Oxbridge Lane Primary School   Maths Curriculum Overview

Year Group	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2	Additional Events
Nursery	Rationale – to provide opportunities for pupils to begin to explore the number system.		Rationale – for pupils to begin to see how numbers work together, particularly the concept of conservation of number.		Rationale – for pupils to use and apply what they know about the number system in relevant real life situations.		**On-site learning** **Outdoor Area is set up with a variety of activities to reflect the learning focus.** **Splatt Bags** **Stay and Play sessions** **Off-site learning** **Use of Ropner Park to look at pattern, sets, change and counting** **Visitors**
	Skills – • Recite some numbers in sequence to 5 and then 10 • Use some number names accurately in play • Use some number names and number language spontaneously • Begin to represent numbers using fingers or marks on paper • Know that numbers identify how many objects are in a set • Count up to three or four objects by saying one number name <u>for</u> each item • Realise not only objects, but anything can be counted i.e. steps or claps • Understand some talk about immediate past and future eg. Before, later, soon • Show an interest in shape and space by playing with shapes or making arrangements • Show an awareness of similarities of shapes in the environment		Skills – • Recite numbers to 10 • Recognise numerals to 5 • Count a small set of objects • Compare two groups of objects, saying when they have the same number • Match numeral and quantity • Compare two groups of objects, saying when they have the same number • Separate a group of three or four objects in different ways, beginning to recognise that the total is still the same • Show an interest in representing numerals • Begin to talk about the shapes of everyday objects • Select a particular named shape		Skills – • Count actions or objects that can't be moved • Count objects to 10 and beginning to count beyond 10 • Count out up to six objects from a larger group • Select the correct numeral to represent 1-5 then 1-10 • Count an irregular arrangement of up to 10 objects • Use the language of 'more' or 'fewer' to compare two sets of objects • Find the total number of items in 2 groups by counting all of them • Say the number that is 1 more than a number • Find one more or one less from a group of up to 5 objects • Show curiosity about numbers by offering comments or asking questions • Show an interest in number problems • Begin to know mathematical names for 2D shapes and some 3D shapes • Use positional language • Order two or three items by length, height, weight or capacity • Use everyday language related to time		
	Vocabulary – number, digit, set, sort, match, compare, zero – ten, how many? count, count in, count back,						
	before, later soon, shape, round, square, straight.		the same, circle, triangle , rectangle, square,		more than, fewer than, one more than, one less than, cube, cuboid, sphere, cylinder, over, under, above, below, top, bottom, side, in front, behind. time, days of the week, morning, afternoon.		
Reception	Rationale – to provide pupils with knowledge and understanding of counting using the 5 counting principles and this underpins the number system		Rationale – to build on and apply previous knowledge to extend knowledge of the number system		Rationale – to explore maths patterns and properties and learn how they can be used to calculate		**On-site learning** **Resources in our indoor and outdoor areas are changed and refined regularly so that maths**
	Skills -		Skills – • Know and use number bonds to 5		Skills – • Make simple patterns.		

