Burradon Community Primary School



Mathematics Progression Document

EYFS, Key Stage 1 and Key Stage 2

Mathematics in EYFS:

STATUTORY EDUCATIONAL PROGRAMME: Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

2-Year-old Provision		
Sets and sorting		
• I have opportunities to watch adults sort and tidy resources in the room • I can fetch a familiar object when asked 'Please bring me the doll'	• I can go and find a similar resource when asked 'could you bring me another doll?' (Adult has a doll already)	• I can put all the dolls or cars or blocks in the right area. • I can spot the 'odd' item in a group of familiar things; the teddy in the group of dolls, the block in the group of cars etc.
Pattern and Regularity		
• I have opportunities to play rhythm instruments • I have opportunities to clap along to songs and music • I have opportunities to listen to rhymes.	• I can clap or stamp my feet when asked. • I can stop and start when holding hands with an adult • I can participate with some actions when an adult sings a familiar repeating rhyme e.g. Clap, clap, clap your hands Clap, clap, clap your hands Turn around and touch the ground Clap, clap, clap your hands	• I can stop and start when the music starts and stops • I can follow a 2-step pattern of movements done by an adult. • I can offer key words when an adult sings a familiar repeating rhyme e.g. Clap, clap, clap your hands Clap, clap, clap your hands

		Turn around and touch the ground Clap, clap, clap your hands • I can participate when an adult sings a familiar repeating rhyme e.g.
Counting and Number Sense		
• I can step from one stepping stone to another • I can bring a specific item to an adult when asked	• I can go upstairs one at a time as an adult counts • I can recognise **'lots'** • I can recognise **'a few'** • I am interested in familiar numbers e.g. '2' on a birthday card • I can repeat a total when playing with an adult. • I listen to counting up number rhymes and songs	• I understand **not enough** • I understand **just right** • I understand **too much** •I know numbers exist in the wider world (bus numbers, number plates etc) •I am interested in familiar numbers •I can touch one body part at a time, when asked •I can touch and say (e.g. "car") one object at a time (objects in a line) • I participate in counting up number rhymes
Number Operations		
• I understand "**Gone!"** • I can ask for **more** • I can pass one item from a group, to an adult when asked	• I look for objects that have **gone.** • I have opportunities to **fill** and to **empty** a range of containers	• I can find a named object 'Please bring me a block / car' etc • I can bring **'another'** named object to an adult • I understand **'full'** and **'empty'**
Spatial Relationships		
• I have had opportunities to play **inside** big boxes, tunnels, tents etc • I have had opportunities to move outside, running **around** things, **behind** things. • I have had opportunities to climb. '**up, 'down'** • I have had my crawling, cruising or walking described to me by an adult.	• I understand positional vocabulary in large scale physical play, **'on top' 'under' 'next to'**	• I can understand positional vocabulary when playing with small world, **'on top' 'under' 'next to' 'in' 'out'** • I can describe (with words or gestures) where I have been playing in the room or outside space.
Shape		
• I show awareness of shape as I play. • I enjoy playing with shapes! E.g. stacking, blocks and cups, making interesting shape collections/ objects.	•I know 3Dshapes exist •I join in with "shape talk" and adjectives **'round' 'shape' 'block' 'brick' 'ball'**	•I know 2d shapes exist – drawings or images •I can join in "shape talk" and adjectives **'round' 'wide' 'tall'**

		• I can 'post' shapes • I can complete simple inset puzzles
Measurement		
• I understand **'big', 'small'** • I understand **'bigger'**	• I can use adjectives **big, small, tall, short.** • I understand **'smaller'**	• I can understand adjectives **big, small, short, tall, hot, cold, young, old, fast, slow,** • I use the term **'big'** accurately • I use the term **'small'** accurately • I can ask for **'more'**
Data Analysis		
• I can indicate which snack option I would like. This is recorded by an adult • I can indicate what my favourite toy is and watch an adult link my photo (or mini me) with my favourite toy	• I can indicate my answer to a 'question of the day' e.g. 'Do you like bananas' and watch an adult record it • I can categorise resources; I can gather food items in the home corner, or the figures from the small world area	• I have opportunities to make small collections of objects; leaves, pebbles etc and help an adult tally them • I can categorise with more specificity; tidy up mixed resources into 2 groups; separating red and blue blocks

