes by counting squares
	1700 + 1800  1400 – 600 			
ten thousand one thousand more one thousand less			Square Squared	Area, Covers Square centimetre (cm^2)
Make links to measurement across every number unit and statistics in place value and addition/subtraction Include reasoning and problem solving in all units Green statements are ready to progress, and red are additional information				

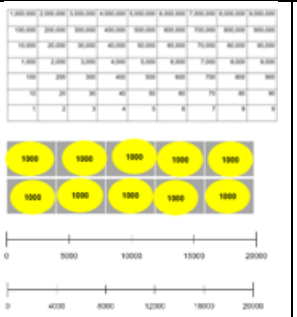
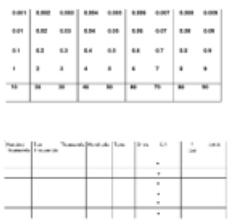
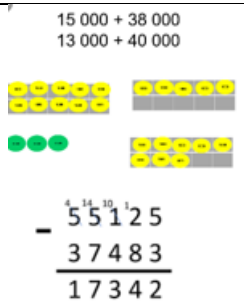
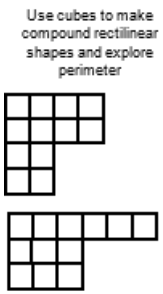
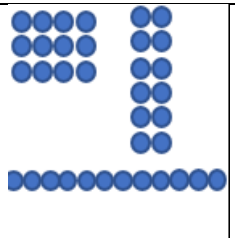
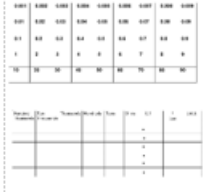
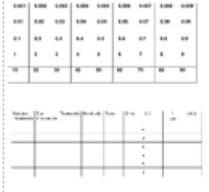
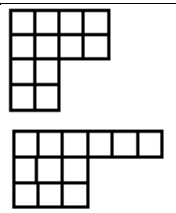
Year 4 Spring

Fractions	Decimals	Time	Multiplication and Division	Measurement
Reason about the location of mixed numbers in the linear number system. **Recognise and show, using diagrams, families of common equivalent fractions** **Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten** **Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number** Convert mixed numbers to improper fractions and vice versa	**Recognise and write decimal equivalents of any number of tenths or hundredths** **Recognise and write decimal equivalents to ¼, 2/4, ¾** **Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths** Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. **Round decimals with one decimal place to the nearest whole number** **Compare numbers with the same number of decimal places up to two decimal places** **Solve simple measure and money problems involving fractions and decimals to two decimal places.**	**Read, write and convert time between analogue and digital 12- and 24-hour clocks** **Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.**	**Multiply and divide two-digit and three-digit numbers by a one-digit number using formal written layout** Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context. **Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.** Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. Understand and apply the distributive property of multiplication.	**Convert between different units of measure [for example, kilometre to metre; hour to minute]** **Estimate, compare and calculate different measures, including money in pounds and pence**
Area model $\frac{1}{3} = \frac{3}{9}$  Bar model for improper fractions $\frac{7}{4} = 1\frac{3}{4}$ 			x | 300 | 20 | 7 6 | 1800 | 120 | 42 327 x 6 = 1800 + 120 + 42	unit, standard unit metric unit
Improper fraction Mixed number	hundredths decimal, decimal fraction, decimal point, decimal place, decimal equivalent			

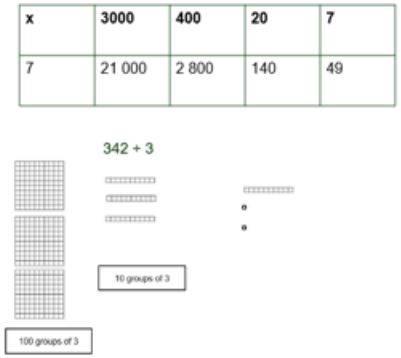
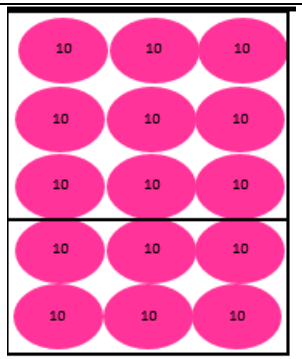
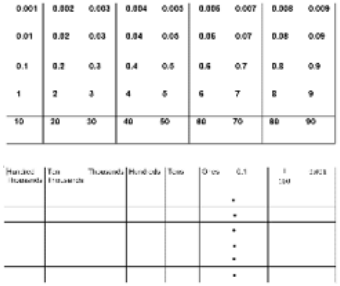
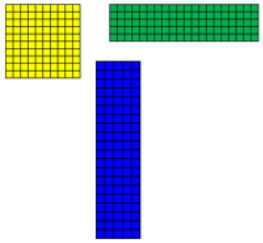
Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