	- Count to 5 using 5 principles of counting (one-one, stable order, cardinal, abstraction, order irrelevance) - Sort objects into groups. - Compare objects into identical groups - Compare objects into non-identical groups - Change within 5 – one more /one less - Time – Recognise and use language related to My Day	- Count to 10 using the 5 principles of counting. - Compare groups up to 10. - Combine two groups to find the whole. - Explore number bonds to 10 using tens frame and part whole model. - Recognise and use language associated with spatial awareness - Recognise and name common 2D and 3D shapes.	- Explore more complex patterns. - Add by counting on. - Subtract by counting back. - Count to 20 using the 5 principles of counting. - Explore numerical patterns in doubling, halving and sharing, odds and evens. - Know the language associated with measuring height, length and distance, weight and capacity. - Begin to measure and record height, length, weight and capacity	experiences can be extended through topic work and self-initiated learning. **Off-site learning-** Visits to the park, cinema, theatre and butterfly world all encourage mathematical learning. **Visitors-** Doug the dog, the librarian, Father Christmas,TVMS all promote number talk.
	Vocabulary – zero, one …five, how many? count on, count back, count in 1s, is the same as, more/less, parts of a whole			
	digit, more, larger, bigger, greater, fewer, smaller, less, before, after, time, days of the week, day week, birthday, holiday, morning, afternoon, evening, night, bedtime, dinnertime, playtime, today, yesterday, tomorrow, next, last	tens, add, more, and, make, sum, total, altogether, total, how many more/much to make? take away, how many are gone/left over? one less, two less, how many/much fewer than? difference between, far, near, close, position, under/over, above/below, top, bottom, side, on, in, outside, inside, front, back, behind, beside, next to, opposite, middle, edge, forwards, backwards, sideways, shape, pattern, flat, curved, straight, round, hollow, solid, sort, make, build, draw, corner, side, triangle, rectangle, square, circle, cube, pyramid, sphere, cone,	odd/even, pattern, pair, last, last but one, double, measure, size, compare, guess, estimate, enough, not enough, just over, just under, height, length, width, depth, high/low. wide/narrow, wide/thin, longer/shorter, weigh, heavier/lighter, balance, full, empty, half full, contains, holds, repeating pattern,	
Year 1	Rationale – to provide pupils with knowledge and understanding of the number system to enable them to progress further in the maths curriculum.	Rationale – to provide opportunities for our pupils to use and apply the number system so they understand its purpose.	Rationale – to use the maths skills they have learned in real life contexts.	**On-site learning** **Shape Walk around school** **Water Play in the playground for capacity and volume familiarization** **Measuring parts of the body** **Numbers related to the first plane flight** **Weather recording and data** **Off-site learning** **Shape Walk (and photographing) at Ropner Park and in the local community.** **Real Life shopping and budgeting for Queens**
	Skills – - Count to and across 100, forward and backward, beginning with 0 or 1, or from any given number - Count in multiples of 2s, 5s and 10s - Count in multiples of 2s, 5s and 10s - Read and write numbers to 100 in numerals - Read, write and interpret mathematical statements involving + -= signs. - Represent and use number bonds and related subtractions facts within 20. - 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 two equal parts of an object, shape or quantity.	Skills – - Given a number, identify 1 more or 1 less - Add and subtract 1-digit and 2-digit numbers to 20, including zero. - Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. - Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of my teacher. - Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. - Measure and begin to record Mass/weight - Measure & begin to record Length and heights;	Skills – - Read and write numbers from 1 –20 in numerals and words - Add and subtract 1-digit and 2-digit numbers to 20, including zero. - Recognise, find and name a half as one of two equal parts and a quarter as being one of four equal parts of an object, shape or quantity - Measure and begin to record Capacity and volume - Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. - Describe position, direction and movement, including half, quarter and three-quarter turns and link to shapes - Recognise and name common 3D shapes, including: cuboids (including cubes), pyramids and spheres.	

				Party
	• Compare, describe & solve practical problems for: Lengths & heights, Mass/weight and Capacity & volume • Recognise and know the value of different denominations or coins & notes. • Sequence events in chronological order using language (e.g. before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening). • Recognise and use language relating to dates, including days of the week, weeks, months, years. • Recognise and name common 2D shapes, including:2D, e.g. circles, triangles	• Compare, describe & solve practical problems for Time • Identify and describe common 2D shapes, including: rectangles (including squares) circles, triangles • Describe position, direction and movement, including half, quarter and three-quarter turns		**Maths Trail at Hardwick Park** **Visitors**
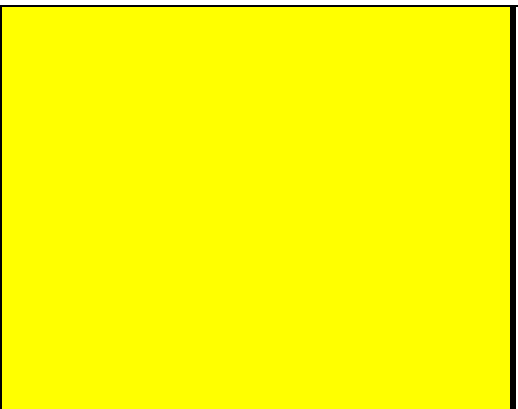
Vocabulary –

number, numeral, zero, one (two – twenty, none, how many? count (up, on, back), forwards, backwards, count in (ones, twos, fives , tens), equal to, equivalent to, is the same as, more, less, many, odd, even, few, pattern, pair, ones, tens, digit, the same number as, as many as, more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, least, one more, ten more, one less, ten less,