Nursery Provision

Sets and Sorting

• I can match pairs to demonstrate a secure grasp of commonality. • I can identify how groups of objects have been sorted by identifying the similarities between the objects.	• I can sort sets of objects such as building blocks into sets of identical members. • I can copy a given set based on colour OR size	• I can identify the 'biggest' or the 'smallest' group when an adult sorts a collection into 2 groups.	• I participate in group sorting activities where children are the 'objects', sorted for hair colour, lace up shoes etc	• I can sort a collection based on 'yes' / no' criteria	• I can sort objects by creating groups with a common property such as colour OR shape OR size. • I can sort one collection of objects 2 different ways – based on size OR colour

Pattern and Regularity

• I can join in with 'Heads, shoulders, knees and toes' • I can hear body percussion and match the action e.g. clapping, knee tapping, stamping • I can copy a 1 move repeated sequence e.g. stretching up	• I can predict what will come next in an AB pattern. • I can follow zigzag, circle and wavy patterns with a crayon • I can hear a percussion beat and join in • I can copy a 2-move sequence e.g. stretch up, bend down, stretch up, bend down	• I can hear a 2-part percussion beat and join in • I have been told stories which have 'growing' patterns e.g. 'The enormous turnip', 'The napping house',	• Can spot patterns in the environment. Eg. Windows on houses, railings/fence patterns, road marking patterns, AB patterns on a basket. • I can continue a simple AB pattern based on size • I can continue a simple AB pattern based on colour • I understand the pattern of the day in simple terms e.g. nursery first then home.	• I can continue an ABAB linear pattern with everyday objects. • I can talk about the AB pattern an adult has created • I can watch an adult create an AB pattern and 'speak' the pattern • I can predict what will come next in an AB pattern.	• I can spot an error in a ABAB pattern. • I can create an AB pattern with marks • I can narrate pattern of the school day using**, now, next** • I can talk about the pattern of a day using **daytime, night-time**

Counting and Number Sense

• I participate in simple forward counting rhymes and songs • I have had opportunities to listen to counting up (growing stories) • I have had opportunities to act out growing stories • I can practice 1 to 1 correspondence e.g. put one paint brush into one pot, self-register using my picture, playing stepping stone games. • I	• I can count to 5 when singing along to simple forward counting rhymes and songs • I play games with dice with adults helping • I	• I can listen to 1 or 2 sounds and copy correctly. • I can listen to 1 or 2 sounds and tell you how many • I can count aloud to 5 on my own • I can compare 2 groups of different but similar sized items and say which has more	• I can reliably count up to 3 objects • I can do the right number of physical actions when asked to e.g. 3 claps, 2 stamps etc	• I can count to 5 in a variety of contexts – actions, images, sounds, objects • I can count to 10 when joining in with others • I can listen to up to 5 sounds and tell you how many • I can organise objects to make it easier to count accurately	• I can play simple dice track games I can compare quantities to 5 and know who has the most • I can count up to 5 objects accurately • I can do the right number of physical actions when asked up to 10 • I can subitise to 3.

Number Operations

• I can compare small sets of objects by processing language **'more than'**. • I can add 'more' when asked to when using physical resources e.g. sand or water etc	• I can compare small sets of objects by processing language '**more than'** and **'fewer than'** • I can 'take some away' when using physical resources e.g. blocks or playdough etc	• I can change capacity by adding more or by taking volume away • I can change weights by adding more or taking material away. • I can change lengths by adding more or taking materials away • I can compare 2 groups of objects and say which **has 'more'**	• I can play scoring games and say how many 'hits' and how many 'misses 'I got. • I can play sorting games where 1 collection is sorted into different amounts eg 10 children are sorted in different ways.	• I can compare 2 groups of objects and say which has '**fewer'**	• I can play scoring games where 2 different totals can be compared • I can use mathematical mark making to record the scores or outcomes from practical games and activities. • I can say who scored 'more' in a game