Year 4 summer					
Addition and Subtraction	Addition and Subtraction	Geometry	Fractions	Statistics	Position and Direction
Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Calculating with decimals – tenths • Within 1 whole • Across 1 whole within 2 • Across 1 whole any pair of numbers to 1 decimal place	**Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate** **Estimate and use inverse operations to check answers to a calculation** **Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.** Focus on columnar calculation including measure to 2 decimal places **Solve simple measure and money problems involving fractions and decimals to two decimal places.**	**Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes** **Identify acute and obtuse angles and compare and order angles up to two right angles by size** **Identify lines of symmetry in 2-D shapes presented in different orientations** **Complete a simple symmetric figure with respect to a specific line of symmetry**	**Add and subtract fractions with the same denominator**	**Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.** **Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.**	**Describe positions on a 2-D grid as coordinates in the first quadrant** **Describe movements between positions as translations of a given unit to the left/right and up/down** **Plot specified points and draw sides to complete a given polygon.** Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant
					
		equilateral triangle, isosceles triangle, scalene triangle parallelogram, rhombus, trapezium polygon, kite,		survey, questionnaire, data	translate, translation reflect, reflection,

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

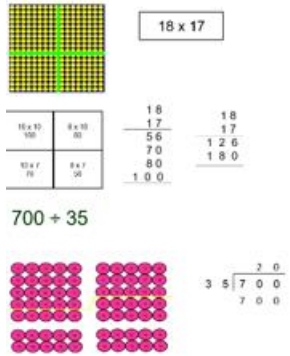
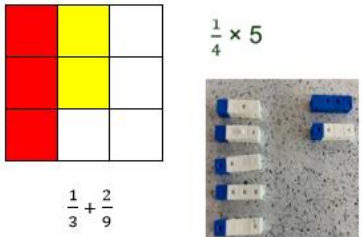
Year 5 – Autumn Term							
Place value of whole numbers	Place value of decimals	Addition and Subtraction	Perimeter	Properties of number	Multiply and divide powers of 10	Known and related facts	Area Volume
Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit 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 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 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	Add and subtract numbers mentally with increasingly large numbers eg 5-digit – 4-digit multiple of 10 Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) 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. Add and subtract decimals up to 2 decimal places including mixed decimal calculation	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	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 Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	Multiply and divide numbers mentally drawing upon known facts	Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
							
Ten thousand	thousandths			Factor pair			
Make links to measurement across every number unit and statistics in place value and addition/subtraction Include reasoning and problem solving in all units Green statements are ready to progress, and red are additional information							

Year 5 Spring

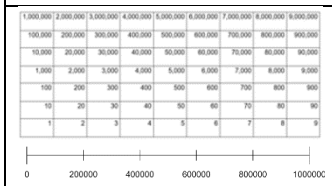
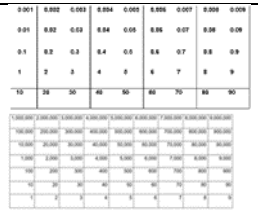
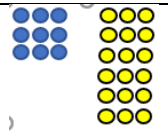
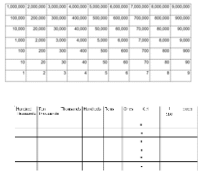
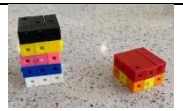
Place Value	Multiplication and Division	Fractions	Decimals	Percentages	Measure
Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero Read Roman numerals to 1000 (M) and recognise years written in Roman numerals	Multiply numbers up to 4 digits by a one 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 solve problems involving multiplication and division including 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	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= = 1 1/5 Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Compare and order fractions whose denominators are all multiples of the same number Find non-unit fractions of quantities.	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Recall decimal fraction equivalents for , and and for multiples of these proper fractions.	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 1/2 ,1/4 ,1/5 ,2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	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 Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.
					