compare, order, size, first (second – twentieth), last, last but one, next, between, halfway between, above, below, estimate, guess, nearly, close to, about the same as, just over/under, too many/few, enough, not enough, addition, add, more, sum, and, total, altogether, double, near double, half, near halve, how many more is? subtract, take away, left over, difference between, number bonds/pairs, missing number, multiplication, multiply, multiplied by, multiple, division, dividing, grouping, sharing, array, fraction, equal part, parts of a whole, quarter, one of two/four equal parts,

pattern, puzzle, problem, mental, what could we try next? How did you work it out? explain your thinking, recognize, describe, draw, compare, sort

measure, measurement, too much/little, too many/few, before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening, days of the week, months of the year, seasons, birthday, holiday, before, after, earlier, later, next, first, last, midday/night, date, old, new, slow, quick, takes longer, takes less time, how long ago? How long will it take? how often, always, sometimes, never, often, usually, money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, dear, costs more, cheap, costs less, how much? How many? total	centimetre, metre, length, height, width, depth, long, short, tall, high, low, wide, narrow, thick thin, longer, shorter, taller, tallest, far, near, close, ruler, metre stick, kilogram, gram, weigh, balances, heavier/lighter than, heaviest, lightest, scales, shape, straight, symmetry, symmetrical, match, position, over, under, underneath, above, below, top, bottom, side, on, in, outside, inside, front, back, beside, next to, opposite, between, middle, edge, centre, corner, rectangle, circle, triangle, square, movement, slide, turn	litre, capacity, full, half full, empty, holds, container, hour, half hour, half past, clock, watch, time, hour/minute hand, hours, minutes, flat, curved, round, hollow, solid, cube, cuboid, pyramid, sphere, cone, cylinder, face, side, edge, vertex,

Year 2	Rationale – to ensure an understanding of and fluency in all areas of the KS1 arithmetic curriculum with a focus on making use on mental skills to ensure they have the tools to access further learning. Pupils will begin to articulate their mathematical thinking.	Rationale – to provide opportunities to use and apply their calculation skills and begin to make links between concepts	Rationale – to ensure pupils see the purpose of the skills they have learned by using them in real life contexts	**On-site learning** **Time Graphs in Slime Experiment** **Measuring growth of plants and comparing data** **Use of measuring weight for bread making including simple ratio** **Water play outside to compare volume and capacity** **Animal Top Trumps** **Off-site learning** **The Deep -exploring data, finding shapes** **Weather Station data and comparisons** **Visitors**

Skills –	Skills –	Skills –
• Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward.	• Compare and order numbers from 0 up to 100; use < > and = signs.	• Recognise the place value of each digit in a 2-digit number.
• Read and write numbers to at least 100 in numerals and in words.	• Show that addition of any two numbers can be done in any order (commutative) and subtraction of one number from another cannot.	• Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
• Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 10	• Calculate the mathematical statements for multiplication and division within the multiplication tables and write them using the x ÷= signs.	• Recognise that division is the inverse of multiplication and use to check calculations.
• Add and subtract numbers mentally, including: 2-digit numbers and ones ; 2-digit numbers and tens ; two 2-digit numbers ; adding three 1-digit numbers	• Show that multiplication of two numbers can be one in any order (commutative) and division of one number by another cannot.	• 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)
• Recall and use multiplication and division facts for the 2, 5 and 10 tables, including recognising odd and even numbers	• Write simple fractions and recognise the equivalence.	• Compare and sort common 2D and 3D shapes and everyday objects.
• Recognise, find, name and write fractions 1/3, 1/4, 2/4, 1/2, 3/4 of a length, shape, set of objects, or quantity.	• Identify 2D shapes on the surface of 3D shapes.	• Choose and use appropriate standard units to estimate and measure: temperature (·C); capacity (l/ml) to the nearest appropriate unit, using, thermometers and measuring vessels.
• Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line.	• Order and arrange combinations of mathematical objects in patterns and sequences	• Compare and sequence intervals of time.
• Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.	• Compare and order volume/capacity and record the results using >, < and =.	• Find different combinations of coins that equal the same amounts of money.
• Compare and order lengths, mass, and record the results using >, < and =	• Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	• Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.
• Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.	• Choose and use appropriate standard units to estimate and measure: length/height in any direction (m/cm); mass (kg/g) to the nearest appropriate unit, using rulers and scales.	• Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
• Tell and write the time to quarter past/to 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.	• Ask and answer questions about totalling and compare categorical data
• Interpret and construct: pictograms; tally charts; block diagrams and simple tables.		