Spatial Relationships

• Process simple positional language - **on, under, in, out** during child-initiated play. • I will attempt a simple "drop in" jigsaw	• I can process and use **positional vocabulary** in large scale physical play. **In, On, Under, Out, Up, Down** • I can complete simple 'drop in' jigsaws	• I can process and use **positional vocabulary** accurately in small world scenes and when building. **In, On, Under, Out, Up, Down** • I will attempt a simple 2 piece jigsaw	• I can process and use positional vocabulary accurately when out in the wider locality. • I can complete a simple 2 piece jigsaw • I can copy a simple block construction from a picture with some guidance	• Process and use positional vocabulary accurately – **on, under, in, out, in front, behind.** • Process and use positional language accurately when describing pictures and images • I can complete a simple 4 piece jigsaw	• I can copy simple block constructions from a photograph. • I can follow instructions to move myself into the right place eg 'to the top of the slide, under the bridge, next to the tree' • I can move 'in front', 'behind' another child when asked to.

Shape

• I can build with different shapes and sizes and loose parts, • I make good choices based on my understanding of properties eg large blocks at the bottom	• I can use one-word **informal descriptions of properties of 3D** shapes as I build, eg **box, ball, tube**	• I can recognise and name basic 2d shapes**. Square, Triangle, Circle**	• I can ascribe meaning to 3D shapes when building according to their properties. • I process vocabulary of shape eg **sides, corners**	• I talk about the shape of everyday objects e.g. '**round' 'tall'**	• I can combine 2D shapes to make new shapes and narrate the effects created. • I can combine 3D shapes to make new shapes • I can name and discuss some properties of 2D and 3D shapes. **'sides', 'corners'; 'straight', 'flat', 'round'**

Measurement

• I can process and use **language of everyday size** during play. **Big , Small** • I can process the language of full and empty	• I can process and use **language of everyday size** during play. • I can correctly identify a '**big'** and a '**small'** item • I can make a liner pattern or line of blocks **'longer'** when asked. • I can make a linear pattern or line of blocks **'shorter'** when asked	I use everyday language to when playing; '**big/little/small/tiny, massive, huge etc** • I can compare capacities using the language 'full and empty'	• I can process language to fill and empty containers. • I can process language to create structure or arrangements **longer, shorter, taller, wider** , **bigger, smaller** than mine. I can use absolute measurement vocabulary to describe every day	• I can compare lengths by aligning and accurately identify **longer, shorter**. • I can use the language of size to describe and order objects by height **higher, lower, taller, shorter**	• I can compare area of 2D shapes by placing them on top of each other identifying and naming **bigger and smaller** • I can talk about things that have already happened and things that are going to happen- **first', 'then...**'

			objects such as **heavy, tall, big, tiny, full, empty**	• I can sequence pictures from a familiar rhyme/story and my daily routine. •	
Data Analysis					
• I can put a sticker or my photo under the picture of my favourite book / fruit / toy etc and discuss with adults • I can represent data by answering simple q's; by placing my photo in a 'yes' or 'no' column	• I can tally with objects; placing a counter in a jar each time I see a red car when watching from the yard • I can sort laundry into types; socks and shirts and say which has more	I can make comparisons by indicating which thing is most popular; which fruit has the most votes for favourite	• I can represent data by creating a human bar graph; lining up behind favourite fruits / books / toys etc • I can categorise familiar resources; ie sort cutlery	• I can tally objects; make a small collection and represent each item with a sticker or mark on a piece of paper • I can sort a collection into 2 groups; sticks and pebbles	I can notice trends; I can say there are more or fewer children in Nursery in comparison to another day based on a visual representation I recognise a range of attributes and can sort objects by both colour and shape