				in every, for every percentage, per cent, %	Inch, pound, gallon, imperial

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

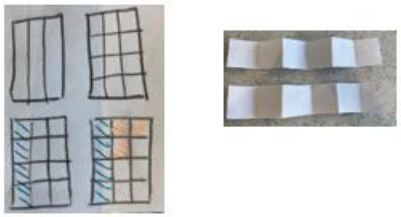
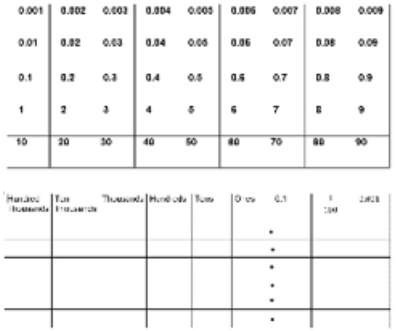
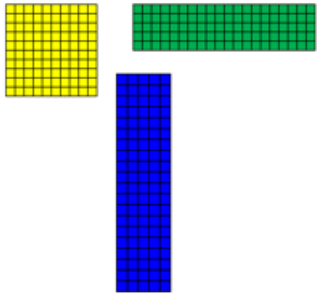
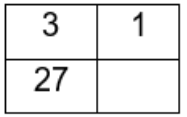
Year 5 summer

Multiplication and Division	Fractions	Geometry	Statistics	Measurement - Time	Position and Direction
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 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 • 2 x 2 • 3 x 2 • 3 ÷ 1 • 4 ÷ 1	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	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 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° Compare angles, estimate, and measure angles in degrees (°) and draw angles of a given size. 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. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. find unknown angles in any triangles, quadrilaterals, and regular polygons	Solve comparison, sum, and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables.	Solve problems involving converting between units of time sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons	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
					
			Bar line graph, line graph, time maximum/minimum value outcome		

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

Year 6 – Autumn Term						
Place value of whole numbers	Place value of decimals	Addition and Subtraction	Properties of number	Multiplication and division of powers of 10	Area and Volume	Multiplication and Division
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.	Identify the value of each digit in numbers given to three decimal places	Perform mental calculations, including with mixed operations and large numbers 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. Understand that 2 numbers can be related additively or multiplicatively and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties,	Identify common factors, common multiples and prime numbers	Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places	Recognise when it is possible to use formulae for area and volume of shapes Recognise that shapes with the same areas can have different perimeters and vice versa 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].	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 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.
						
… Ten million			Factorise prime factor		centilitre cubic centimetres(cm3), cubic metres (m3), cubic millimetres (mm3), cubic kilometres (km3	
Make links to measurement across every number unit and statistics in place value and addition/subtraction Include reasoning and problem solving in all units Green statements are ready to progress, and red are additional information						

Year 6 Spring

Fractions	Decimals	Percentages	Algebra	Order of operations	Ratio
Use common factors to simplify fractions; use common multiples to express fractions in the same denomination **C**ompare and order fractions, including fractions > 1 **A**dd 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, 1/4 × ½ = 1/8) Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 6) Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]	Solve problems involving number up to three decimal places Solve problems which require knowing percentage and decimal equivalents of 1/2 ,1/4 ,1/5 ,2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25. Multiply one-digit numbers with up to two decimal places by whole numbers	Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	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	Use their knowledge of the order of operations to carry out calculations involving the four operations numbers that satisfy an equation with two unknowns	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 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.
$\frac{1}{3}+\frac{1}{4}$ $\frac{1}{3}\times\frac{1}{2}$ 					
			formulae equation unknown		Ratio Ratio table

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

Year 6 Summer					
Measures	Geometry	Position and Direction	Statistics	National Tests	Mathematical Curiosity
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 [for example, 0.375] for a simple fraction [for example, 3/8]	Draw 2-D shapes using given dimensions and angles Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. Recognise, describe and build simple 3-D shapes, including making nets 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.	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.	Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average.		**Mathematical Investigations** 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
	circumference, concentric, arc net, open, closed		mean (mode, median, range as estimates) pie chart		

Make links to measurement across every number unit and statistics in place value and addition/subtraction
Include reasoning and problem solving in all units
Green statements are ready to progress, and red are additional information

Tool Kit Overview 1

Correct or not correct

23 + 4 = 63

Is this correct?

