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 for 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. • Experiment with their own symbols and marks, as well as numerals. • Begin to talk about the shapes of everyday objects • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly. • 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 • Talk about and identify the patterns around them. For example, stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. • Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'. • Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc. • Combine shapes to make new ones – an arch, a bigger triangle, etc.		
	Communication and Language – use a wider range of vocabulary – Understand 'why' questions, like: "why do you think the caterpillar is so fat?" 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		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**

	number system			**outdoor areas are changed and refined regularly so that maths 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.**
	Skills - • Count to 5 using 5 principles of counting (one-one, stable order, cardinal, abstraction, order irrelevance) • Subitise • 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	Skills – • Know and use number bonds to 5 • Count to 10 using the 5 principles of counting. • Compare groups up to 10. • Combine two groups to find the whole. • Explore the composition of numbers to 10. • 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.	Skills – • Make simple patterns. • 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 • Select, rotate and manipulate shapes in order to develop spatial reasoning skills. • Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can. • •	
	Communication and Language • Learn new vocabulary. • Use new vocabulary throughout the day. Vocabulary – zero, one …five, how many? count on, count back, count in 1s, is the same as, more/less, parts of a whole Understanding the World • Draw information from a simple map.			
	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**
	Skills – • Identify and represent numbers using concrete objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. • Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. • Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens.	Skills – • Represent and use number bonds and related subtraction facts within 20. • 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 such as 7 = ? – 9.	Skills – • Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s. • 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.	

	• Read and write numbers from 1 to 20 in numerals and words. • Given a number, identify one more and one less • Represent and use number bonds and related subtraction facts within 20. • Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20. • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = _ – 9. • Add and subtract one-digit and two-digit numbers to 20, including zero. • Recognise and name common 2-D and 3-D shapes, including: 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. • Recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]. • Recognise and create repeating patterns with objects and with shapes. • Recognise the place value of each digit in a two-digit number (tens, ones) (year 2). • Compare and order numbers from 0 up to 100; use <, > and = signs (year 2).	• Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. • Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. • Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. • (Year 2) recognise the place value of each digit in a 2-digit number (tens, ones). • Given a number, identify one more and one less • Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s. • Compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]. • Measure and begin to record the following: lengths and heights • Compare, describe and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than]. • Measure and begin to record the following: mass/weight. • Compare, describe and solve practical problems for: capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]. • Measure and begin to record the following: capacity and volume.	• Non-statutory guidance: Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities. • Recognise, find and name a half as one of two equal parts of an object, shape or quantity. • Describe position, direction and movement, including whole, half, quarter and three-quarter turns. • Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. • Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. • Given a number, identify one more and one less. • (Year 2) Recognise the place value of each digit in a 2-digit number (tens, ones). • Represent and use number bonds and related subtraction facts within 20. • (Year 2) Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]. • Recognise and use language relating to dates, including days of the week, weeks, months and years. • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. • Measure and begin to record the following: time (hours, minutes, seconds). • Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later]. • Recognise and know the value of different denominations of coins and notes.	**Off-site learning** **Shape Walk (and photographing) at Ropner Park and in the local community.** **Real Life shopping and budgeting for Queens Party** **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,	centimetre, metre, length, height, width, depth, long, short, tall, high, low, wide, narrow, thick thin, longer, shorter, taller, tallest,	litre, capacity, full, half full, empty, holds, container, hour, half hour, half past, clock, watch, time, hour/minute hand, hours,	

	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	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	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 – • Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s (year 1). • Recognise the place value of each digit in a 2-digit number (10s, 1s). • Identify, represent and estimate numbers using different representations, including the number line. • Compare and order numbers from 0 up to 100; use <, > and = signs. • Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward. • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures. • Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a 2-digit number and 1s • Solve problems with addition and subtraction: applying their increasing knowledge of mental and written methods. • Recognise and use signs for pounds (£) and pence (p); combine amounts to make a particular value. • Recognise and know the value of different denominations of coins and notes (year 1). • 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. • 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 (year 1). • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Skills – • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • Ask and answer questions about totalling and comparing categorical data • Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. • Compare and order lengths, mass, volume/capacity and record the results using >, < and = • Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures. • Compare and sort common 2D and 3D shapes and everyday objects. • 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. • Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. • (Year 1) 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, ¼, 2/4. ¾ of a length, shape, set of objects or quantity. • Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½. • Non-statutory guidelines: Pupils should count in fractions up to 10, starting from any number.	Skills – • 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) • Order and arrange combinations of mathematical objects in patterns and sequences. • Use place value and number facts to solve problems • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • (Year 1) 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. • Know the number of minutes in an hour and the number of hours in a day. • Compare and sequence intervals of time. • Compare and order lengths, mass, volume/ capacity and record the results using >, < and = • Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g);	

	• Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.		temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.	
	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, further, furthest, numerator, denominator, two halves, two quarters, three quarters,	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 less, cheaper, costs the same as, how much, temperature, degree, clockwise,	

<table>
<tr><td></td><td>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.</td><td></td><td>anticlockwise, right angle, straight line, most popular, most common, least popular, least common.</td><td></td></tr>
<tr><td rowspan="4">Year 3</td><td><u>Rationale</u> – 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</td><td><u>Rationale</u> – to provide opportunities for pupils to understand how fractions are a part of the whole number system</td><td><u>Rationale</u> – 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</td><td rowspan="4">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</td></tr>
<tr><td><u>Skills</u> –
Recognise the place value of each digit in a three digit number (hundreds, tens, ones)
Read and write numbers up to 1,000 in numerals and in words.
Identify, represent and estimate numbers using different representations.
Compare and order numbers up to 1,000.
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit numbers and tens, a three-digit number and hundreds.
Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction
Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
Estimate the answer to a calculation and use inverse operations to check answers
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
Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
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
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</td><td><u>Skills</u> –
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
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 method
Solve problems involving addition, subtraction, multiplication and division and a combination of these including understanding the meaning of the equals sign
Add and subtract amounts of money to give change, using both £ and p in practical contexts
Solve one-step and two-step questions [for example, 'how many more?' and 'how many fewer?'] using information presented in scaled bar charts and pictograms and tables
Interpret and present data using bar charts, pictograms and tables
Measure, compare, add and subtract: lengths (m/ cm/mm); mass (kg/g); volume/capacity (l/ml)
Measure the perimeter of simple 2-d shapes
Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
Compare and order unit fractions, and fractions with the same denominators
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
Solve problems that involve all of the above</td><td><u>Skills</u> –
Recognise and show, using diagrams, equivalent 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
Solve problems that involve all of the above
Know the number of seconds in a minute and the number of days in each month, year and leap year
Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight
Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks
Compare durations of events (for example to calculate the time taken by particular events or tasks)
Recognise angles as a property of shape or a description of a turn
Identify right angles, recognise that two right angles make a halfturn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
Draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them
Identify horizontal and vertical lines and pairs of perpendicular and parallel lines
Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g);volume/capacity (l/ml)</td></tr>
<tr><td colspan="3"><u>Vocabulary</u> – 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.</td></tr>
<tr><td>Roman numerals, perimeter, hemisphere, prism, triangular prism, chart, bar chart, frequency table, Carroll diagram, Venn diagram, axis, axes, diagram.</td><td>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.</td><td>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.</td></tr>
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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 masks and use of reflective symmetry** **Making a Maths Trail around Ropner Park for KS1** **Off-site learning** **Orienteering – following a map and grid references** **Jorvik Viking museum, runic codes** **Visitors**
	Skills – • Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • Round any number to the nearest 10, 100 or 1,000 • Count in multiples of 6, 7, 9, 25 and 1,00Identify, represent and estimate numbers using different representations • Order and compare numbers beyond 1,000 • 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 • Find 1,000 more or less than a given number • Identify, represent and estimate numbers using different representations • Round any number to the nearest 10, 100 or 1,000 • Solve number and practical problems that involve all of the above and with increasingly large positive numbers • Count in multiples of 6, 7, 9, 25 and 1,000 • 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 • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtractions where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why • Convert between different units of measure [for example, kilometre to metre; hour to minute] • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • Recall multiplication and division facts for multiplication tables up to 12 × 12 • 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 • Solve problems involving converting from hours to minutes; minutes to seconds, years to months; weeks to days.	Skills – • 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 addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • Recognise and use factor pairs and commutativity in mental calculations • 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 • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • 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 • Find the area of rectilinear shapes by counting squares • Estimate, compare and calculate different measures, including money in pounds and pence • Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten • Recognise and show, using diagrams, families of common equivalent fractions • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is whole number • Add and subtract fractions with the same denominator • Recognise and write decimal equivalents of any number of tenths or hundredths • Find the effect of dividing a one- or twodigit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths • Recognise and write decimal equivalents of any number of tenths or hundredths • Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten •	Skills – • Recognise and write decimal equivalents of any number of tenths or hundredths • Add and subtract fractions with the same denominator • Find the effect of dividing a one- or twodigit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths • Compare numbers with the same number of decimal places up to two decimal places • Round decimals with one decimal place to the nearest whole number • Recognise and write decimal equivalents • Solve simple measure and money problems involving fractions and decimals to two decimal places • Estimate, compare and calculate different measures, including money in pounds and pence • Convert between different units of measure [for example, kilometre to metre; hour to minute] • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs • Identify acute and obtuse angles and compare and order angles up to two right angles by size • 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 • Identify lines of symmetry in 2D shapes presented in different orientations • 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	