Reception Provision

Sets and Sorting					
• I can match objects that are the same. • I can sort sets into groups based on one given attribute. • I can sort by one principle and recognise the **odd one out** in a set. • I can make a collection of things which are similar eg leaves or pebbles	• I can recognise the sorting attribute and continue to add to an existing set • I can tell you the attribute of a set created by an adult.	• I can spot errors in a set created by adult • I can create my own set from a collection which has only 2 attributes	• I can create a set based on a given attribute. • I can make groups of 5 objects	• I can split a collection into 2 identical groups. • I can split a given collection and say which group has more.	• I can make sets 10 • I can sort a collection of shapes into 3 groups, **Circles, triangles and squares**
Pattern and Regularity					
• I can explore patterns—Completing an AB visual linear patterns (NCETM Progression) • I can narrate pattern of the school day using**, after, before.** •	• I can make AB transient linear patterns. • I can create AB transient linear pattern	I can talk about the pattern of a day using **morning, lunchtime, afternoon,**	• I can talk about the pattern of a day using **bedtime, evening**	• I can narrate the pattern of the week using the names of the day	I can narrate the pattern of a week using the **names of days, weekend, today, tomorrow, yesterday**

Counting and Number sense					
• I can compare amounts saying when they have the **same, more or fewer.** • Count forward to 10 naming the number after • I can count sets of objects or actions, demonstrating the cardinal principle within 5. • I can subitise to 3, objects and sounds. • I can explore how all numbers are made of 1s. • I can explore number composition of 3 and 4.	• I can count backwards from 10. • I can count sets of objects or actions, demonstrating the cardinal principle within 10. • I can match numerals to quantities within 10.	• I can subitise to 5. • I explore number composition to 5. • I know composition of numbers up to 6 and 7equal as '5 and a bit.'	• I can talk about the 'staircase pattern' in numbers up to 5. • I can order numbers to 10. • I know composition of numbers up to 8 as '5 and a bit.'	• I can count on from a given number • I can count forwards and back within 20. • I can count sets of objects up to 10. • I can count things that cannot be seen. • I know composition of numbers up to 10 as '5 and a bit.'	• I can verbally count beyond 20. • I can recall subtraction facts within 5 and apply. • I can count back within 10, understanding number before and counting back from a given number. • I can count sets of objects up to 20. • I can count using a rekenrek.
Number Operations					
• I understand number composition of quantities to 3. • I can compare sets of objects using language 'more' and 'fewer.'	• I can use language 'whole' and 'part' to describe objects eg a toy.	• I understand number composition of quantities to 5 • I understand the composition of 6 and 7.	• I understand the composition of 8.	• Composition of 9 • I can recall and apply **double** 1 to double 5 • I can recall **evens and odds.**	• I can recall and apply **doubles** and **halves** within 10. • I can demonstrate understanding of the composition of 10.
Spatial Relationships					
• I can copy complex large block constructions from a photograph. • I can complete a 6 piece jigsaw • I have opportunities to draw from observation	• I can describe landmarks on Google maps of a familiar area. • I can follow directions to change the position of blocks in my play • I can use dough to make figures that will fit into different sized containers	• I can complete an 8 piece jigsaw • I can copy and complete LEGO models from a plan or photograph. • I can follow verbal instructions • I have opportunities to draw things which are different sizes in one group	• I understand there is a difference between left and right • I can visualise and recall a familiar short route, eg classroom to hall, focussing on turns and landmarks • I can follow a simple map in an area I'm familiar with	• I have access to rubicks cubes and • I can remember and perform a 4 sequence set of actions • I can articulate where objects are located in the classroom	• I can complete a jigsaw with 12 pieces or more. • I can move to the left or the right when directed • I can follow a simple map in a less familiar area • I can estimate lengths and sizes before measuring • I can mentally trace the route I take to school focussing on turns and landmarks
Shape					