Analyse, Justify, Explain

Missing Numbers

9 = □ + 5

Work backwards

More than 1 missing number

□ – ○ = 8

Work backwards

Systematic recording

Missing digits

□ 3 x ◊6 = 1058

Work backwards

Logical reasoning

Match me up

23 + 8	29
21 – 5	17
32 – 3	31
5 + 12	16

Analysis, reasonableness, make decisions

Odd one out

32 + 7

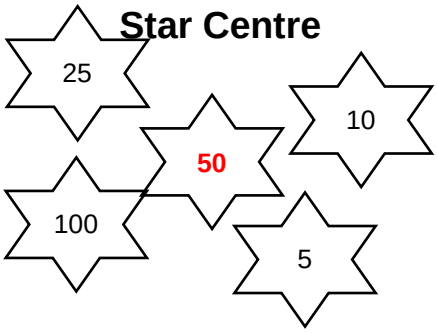
3 + 35

42 + 6

Patterns and relationships

Explanations

Star Centre



Work backwards

Cover Up

Display a set of answers (to be used in order) and find the calculation that covers it

0.3	0.6	0.8	0.7
0.4	0.1	0.5	0.6
	0.8	1	
0.6	0.7	0.3	0.4	0.6

Which Symbol

400 + 300 ☐ 300 + 400

690 – 90 ☐ 700 – 90

550 + 50 ☐ 600 – 50

430 + 50 ☐ 50 + 403

500 – 150 ☐ 600 – 150

700 – 105 ☐ 600 + 105

450 – 150 ☐ 350 – 50

200 + 400 ☐ 400 + 20

340 – 40 ☐ 40 – 340

175 + 200 ☐ 400 – 20

Order my answers

Predict the order of the answers

Prediction

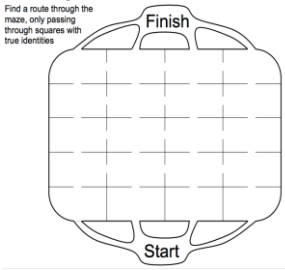
Same and Different

Same and Different

Trial and improvement

Pathways

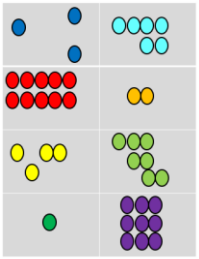
Make your way through a pathway following an answer or an instruction



Find all Possibilities

Tool Kit Overview 2

Eliminate me



- My number is greater than 5
- My number is smaller than 8
- My number is not 6

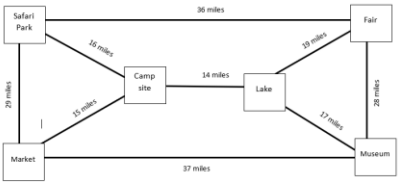
Find my Neighbour

28	35	47	23
29	24	64	33
37	40	38	49

87	

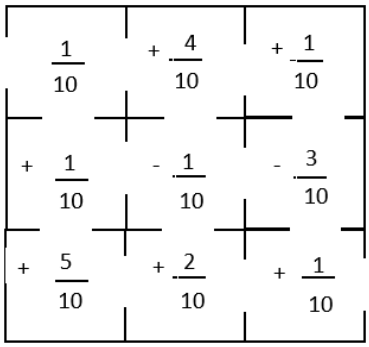
Picture Maths

Map Routes



Use the map to ask questions about the length of the journey.

Maze me



Pick some answers

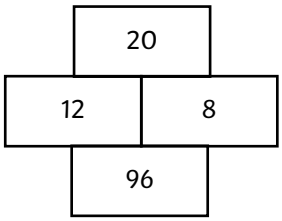
45	65	52
47	87	99

Find all the numbers between 45 and 65
Fins all the answers

Find all Possibilities

Bricks

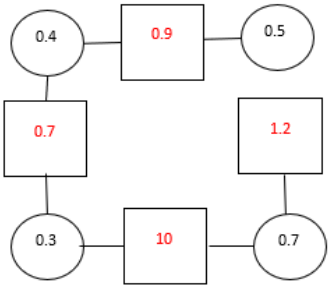
Look at the bricks. What do you see? Use the relationships in these bricks to solve the others. Note any pair of operations can be used.



Fact Squares

×	5	
5		20
2		

Connected Squares



Pick a Pair

3	45
29	11
17	60

Find pairs of numbers that when totalled are a multiple of 7

Trial and improvement

Make me equal

28 36 43 82

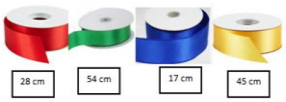
Can you make all the numbers 70 in one calculation for each number ?

Number search

6	1	8	7	8	8	0	7
4	9	1	4	5	3	2	1
2	8	7	1	3	5	0	8
7	10	7	6	1	3	7	2
6	2	8	7	2	8	9	6
8	4	8	3	0	4	1	5
1	8	9	1	6	6	4	5
6	7	5	6	2	6	7	8

Tool Kit Overview 3

Four Pictures



How much longer is the green ribbon than the blue ribbon?

