Number - Number and Place Value

Maths Curriculum

And

Progression Of Key Skills

Reception – Year 6

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting ***Counting in multiples***	Count reliably from 1-20	Count from 0-100, forwards and backwards, from any given number 2, 5 and 10	2, 3, and 5; in 10 from any number, forward or backward	4, 8, 50 and 100	Count backwards through 0 – negative numbers 6, 7, 9, 25 and 1 000	Count with negative numbers, forwards and backwards, through 0 Powers of 10 from any given number up to 1 000 000, forward or backward	Calculate intervals across zero **Algebra:** Generate & describe linear number sequences
Finding more/less than a given	1 more/ less	1 more/ less		10 or 100 more/less	1000 more/less		

number							
Identify, represent and estimate numbers	Estimates how many objects they can see; checks by counting them	Identify and represent using objects and pictorial representations Use the number line		Identify, represent and estimate using different representations			
Comparing and ordering ***Language of comparison***	Place 1-20 in order Compare two sets of objects – language of 'more' and 'fewer'	Use the language of: equal to, more than, less than (fewer), most, least	Numbers from 0-100; Use <, > and = signs	Numbers to 1 000	Beyond 1000	To at least 1,000,000	To 10,000,000
Place value – recognising the value of each digit			In a 2-digit number (tens, ones)	In a 3-digit number (hundreds, tens, ones)	In a 4-digit number (thousands, hundreds, tens, ones)	To at least 1,000,000	To 10,000,000; includes decimals to 3.d.p

Reading and writing numbers ***Reading Roman numerals***		Numerals – 1 to 100; words – 1 to 20	Numerals and words – to at least 100	Numerals and words – to 1000 From I to XII	To 100 (I to C); know that the numeral system changed over time to include the concepts of 0 and place value	Numerals and words – to 1,000,000 To 1000 (M); recognise years written in Roman numerals	Numerals and words – to 10,000,000
Rounding ***Rounding decimals***					To the nearest 10, 100 or 1000 With 1.d.p to the nearest whole number	Numbers to 1,000,000 - to the nearest 10, 100, 1000, 10 000 and 100 000 With 2.d.p to the nearest whole number & 1.d.p	Any whole number to a required degree of accuracy To required degrees of accuracy

Problem-solving			Solve number problems and practical problems involving all of the above.				

Number – Addition and Subtraction							
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

Number Bonds – and related subtraction facts		Represent and use these within 20	Recall and use these to 20 fluently; derive and use related facts to 100				
Properties of Operations			Show that addition is commutative and subtraction is not				Calculations involving the order of operations (BODMAS)
Mental Calculation – add and subtract		To 20, including 0	Mental calculations involving: A 2-digit number and 1s A 2-digit number and 10s Two 2-digit numbers Add three 1-digit numbers	Mental calculations involving: A 3-digit number and 1s A 3-digit number and 10s A 3-digit number and 100s		Increasingly large numbers	Large numbers and mixed operations
Written Methods – add and subtract ***(Column methods used from Year 3 onwards)***	Two 1-digit numbers, using quantities and objects; count on/back	Read, write and interpret statements involving +, - and =	Using concrete and pictorial representations, add/ subtract: A 2-digit number and 1s A 2-digit number and 10s Two 2-digit	Numbers with up to 3 digits	Numbers with up to 4 digits	Numbers with more than 4 digits	

			numbers Add three 1-digit numbers				
Checking answers – inverse and estimation			Missing number problems & checking answers using the inverse	Estimate answers & use the inverse to check answers		Use rounding & estimation to check answers & assess accuracy, in a problem-solving context	
Problem-solving ***Progresses to Algebra***		1-step & **missing number problems** using concrete objects & pictorial representations	Uses concrete objects & pictorial representations for calculations involving number, quantity and measures Applies knowledge of mental & written methods	Includes **missing number problems**, using number facts, place value, and more complex addition and subtraction	2-step problems, deciding which operations & methods to use & why	Multi-step problems, deciding which operations & methods to use & why **<u>Algebra:</u>** Express **missing number problems** algebraically Find pairs of numbers that satisfy number sentences involving two unknowns Enumerate all possibilities of combinations of two variables	