. • I can name 2D shapes.	• I can name the properties of 2D shapes.	• I can design with 2D shapes. • I can make 2D shapes out of other 2D shapes.	• I can sort 2D shapes according to properties.	• I can make 3D shapes out of 2D shapes • Name and attributes of 3D shapes in relation to their usefulness for building	• I can continue and create circular and symmetrical designs with 2D and 3D shapes. • Sort 3D shapes according to properties

Measurement

• I can use the vocabulary '**big**' and '**small**' • I can use the vocabulary '**heavier**' and '**lighter**.'	• I can say which is **heavier/lighter** by looking at a balance scale. • I can balance a scale using cubes. • I can explore the capacity of a container eg how many cups fill the jug?	I can use vocabulary **long** and **short**. I can use vocabulary longer and shorter. I can use vocabulary **tall** and **short.** I can use vocabulary **taller** and **shorter.**

Data Analysis

• I can follow a visual sequence and extend it • I can identify which category has the highest stack of blocks or the most stickers on a chart • I can sort a collection of plastic resources like compare bears into 2 hoops – for colour and then for size	• I can do early problem solving by deciding which activity to do based on a class vote	• I can record results from a simple sink or float activity	• I can sort a collection of natural objects like leaves into 2 hoops • I can collect data; noting down who walked to school and who walked, who wants milk etc	• I can interpret simple representations (bar, pictogram, tally) to say which has more and which has fewer.	• I can sort a collection of mixed plastic resources into 2 overlapping hoops. Red things and bears, do any fulfil both criteria and fit in the middle? • I can represent findings in pictograph form

Key Stage 1 and Key Stage 2

Number and Place Value

COUNTING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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
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 1000 000	
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					
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 *compare numbers with the same number of decimal places up to two decimal places* (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)	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)
IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS					
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		

Number and Place Value

READING AND WRITING NUMBERS (including Roman Numerals)					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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		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, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Understanding Place Value)
		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 Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
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)	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 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers)
			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)	*recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents* (copied from Fractions)	*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)

Number and Place Value

ROUNDING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			round any number to the nearest 10, 100 or 1 000	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000	round any whole number to a required degree of accuracy
			round decimals with one decimal place to the nearest whole number (copied from Fractions)	*round decimals with two decimal places to the nearest whole number and to one decimal place* (copied from Fractions)	*solve problems which require answers to be rounded to specified degrees of accuracy* (copied from Fractions)
PROBLEM SOLVING					
	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

Number: Addition and Subtraction

NUMBER BONDS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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 CALCULATION					
add and subtract one-digit and two-digit numbers to 20, including zero	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	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
read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot				use their knowledge of the order of operations to carry out calculations involving the four operations

Number: Addition and Subtraction

WRITTEN METHODS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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.

Number: Addition and Subtraction

PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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
	solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement)				Solve problems involving addition, subtraction, multiplication and division

Number: Multiplication and Division

MULTIPLICATION & DIVISION FACTS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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)	*count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value)	*count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value)	*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)	
	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall multiplication and division facts for multiplication tables up to 12 × 12		
MENTAL CALCULATION					
		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	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers
	show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)	multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	*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)

Number: Multiplication and Division

WRITTEN CALCULATION					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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	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 one-digit number using the formal written method of short division and interpret remainders appropriately for the context	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
					use written division methods in cases where the answer has up to two decimal places (copied from Fractions (including decimals))

Number: Multiplication and Division

PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			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	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)
				recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	*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)

Number: Multiplication and Division

ORDER OF OPERATIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					use their knowledge of the order of operations to carry out calculations involving the four operations
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS					
		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

Number: Multiplication and Division

PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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
				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 similar shapes where the scale factor is known or can be found* (copied from Ratio and Proportion)

Number: Fractions (including Decimals and Percentages)

COUNTING IN FRACTIONAL STEPS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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					
		compare and order unit fractions, and fractions with the same denominators		compare and order fractions whose denominators are all multiples of the same number	compare and order fractions, including fractions >1

Number: Fractions (including Decimals and Percentages)