Vocabulary – all of the above and (new to Year 2):

twenty one – one hundred, two hundred – one thousand, count in threes/ fours and so on, tally, sequence, continue, predict, rule, greater than, less than, hundreds, one/two/three digit number, place, place value, stands for, represents, exchange, twenty first and so on, exact/ly, one hundred more/less, number facts, tens boundary, groups of, times, once, twice, three times and so on, repeated addition, divided by, divided into, share, share equally, left, left over, one each, two each and so on, group in pairs, threes etc., equal groups of, row, column, multiplication table, multiplication/division fact.

show how you, explain your method, describe the pattern, describe the rule, investigate, mental calculation, written calculation.

hour, minutes, seconds, o'clock, half past, quarter to, quarter past, watch, hands, length, mass, height, depth, long, longer, longest, short, shorter, shortest, tall, taller, tallest, high, higher, highest, low, wide, narrow, deep, shallow, thick, thin,	in a different order, five minutes to, five minutes past, equivalent fraction, mixed number, metre, ruler, metre stick, measuring scale, tape measure, gram, mililitre, contains, 5 10 15 minutes past, digital/analogue clock, timer, surface.	above, below, night, midnight, bedtime, dinnertime, playtime, day, week, weekend, month, year, fortnight, next, last, now, soon, early, late, money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, charge, costs more, costs

	further, furthest, numerator, denominator, two halves, two quarters, three quarters, one third, two thirds, one of three equal parts, line symmetry, rectangular, circular, triangular, pentagon, hexagon, octagon, tally, graph, block graph, pictogram, represent, label, title.		less, cheaper, costs the same as, how much, temperature, degree, clockwise, anticlockwise, right angle, straight line, most popular, most common, least popular, least common.	
Year 3	Rationale – to extend their use of mental numeracy and begin to use it within structured formats to ensure accuracy. Pupils will continue to articulate their maths' thinking	Rationale – to provide opportunities for pupils to understand how fractions are a part of the whole number system	Rationale – to provide real life contexts where pupils can use and apply their skills ensuring the pupils use visualisation to help them use the context to both break into a problem and find a solution	**On-site learning** **Looking at reflections** **Use of scales on force-meters** **Looking at shapes within** **Bubble Fun session** **Roman numerals** **Journey lengths** **Making a maths trail around school for KS1** **Off-site learning** **Looking for shape properties within signs and symbols in the local community** **Visit to Saltholme, statistics on birdlife (pictograms and bar charts)** **Visitors**
	Skills – - Count from 0 in multiples of 4, 8, 50 and 100. - Find 10 or 100 more or less than a given number. - Read and write numbers to 1,000 in numerals and words - Recall and use the multiplication and division facts for the 3, 4 and 8 tables. - Write and calculate mathematical statements for multiplication using known multiplication tables, including 2-digit x 1-digit, using mental and progressing to formal written methods. - Write and calculate mathematical statements for division using known multiplication tables, including 2-digit x 1-digit, using mental and progressing to formal written methods. - Measure the perimeter of simple 2D shapes. - Estimate and read time with increasing accuracy to the nearest minute; Tell and write the time from an analogue clock, including using Roman numerals from I to XII - Make 3D shapes using modelling materials; recognise 3D shapes in different orientations; and describe them - I can interpret and present data using: bar charts; pictograms and tables	Skills – - Compare and order numbers up to 1000 - Recognise the place value of each digit in a 3 digit number - Add and subtract numbers mentally, including: 3-digit number and ones; 3-digit numbers and tens; 3-digit numbers and hundreds - Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction. - Write and calculate mathematical statements for multiplication and division using known multiplication tables, including use of money and length - Recognise and show, using diagrams, equivalent fractions with small denominators. - Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. - Compare and order unit fractions, and fractions with the same denominators. - Add and subtract fractions with the same denominator within one whole. - Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/ capacity (l/ml). - Read 12-hour and 24-hour clocks - Record and compare time in terms of seconds, minutes, hours. - Use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. - Draw 2D shapes - Recognise angles are a property of shape or a description of a turn.	Skills – - Estimate the answer to a calculation and use the inverse operations to check answers. - Count up and down in tenths; recognise that tenths arise from dividing and object into ten equal parts and in dividing numbers or quantities by 10. - Add and subtract measures (length, weight and volume) with up to 3 digits, using formal written methods of columnar addition and subtraction. - Solve word problems including missing number problems, number facts, place value and more complex addition and subtraction. - Practise formal methods of multiplication and division, including a high focus on reasoning. - Know the numbers of seconds in a minute and the number of days in each month, year and leap year. - Compare durations of events, for example to calculate time taken by particular events or tasks. - Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. - Solve 1-step and 2-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts pictograms and other graphs.	