	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 and written numeracy skills beginning to consider which method is most efficient to use in a particular calculation	Rationale – to use and apply maths skills and concepts to a variety of problem solving and investigation activities working systematically and articulating clearly what they have done and why	Rationale – Pupils should be encouraged to use the properties of numbers to help them see patterns and connections across concepts.	**On-site learning** **Measuring Forces using different scales on force-meters** **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**
	Skills – • Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit • Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • Read roman numerals to 1,000 (m) and recognise years written in roman numerals • Solve number problems and practical problems that involve all of the above • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • Add and subtract numbers mentally with increasingly large numbers • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Estimate and use inverse operations to check answers to a calculation • Complete, read and interpret information in tables, including timetables • Solve comparison, sum and difference problems using information presented in a line graph • Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	Skills – • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • Multiply and divide numbers mentally drawing upon known facts • Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number • Compare and order fractions whose denominators are all multiples of the same number • Add and subtract fractions with the same denominator and denominators that are multiples of the same number • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • Read, write, order and compare numbers with up to three decimal places • Read and write decimal numbers as fractions • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • Read, write, order and compare numbers with up to three decimal places	Skills – • Solve problems involving number up to three decimal places • Read, write, order and compare numbers with up to three decimal places • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • Identify: –angles at a point and one whole turn (total 360° – angles at a point on a straight line and <stacked fraction> 1 2 a turn (total 180°) –other multiples of 90° • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Draw given angles, and • measure them in degrees (°) • Use the properties of rectangles to deduce related facts and find missing lengths and angles • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles • Identify 3D shapes, including cubes and other cuboids, from 2D representations • 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 • Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • Use all four operations to solve problems involving	

	• Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers • Establish whether a number up to 100 is prime and recall prime numbers up to 19 • Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes •	• Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • Solve problems which require knowing percentage and decimal equivalents • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	measure [for example) length, mass, volume, money] using decimal notation, including scaling • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Solve problems involving converting between units of time • Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]	
	<u>Vocabulary</u> – 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, ones 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	<u>Rationale</u> – 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	<u>Rationale</u> – 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	<u>Rationale</u> – 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**

	Skills – • Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. • Solve number and practical problems that involve all of the above • Round any whole number to a required degree of accuracy • Use negative numbers in context, and calculate intervals across zero • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • Identify common factors, common multiples and prime numbers • Use their knowledge of the order of operations to carry out calculations involving the four operations • Perform mental calculations, including with mixed operations and large numbers • Solve problems involving addition, subtraction, multiplication and division • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Compare and order fractions, including fractions > 1 • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply 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 • Divide proper fractions by whole numbers • Use written division methods in cases where the answer has up to two decimal places • 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 •	Skills – • Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • Associate a fraction with division and calculate decimal fraction equivalents • Use written division methods in cases where the answer has up to two decimal places • Multiply one-digit numbers with up to two decimal places by whole numbers • Solve problems which require answers to be rounded to specified degrees of accuracy • Use written division methods in cases where the answer has up to two decimal places • Recall and use equivalences between simple fractions, decimals and percentages including in different contexts • Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • Compare and order fractions, including fractions > 1 • Generate and describe linear number sequences • Use simple formulae • Express missing number problems algebraically • Find pairs of numbers that satisfy an equation with two unknowns • Enumerate possibilities of combinations of two variables • Use, read, write and convert between standard units, converting measurement of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • Convert between miles and kilometres • Recognise that shapes with the same areas can have different perimeters and vice versa • Calculate the area of parallelograms and triangles • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3] • Recognise when it is possible to use formulae for area and volume of shapes • Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples • Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • Solve problems involving similar shapes where the scale factor is known or ca be found	Skills – • Draw 2-D shapes using given dimensions and angles • Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • 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 • Recognise, describe and build simple 3-D shapes, including making nets • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Solve number and practical problems that involve all of the above • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy • Solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division • Use their knowledge of the order of operations to carry out calculations involving the four operations • Calculate and interpret the mean as an average • Interpret and construct pie charts and line graphs and use these to solve problems	**rationed food** **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.