COMPARING DECIMALS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			compare numbers with the same number of decimal places up to two decimal places	read, write, order and compare numbers with up to three decimal places	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	identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	use common factors to simplify fractions; use common multiples to express fractions in the same denomination
			recognise and write decimal equivalents of any number of tenths or 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	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$)
			recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$	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	recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Number: Fractions (including Decimals and Percentages)

ADDITION AND SUBTRACTION OF FRACTIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		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	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
				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. $^{2}/_{5} + {}^{4}/_{5} = {}^{6}/_{5} = 1\,{}^{1}/_{5}$)	
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. $^{1}/_{3} \div 2 = {}^{1}/_{6}$)

Number: Fractions (including Decimals and Percentages)

MULTIPLICATION AND DIVISION OF DECIMALS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					multiply one-digit numbers with up to two decimal places by whole numbers
			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 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

Number: Fractions (including Decimals and Percentages)

PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		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 problems involving numbers up to three decimal places	
			solve simple measure and money problems involving fractions and decimals to two 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					
					Year 6
					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					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. 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]	compare and order lengths, mass, volume/capacity and record the results using >, < and =		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 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)	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.
sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	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; 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)			

Measurement

MEASURING and CALCULATING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
measure and begin to record the following: * **lengths and heights** * **mass/weight** * **capacity and volume** * **time** (hours, minutes, seconds**)**	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	measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml)	estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing)	use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling.	solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate (appears also in Converting)
		measure the **perimeter** of simple 2-D shapes	measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres	measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres	recognise that shapes with the same areas can have different **perimeters** and vice versa

Measurement

MEASURING and CALCULATING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
recognise and know the value of different denominations of **coins and notes**	recognise and use symbols for pounds **(£) and pence (p)**; combine amounts to make a particular value	add and subtract amounts of **money** to give change, using both £ and p in practical contexts			
	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				
			find the area of rectilinear shapes by 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

Measurement

TELLING THE TIME					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	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.	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)		
recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day. (appears also in Converting)	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)			
			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	

Measurement

CONVERTING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	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
			read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)	solve problems involving converting between units of time	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)
			solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time)	understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	convert between miles and kilometres

Geometry: Properties of Shapes

IDENTIFYING SHAPES AND THIER PROPERTIES					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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 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)
	identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces				illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				
DRAWING AND CONSTRUCTING					
		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)

Geometry: Properties of Shapes

COMPARING AND CLASSIFYING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	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	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
				distinguish between regular and irregular polygons based on reasoning about equal sides and angles	
ANGLES					
		recognise angles as a property of shape or a description of a turn		know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	
		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 acute and obtuse angles and compare and order angles up to two right angles by size	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
		identify horizontal and vertical lines and pairs of perpendicular and parallel lines			

Geometry: Position and Direction

<table>
<tr><th colspan="6">POSITION, DIRECTION AND MOVEMENT</th></tr>
<tr><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Year 6</th></tr>
<tr><td rowspan="2">describe position, direction and movement, including half, quarter and three-quarter turns.</td><td rowspan="2">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)</td><td rowspan="2"></td><td>describe positions on a 2-D grid as coordinates in the first quadrant</td><td rowspan="2">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</td><td>describe positions on the full coordinate grid (all four quadrants)</td></tr>
<tr><td>describe movements between positions as translations of a given unit to the left/right and up/down</td><td>draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</td></tr>
<tr><td></td><td></td><td></td><td>plot specified points and draw sides to complete a given polygon</td><td></td><td></td></tr>
<tr><th colspan="6">PATTERN</th></tr>
<tr><td></td><td>order and arrange combinations of mathematical objects in patterns and sequences</td><td></td><td></td><td></td><td></td></tr>
</table>

Statistics

INTERPRETING, CONSTRUCTING AND PRESENTING DATA					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	interpret and construct simple pictograms, tally charts, block diagrams and simple tables	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
	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				
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					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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)	*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)	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
	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction)				find pairs of numbers that satisfy number sentences involving two unknowns
represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)					enumerate all possibilities of combinations of two variables