Number – Multiplication and Division							
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Multiplication		Count in multiples	Recall & use for	Recall & use for	Recall and use for		

and Division Facts		of 2, 5 and 10 *(copied from PV)*	the 2, 5 and 10 times tables Recognise odd & even numbers	the 3, 4 and 8 times tables	all times tables to 12 x 12		
Mental Calculation ***Properties of operations***			Show that multiplication is commutative and division is not	Multiply 2-digit by 1-digit numbers	Use place value & known facts to: Multiply by 0 & 1 Divide by 1 Multiply 3 numbers together Use factor pairs in mental calculations Use commutativity in mental calculations	Multiply & divide whole numbers & decimals by 10,100 and 1000	Mixed operations & large numbers Calculations involving the order of operations (BODMAS)
Property of Number ***Factors and multiples*** ***Prime numbers***					Use factor pairs in mental calculations *(copied)*	Identify: Multiples Factors Factor pairs Common factors Recall prime numbers to 19 Establish whether a number to 100 is prime	Identify: Common factors Common multiples Identify prime numbers

Square and cube numbers						Vocabulary: Prime number Prime factor Composite (non-prime) number Recognise & use square/cube numbers; notation (^{2}) and (^{3})	
Written Methods ***Multiplication*** ***Division***	Solve problems involving doubling Solve problems involving halving & sharing		Calculate statements for times tables they know; use x and = Calculate statements for times tables they know; use ÷and =	Calculate statements for times tables they know 2-digit by 1-digit formal written multiplication for these tables Calculate statements for times tables they know	Formal written multiplication: 2-digits by 1-digit 3-digits by 1-digit	Formal written multiplication, including long multiplication: 4-digits by 1-digit 4-digits by 2-digits Short division of 4-digit numbers by a 1-digit number Interpret remainders contextually	Long multiplication: 4-digits by 2-digits Short division of 4-digit numbers by 2-digit numbers where appropriate Long division of 4-digit numbers by 2-digit numbers Remainders interpreted as per context: Whole numbers

							Fractions Rounded
Checking answers – inverse and estimation				Estimate answers & use the inverse to check answers			Estimate to check answers & determine accuracy
Problem – solving ***Ratio Problem-solving***	Solve problems involving doubling, halving and sharing	1-step problems, teacher-supported, using: Concrete objects Pictorial representations Arrays	Problems & those in contexts using: Materials Arrays Repeated addition Mental methods Multiplication and division facts	To include: **Missing numbers** Integer scaling Correspondence problems where n objects is related to m objects	To include: Use of the distributive law for 2-digit by 1-digit multiplication Integer scaling Harder correspondence problems	To include: All 4 operations in combination Knowledge of factors Knowledge of multiples Knowledge of squares/cubes	Involving all 4 operations **<u>Algebra:</u>** Express **missing number problems** algebraically Finding missing values using multiplication and division Involving unequal sharing & grouping using knowledge of multiples.

Number – Fractions (including Decimals and Percentages)							
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

Counting in Fractions				Count up & down in 1/10	Count up & down in 1/100		
Recognising Fractions	Solve problems including halving & sharing	½ as 1 of 2 equal parts of an object, shape or quantity ¼ as 1 of 4 equal parts of an object, shape or quantity	$^1/_3$, $^1/_4$, $^2/_4$ and $^3/_4$ of a shape, quantity, set of objects or length	1/10 as 1 of 10 equal parts; recognise 1/10 as dividing 1-digit numbers/quantities by 10 Find fractions of a set of objects (unit and non-unit fractions, small denominators)	1/100 arise from dividing an object by 100; from dividing 10^{ths} by 10 Involving increasingly harder fractions to calculate quantities; includes non-unit fractions where the answer is a whole number		
Comparing & Ordering ***Fractions*** ***Decimals***				Unit fractions, and those with the same denominators	Those with the same number of decimal places, up to 2.d.p	Fractions whose denominators are multiples of the same number Up to 3.d.p	Fractions including those > 1
Equivalence ***Fractions***			Recognise the equivalence of $^2/_4$ and $^1/_2$	Equivalent fractions with small denominators, using diagrams	Families of common equivalent fractions using diagrams	Write equivalent fractions of a given fraction; represent visually Convert between improper fractions	Common multiples to express fractions in the same denomination Common factors

Fractions, decimals and percentages					Decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$; any number of 10ths/ 100ths	& mixed numbers Decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) Recognise and use 1000ths and relate them to 10ths, 100ths & decimal equivalents Recognise %; understand this means "parts per hundred" Write % as a fraction over 100 & as a decimal	to simplify Associate a fraction with division; calculate decimal equivalents for a simple fraction (e.g. $^3/_8$ = 0.375) Recall & use FDP equivalences, including in contexts
Adding & Subtracting Fractions				With the same denominator, within 1 whole	With the same denominator	With the same denominator & when these are multiples of the same number	With different denominators & mixed numbers
Multiplying & Dividing Fractions ***Multiplying***						Proper fractions & mixed numbers by whole numbers, supported by materials & diagrams	Simple pairs of proper fractions; write the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$)