How much longer is the green ribbon than the red ribbon?

What is the total length of the two longest ribbons?

I want 2 metres of any coloured ribbon. Explain why one of each colour isn't enough.

Logical reasoning

Use my clues

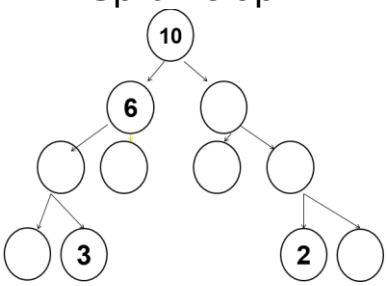
Use my clues

- Greater than 2
- Less than 3
- Digit sum of 9

- Greater than 3
- Less than 5
- Both digits are the same
- How many answers are there? Show one in the grid

Logical reasoning

Split me up



Use my numbers

Use my numbers

2 3 7

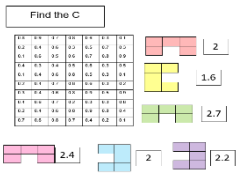
Answer	Calculation
1	
4	
5	
5	
9	
10	

Answer	Calculation
2	
6	
8	
12	

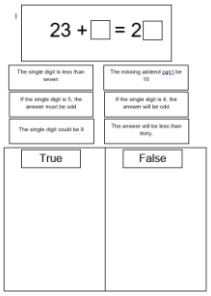
Trial and improvement

Find the C

Use a grid of numbers. Predetermine the totals of 'C' shapes for children to find

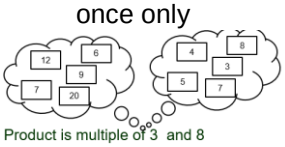


True or False



Cloud elimination

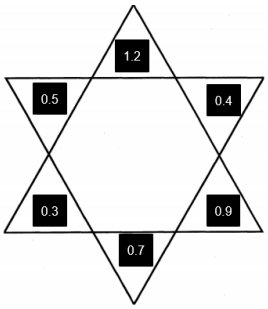
Use one number from each cloud once only



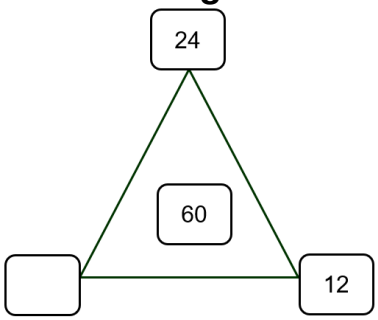
- Product is multiple of 3 and 8
- Product is a multiple of 10
- Product is all odd digits
- Product is all even digits
- Product has 12 factors

Trial and improvement

Stars

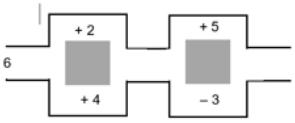


Triangles



Maze Box

How many different answers?



Systematic

Missing number balances

The missing numbers are positive whole numbers.