		• Identify right angles, recognise that two right angles make a half-turn, three make three quarters and four a complete turn • Identify whether angles are greater than or less than a right angle		
	Vocabulary – all of the above and (new for Year 3): eights, fifties, hundreds, factor of, relationship, one hundred more, one hundred less, hundreds boundary, factor, product, remainder, greatest value, least value, statement.			
	Roman numerals, perimeter, hemisphere, prism, triangular prism, chart, bar chart, frequency table, Carroll diagram, Venn diagram, axis, axes, diagram.	sixths, sevenths, eighths, tenths, millimetre, kilometre, mile, distance apart, distance between, distance…to…from, a.m./p.m. 12 hour clock, 24 hour clock, pentagonal, hexagonal, octagonal, quadrilateral.	approximate, approximately, round, nearest, round to the nearest ten/hundred, round up/down, century, calendar, earliest, latest, right-angled, parallel, perpendicular, horizontal, vertical, compass point, north, south, east, west, (N S E W), diagonal, is a greater angle than, acute angle, obtuse angle.	
Year 4	Rationale – to ensure accuracy and fluency in calculations with both mental and written methods. Pupils will be encouraged to see how operations work together and how they can use known numbers facts in a variety of contexts. They will articulate clearly their mathematical thinking	Rationale – to ensure our pupils use and apply their knowledge in a variety of problem solving and investigation tasks. Pupils will begin to work systematically showing they can organise their mathematical thinking	Rationale – to understand how the decimal number system works through the use of real life contexts of money and measure	**On-site learning** **Coding – symbols and instructions** **Grid references** **Identifying 3D shapes in**

	Skills –	Skills –	Skills –	masks and use of reflective symmetry
	• Count backwards through zero to include negative numbers	• Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value.	• Compare and order numbers beyond 1000	**Making a Maths Trail around Ropner Park for KS1**
	• Count in multiples of 6, 7, 9, 25 and 1000.	• Find 1000 more or less than a given number.	• Round any number to the nearest 10, 100 or 1000	
	• Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate.	• Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder.	• Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	**Off-site learning** **Orienteering – following a map and grid references**
	• Estimate and use inverse operations to check answers to a calculation.	• Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together.	• Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	**Jorvik Viking museum, runic codes**
	• Recall multiplication and division facts for tables up to 12x12.	• Find the effect of multiplying a number with up to 2 decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	• Count up and down in hundredths; recognise that hundredths arise from dividing an object into one 100 equal parts and in dividing numbers or quantities by 100.	**Visitors**
	• Recognise and use factor pairs and commutativity in mental calculations.	• Recognise and show, using diagrams, families of common equivalent fractions.	• Recognise and write decimals equivalents of any number of tenths or hundredths	
	• Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.	• Add and subtract fractions with the same denominator.	• Recognise and write decimal equivalents to ¼, ½ and ¾.	
	• Read, write and convert time between analogue and digital 12-and 24-hour clocks.	• Find the area of rectilinear shapes by counting squares.	• Round decimals with one decimal place to the nearest whole number.	
	• Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.	• Describe positions on a 2D grid as coordinates in the first quadrant	• Compare numbers with the same number of decimal places up to two decimal places.	
	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	• Identify lines of symmetry in 2D shapes presented in different orientations.	• Convert between different units of measure (e.g. km to m; hr to min).	
	• Interpret and present discrete and continuous data using appropriate graphical methods, including: bar charts; time graphs	• Complete a simple symmetric figure with respect to a specific line of symmetry.	• Describe positions on a 2D 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 given polygon	
			• Identify acute and obtuse angles, and compare and order angles up to two right angles by size.	
	Vocabulary – all of the above and (new to Year 4): ten thousand, hundred thousand, million, sixes, sevens, nines, twenty-fives, next, consecutive, one thousand more/less. justify, make a statement.			
	integer, positive, negative, above/below zero, minus, negative numbers, inverse, commutative law, squared, cubed, unit, standard unit, metric unit, breadth, edge, area, covers, square centimetres, line, timetable, arrive, depart, regular, irregular, 2D, two dimensional, oblong, rectilinear, equilateral triangle, isosceles triangle, scalene triangle, parallelogram, rhombus, trapezium, polygon, survey, questionnaire, data.	hundredths, decimal, construct, sketch, centre, reflect, reflection.	round to the nearest thousand, decimal place, decimal fraction, decimal point, decimal equivalence, proportion, measuring cylinder, leap year, millennium, noon, north-east, north-west, south-east, south-west, NE, NW, SE, SW, translate, translation, rotate, rotation, ruler, set square, angle measurer, compass.	
Year 5	Rationale – to consolidate all arithmetic methods using mental	Rationale – to use and apply maths skills and concepts to a	Rationale – Pupils should be encouraged to use the properties	**On-site learning**