Dividing							Proper fractions by whole numbers (e.g. $^{1}/_{3} \div 2 = {}^{1}/_{6}$)
Multiplying & Dividing Decimals ***Multiplying*** ***Dividing*** ***By 10, 100 & 1000***					Find the effect of dividing a 1 or 2-digit number by 10 & 100		1-digit numbers with up to 2.d.p by a whole number Use written division methods in cases where the answer has up to 2.d.p Multiply & divide numbers by 10, 100 and 1000 where the answers are up to 3.d.p
Problem-solving				Involving all of the above	Simple measure and money problems involving fractions and decimals to 2.d.p	Involving numbers to 3.d.p Involving % and decimal equivalents of $^{1}/_{2}$, $^{1}/_{4}$, $^{1}/_{5}$, $^{2}/_{5}$, $^{4}/_{5}$ and those with a denominator of a	Involving FDP equivalences in context

Ratio Problem-solving						multiple of 10 or 25	Involving unequal sharing & grouping using knowledge of fractions. Involving the calculation of percentages [for example & the use of percentages for comparison.

Measurement							
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Time ***Everyday language***	Use everyday language to talk about time & solve problems.	Solve problems involving language e.g. quicker, slower, earlier, later Relating to dates, including days of the week, weeks, months and years		Use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight			
Measuring, comparing & sequencing	Orders & sequences familiar events	Sequence events chronologically using language (e.g. before and after, next, first, today, yesterday, tomorrow, etc.) Measure & begin to record in hours, minutes, seconds	Compare & sequence intervals of time	Compare durations of events Compare time in terms of seconds, minutes, hours and o'clock			
Telling the time		To the hour; Half past; Draw the hands on a clock face to show this.	To 5 minutes; Quarter past; Quarter to; Draw the hands on a clock face to show this.	Estimate/read time to the nearest minute From an analogue clock; Using Roman Numerals; 12-hour digital clock; 24-hour digital			

Converting			Know the number of: Mins in an hour; Hours in a day	clock Know the number of: Seconds in a min; Days in each month; Days in a year & leap year	Solve problems converting hours to mins; mins to seconds; years to months; weeks to days Convert between 12-hour and 24-hour digital	Solve problems converting between units of time	Solve problems converting between units of time , from a smaller unit to larger unit & vice versa
Money	Use everyday language about money, to: Compare quantities Compare objects Solve problems.	Know the value of coins and notes	Use symbols for £ and p Combine amounts to make a value Find different combinations of coins that make the same amount Simple problems in context: Adding & subtracting money Change Using same unit	Problems in context: Adding & subtracting money Change Both £ and p	Calculate, money in £ and p Estimate Compare	Use all 4 operations to solve problems involving money	Solve problems involving: Calculation Conversion
Metric Measures	Use everyday language about	Describe, compare and solve practical	Compare and order, using <,>	Compare:	Compare different measures	Compare the area of squares and	Compare the volume of cubes &

Describing & comparing	size, **mass, distance and capacity** to: **Compare/order quantities** (weight/capacity, 2 items) **Compare/order objects** (length/height, 2 or 3 items) Solve problems.	problems for: **Lengths** and heights [e.g. long/short, longer/shorter, tall/short, double/half] **Mass** [e.g. heavy/light, heavier than, lighter than] **Capacity** and **volume** [e.g. full/empty, more than, less than, half, half full, quarter]	and = : **Lengths** **Mass** **Volume/capacity**	**lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml)		rectangles using cm^2 and m^2	cuboids in cm^3 m^3, extending to mm^3 & km^3
Measuring, estimating & calculating		**Lengths & heights** **Mass** **Capacity & volume**	Measure, choosing the appropriate unit and instrument: **Length & height** (m/cm) **Mass** (g/kg) **Capacity** (ml/l) **includes temperature* Estimate for the above	Measure: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml) Add & subtract with the above	Calculate **different measures** Estimate with these	Solve **measure** problems involving all 4 operations Includes scaling	Solve problems calculating **measure** Use decimal notation up to 3.d.p