	×	3	=	18	-	

Logical reasoning, Systematic

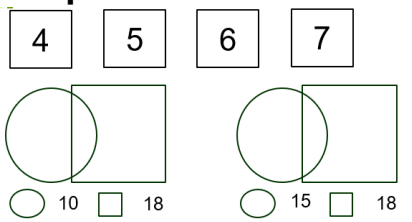
All the single digits

Use all the digits to make a subtraction calculation

2 2 3 5 7

Tool Kit Overview 4

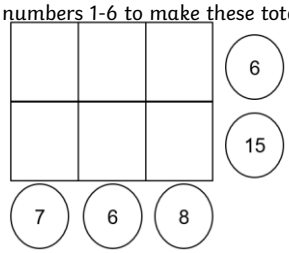
Squares and circles



Work backwards, Trial and Improvement

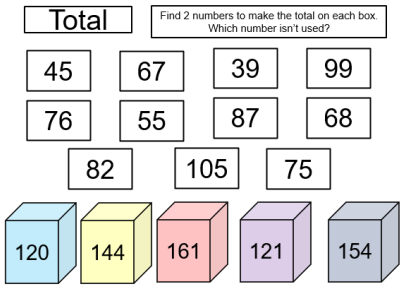
Grid Fill

Use numbers 1-6 to make these totals



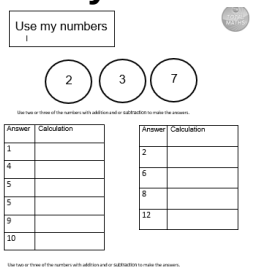
Work backwards, Trial and Improvement

Box sort



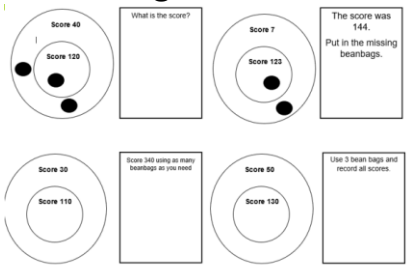
Work backwards, Trial and Improvement

Use my numbers



Trial and improvement

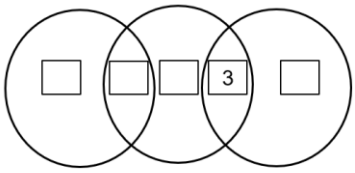
Target Board



Work backwards, Trial and Improvement

Fill my circles

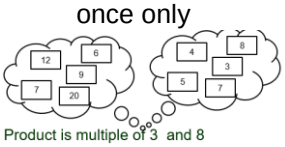
Circles total 9



Logical reasoning, patterns, and relationships

Cloud elimination

Use one number from each cloud once only



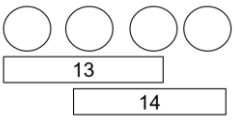
- Product is multiple of 3 and 8
- Product is a multiple of 10
- Product is all odd digits
- Product is all even digits
- Product has 12 factors

Trial and improvement

Rectangle answers

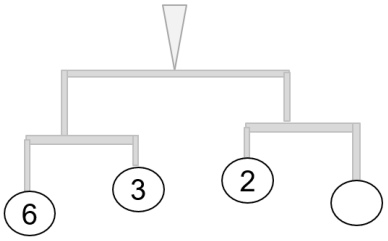
Use a set of given numbers and place them so totals/products match given total/product