and written numeracy skills beginning to consider which method is most efficient to use in a particular calculation	variety of problem solving and investigation activities working systematically and articulating clearly what they have done and why	of numbers to help them see patterns and connections across concepts.	**Measuring Forces using different scales on force-meters**
Skills – • Count forward or backwards in steps of powers of 10 for any given number up to 1,000,000. • Count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000. • Add and subtract numbers mentally with increasingly large numbers. • Add and subtract whole numbers with more than 4 digits including using formal written methods (columnar addition and subtraction). • Identify multiples and factors including finding all factor pairs of a number and common factors of two numbers. • Multiply and divide numbers mentally drawing upon known facts. • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers and establish whether a number up to 100 is prime and recall prime numbers up to 19. • Multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers. • 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. • Measure and calculate the perimeter of composite rectilinear shapes in cm and m. • Calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm2) and square metres (m2) & estimate the area of irregular shapes. • Know angles are measured in degrees; estimate and compare acute, obtuse & reflex angles. • Identify angles at a point on a straight line & ½ a turn (total 180 degrees); and identify angles at a point & one	Skills – • Interpret negative numbers in context, count forward and backwards with positive and negative numbers including through zero. • Read Roman numerals to 1000 and recognise years written in Roman numerals. • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. • Divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context. • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements. • Calculate and compare the area of rectangles (including squares) including using standard units, square centimetres (cm2) and square metres (m2) & estimate the area of irregular shapes. • Estimate volume (e.g. using 1 cm3 blocks to build cubes, including cuboids) & capacity (e.g. using water). • Convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml). • 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 • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles • Identify 3D shapes, including cubes and other cuboids, from 2D representations • Use the properties of rectangles to deduce related facts & find missing lengths & angles. • Solve comparison, addition and difference problems using information presented in a line graph	Skills – • 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, 10000 or 100000. • Solve addition and subtraction multi-step problems in contexts, deciding which operations & methods to use and why. • Recognise and use square numbers and cube numbers, and the notation for square2 and cubed3. • Compare and order fractions whose denominators are all multiples of the same number. • 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. • Recognise the percent 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 involving converting between units of time. • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	**Explore shape properties in digital art (reflection, rotation, tessellation)** **Shape Facts and Figures, recording big numbers.** **Grid references** **Mayan Maths** **Making a Maths Trail around school for Y3 and Y4** **Off-site learning** **Architecture of Bridges** **Menu budgeting in restaurant visit** **Tees Valley, mapwork and recording of river data** **Visitors**