… Perimeter ***… Area*** ***… Volume***				Measure perimeter of simple 2D shapes	Measure perimeter of a rectilinear shape Calculate perimeter for the above (cm and m) Calculate the area of rectilinear shapes by counting squares Between different units of measure	Measure perimeter of a composite rectilinear shape Calculate perimeter for the above (cm and m) Calculate the area of squares and rectangles in cm^2 and m^2 Estimate the area of irregular shapes Between different units of metric	Recognise that shapes with the same areas can have different perimeters & vice versa Calculate area of triangles and parallelograms Recognise when to use formulae for area Calculate volume of cubes & cuboids in cm^3 m^3, extending to mm^3 & km^3 Estimate for the above Recognise when to use formulae for volume From a smaller unit to a larger

Converting ***… into imperial units***					(e.g. km to m)	measure (e.g. km & m; cm & m; cm & mm; g & kg; l & ml) Understand & use equivalences between metric units and common imperial units e.g. inches, pounds and pints	unit & vice versa Use decimal notation up to 3.d.p. Convert between m and km

Geometry – Properties of Shapes							
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Identifying Shapes and their Properties ***2-D shapes***	Use mathematical language to describe everyday objects & shapes, including names for 'flat' 2-D shapes	Recognise and name common 2-D shapes	Describe properties of 2-D shapes. Includes: Number of sides Line symmetry in a vertical line	Identify: Horizontal & vertical lines Pairs of perpendicular & parallel lines	Identify lines of symmetry in 2-D shapes presented in different orientations	Use properties of rectangles to: Deduce related facts Find missing lengths & angles	Name parts of circles. Includes: Radius Diameter Circumference Know that the diameter is twice the radius
3-D Shapes	Use mathematical language to describe everyday objects & shapes, including names for 'solid' 3-D shapes	Recognise and name common 3-D shapes	Describe properties of 3-D shapes. Includes: Edges Vertices Faces Identify 2-D shapes on the surface of a 3-D shape	Recognise & describe 3-D shapes in different orientations		Identify 3-D shapes from 2-D representations	Describe simple 3-D shapes
Drawing & Constructing ***2-D shapes***				Draw 2-D shapes	Complete a simple symmetric figure with a specific line of symmetry	Draw given angles	Draw 2-D shapes using given dimensions & angles
3-D shapes				Make 3-D shapes using modelling materials			Build simple 3-D shapes Make nets

Comparing & Classifying			Compare & sort: Common 2-D shapes 3-D shapes Everyday objects		Compare & classify geometric shapes based on properties & sizes	Distinguish between regular/irregular polygons based on reasoning about equal sides & angles	Compare & classify geometric shapes based on properties & sizes
Angles				Recognise angles as a property of a shape/description of a turn Identify right angles Whether angles are greater or less than a RA Recognise that: 2 RA = a half-turn 3 RA = three quarters of a turn 4 RA = a complete turn	Identify acute & obtuse angles Compare & order angles by size (up to 180 deg)	Know angles are measure in degrees Estimate & compare acute, obtuse & reflex angles Identify: Angles at a point /one whole turn (total 360^{o}) Angles on a straight line & ½ a turn (total 180^{o}) Other multiples of 90^{o} Draw given angles	Recognise angles where they meet: At a point On a straight line Are vertically opposite, and find missing angles Find unknown angles in: All triangles Quadrilaterals Regular polygons

Geometry – Position and Direction							
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Position, Direction & Movement		Describe position, direction and movement, including: 1/2, 1/4 & 3/4 turns	Describe position, direction and movement using mathematical language, including: 1/2, 1/4 & 3/4 turns Rotation as a turn Clockwise/anticlockwise Movement in a straight line		Describe positions 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 Draw sides to complete a given polygon	Describe & represent the position of a shape following a reflection or translation Use the appropriate language Know that the shape has not changed	Describe positions on the full coordinate grid (all four quadrants) Draw & translate simple shapes on the coordinate plane Reflect them in the axes.
Pattern	Recognise, describe & (re)create patterns: Uses familiar objects & common shapes	Order & arrange combinations of mathematical objects in patterns & sequences.					

Statistics							
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Interpreting, Constructing & Presenting Data			Interpret & construct: Simple pictograms Tally charts Block diagrams Simple tables Ask & answer simple questions by counting objects in each category Sort categories by quantity	Interpret & present data using: Pictograms Bar charts Tables	Interpret & present discrete and continuous data using appropriate graphical methods, including bar charts & time graphs	Complete, read & interpret information in tables, including timetables	Interpret & construct pie charts & line graphs
Problem-solving				Solve 1- and 2-step questions involving the above charts/tables	Solve comparison, sum and difference problems using tables, graphs & charts	Solve comparison, sum and difference problems from line graphs	Use pie charts & line graphs to solve problems Calculate the mean & interpret it as the average