Use numbers 3, 4, 5 and 6

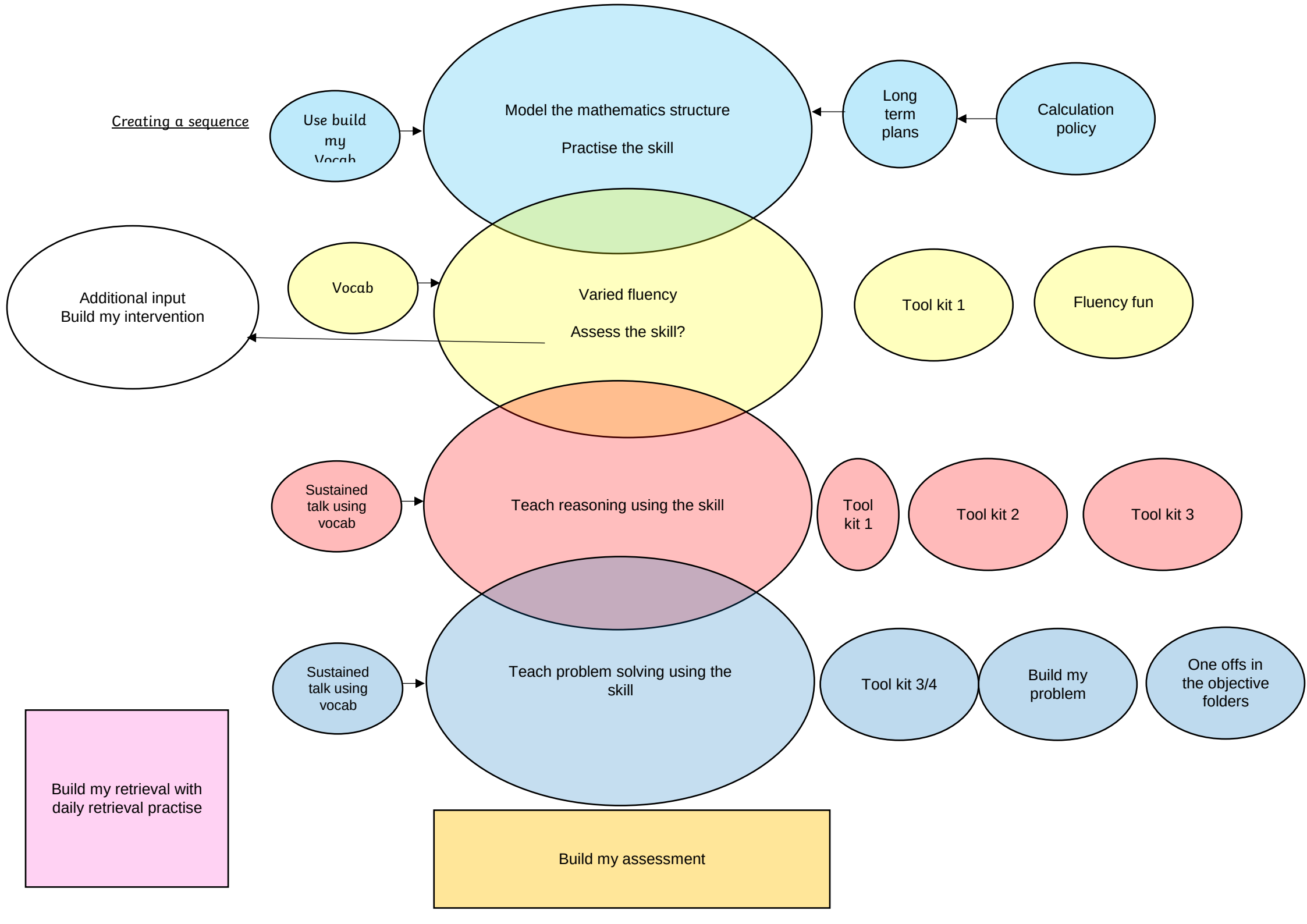


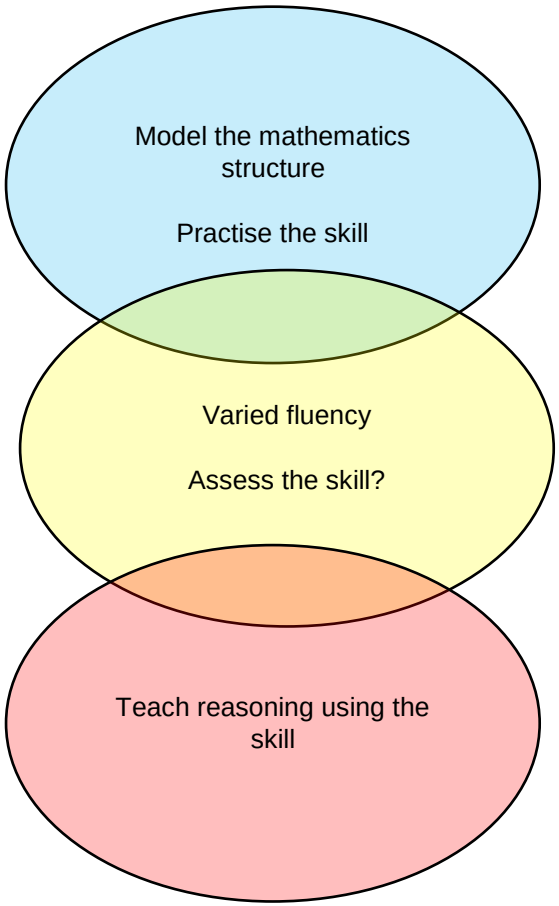
Work backwards, Trial and Improvement, systematic