	- whole turn (total 360 degrees); Identify other multiples of 90 degrees. - Draw given angles, and measure them in degrees. - Solve comparison, addition and difference problems using information presented in a line graph.			
	Vocabulary – all of the above and (new to Year 5) factor pair, greater than or equal to, less than or equal to, formula, divisibility, square number, prime number, ascending/descending order, round to the nearest ten thousand, one's boundary, tenths boundary. explain your reasoning.			
	thousandths, square metre, square millimetre, x-axis, y-axis, protractor.	proper/improper fraction, equivalent, simplified to, cancel, volume, congruent, axis of symmetry, reflective symmetry, octahedron, spherical, coordinate, bar line chart, line graph, maximum value, minimum value, outcome.	in every, for every, percentage, per cent, %, imperial unit, mile, inch, pint, gallon, pound, ounce.	
Year 6	Rationale – for pupils to be able to calculate accurately with all operations in whole numbers, fractions and decimal contexts. Pupils will know a variety of methods, select methods according to efficiency and articulate clearly their mathematical thinking	Rationale – for pupils to use and apply their maths in a variety of real life concepts. They should work systematically, organise their thinking and use visualisation to decide on the solution	Rationale – for pupils to use all the maths knowledge they have to explore and investigate, beginning to generalise their thinking using algebraic notation	**On-site learning** **Ratios involved in pulley systems** **Estimating measures of rationed food**

Skills –	Skills –	Skills –	
• Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. • Perform mental calculations, including with mixed operations and large numbers. • Use knowledge of the order of operations to carry our calculations involving the four operations. • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. • Identify common factors, common multiples and prime numbers. • Perform mental calculations, including mixed numbers and large numbers. • Compare and order fractions, including fractions >1. Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. • Recall and use equivalences between simple fractions, decimals and percentages, including different contexts. • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm3and m3, and extending to other units such as mm3and km3. • Convert between miles & km. • 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 three decimal places. • Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. • Draw 2D shapes using given dimensions & angles.	• Use negative numbers in context and calculate intervals across zero. • Use knowledge of the order of operations to carry our calculations involving the four operations. • Multiply multi-digit numbers up to 4-digits by a 2-digit whole number using the formal written method of long multiplication. • Divide numbers up to 4-digits by a 2-digit 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 2-digit number using the formal written method of short division, where appropriate, interpreting remainders according to the context. • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. • 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 of whole numbers or measures such as 15% of 360 and the use of percentages for comparison. • Solve problems involving the calculation and conversion of units of measure, using d ecimal notation to three decimal places where appropriate. • Recognise when it is possible to use the formulae for area & volume of shapes. • 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 • Recognise, describe and build simple 3D shapes, including making nets. • Interpret and construct: pie charts; line graphs and use these to solve problems.	• Round any whole number to the required degree of accuracy. • Solve addition & subtraction multi-step problems in contexts, deciding which operations & methods to use & why. • Multiply simple pairs of proper fractions, writing the answer in the simplest form. • Divide proper fractions by whole numbers. • Associate a fraction with division to calculate decimal fraction equivalents, for simple fractions. • Express missing number problems algebraically and use simple formulae. • Find pairs of numbers that satisfy number sentences with two unknowns. • Recognise that shapes with the same areas can have different perimeters and vice versa. • Calculate the area of parallelograms and triangles. • Recognise when it is possible to use formulae for area & volume of shapes. • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Calculate and interpret the mean as an average.	**Using ratio for scaling up and down recipes** **Maths within genetic coding** **Greek Maths** **Fibonacci and Pythagoras.** **Use of Google Earth to explore time zones** **Data comparison between European countries** **Representing data using charts** **Fundraising – how to calculate profit, budgeting** **Making a Maths Trail at Ropner Park for Y3 and Y4** **Off-site learning** **High Adventure - Budgeting, use of grid references, problem solving.** **Beach Clean statistics – decomposition timings.** **Visitors**

Vocabulary – all of the above and (new to Year 6)

factorise, prime factor, digit total,

| formula, tonne, cubic cm/m/ml/km, construction line, arc, intersecting, intersection | ratio, profit, loss | equation, unknown, variable, radius, diameter, circumference, concentric Greenwich Mean Time, British Summer Time, International Date Line, | |

These are subject to minor changes in terms of when each concept is taught in the year. Teacher use their professional judgement to decide when a concept in the sequence is best taught. This depends on the pupils' prior knowledge and understanding.