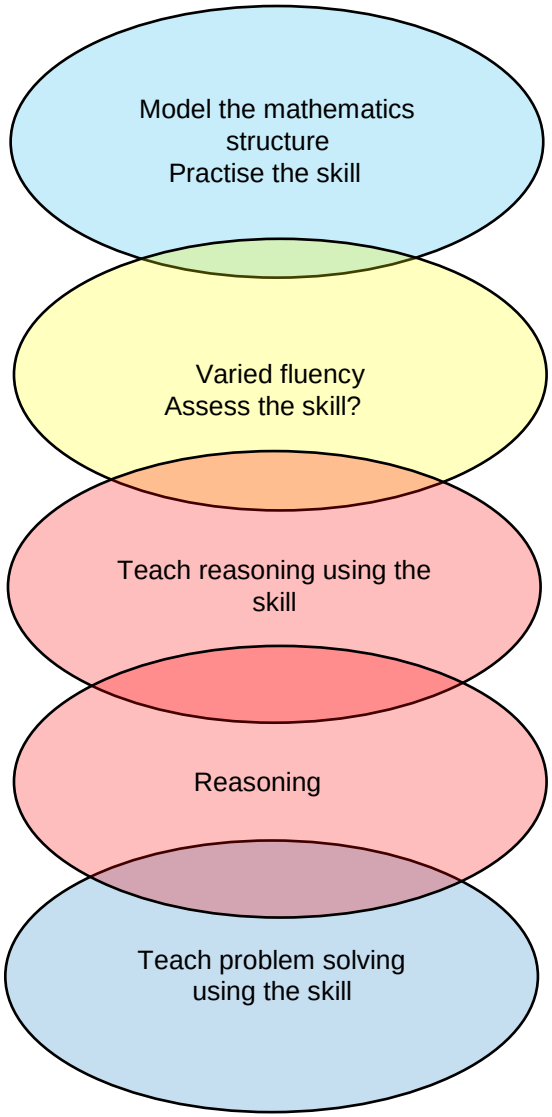
Balances

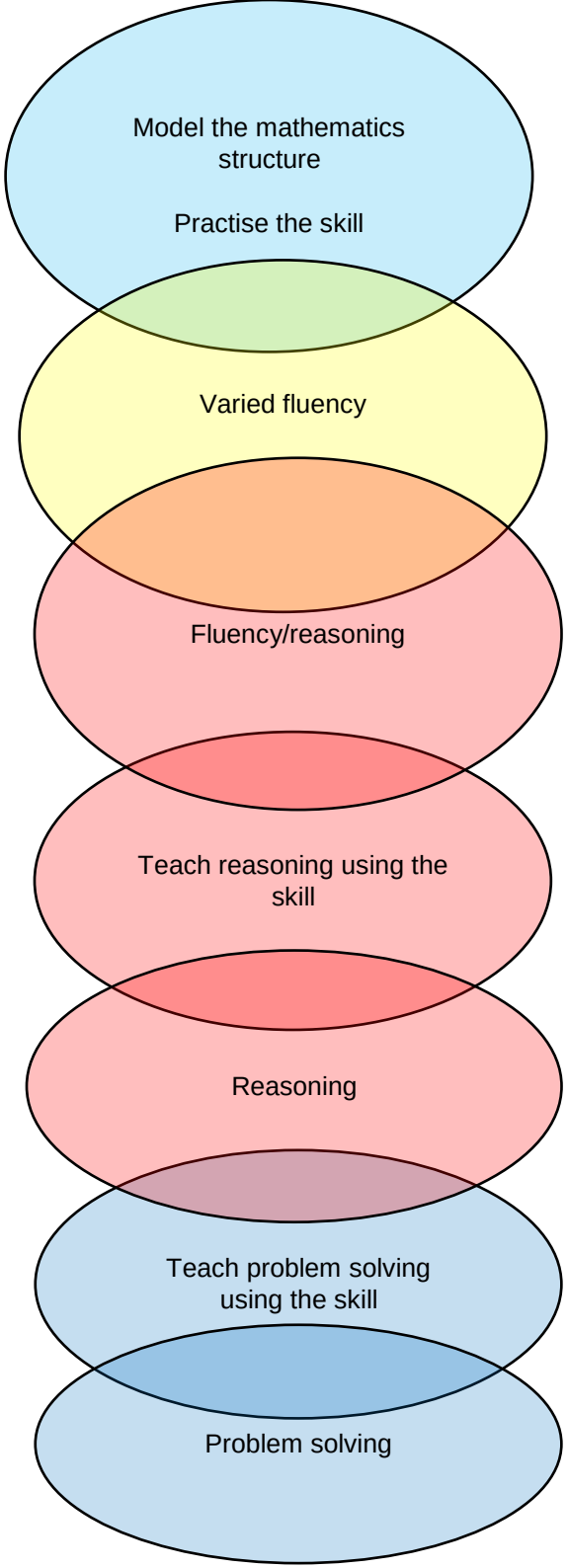


Work backwards, Trial and Improvement, systematic


Creating a sequence
Use build my Vocab
Model the mathematics structure
Practise the skill
Long term plans
Calculation policy
Additional input
Build my intervention
Vocab
Varied fluency
Assess the skill?
Tool kit 1
Fluency fun
Sustained talk using vocab
Teach reasoning using the skill
Tool kit 1
Tool kit 2
Tool kit 3
Sustained talk using vocab
Teach problem solving using the skill
Tool kit 3/4
Build my problem
One offs in the objective folders
Build my retrieval with daily retrieval practise
Build my assessment







Sequence over difference lengths