# **Preston Primary School Long Term Maths Framework**



At Preston Primary School, we aim to give the pupils a progressive, thoughtfully sequenced mathematics learning experience that enables them to:

- become confident, numerate citizens
- talk confidently and reason about maths ٠
- apply their learning to real-life, everyday contexts
- gain a passion for maths which will remain with them for life

# Nursery and Reception Topics

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
I wonder wh	nat it special	How thing	gs change	l wond

### Summer Term N2 (N2+)

#### By the end of the Summer term N2 children should be able to...

- Subitise up to three objects (fast recognition without counting)
- Recite numbers past 5 by rote and with visual aid e.g number line with picture to match each numeral
- Recognise that each counting number is one more than the one before visual aid including the idea of a staircase in ones
- Count back from 5 to 0 by rote
- Hold fingers up correctly for each number to 5 when counting orally
- Count on in 1s from any number up to 5 visual aid and fingers
- Be able to say the number before and after a given number to 5 visual aids
- Chant rhymes and songs involving numbers to 5 and beyond, e.g., 1,2,3,4,5 once I caught a fish alive
- **Recognise numerals 0-3** •
- Counting one-to-one correspondence to 3 how many? (1:1 principle)
- Counting one-to-one correspondence to 3 give me? (1:1 principle)
- Know that the order in which objects are counted doesn't affect the total e.g left to right or right to left ... (order irrelevance principle)
- When counting objects, Say one number for each item in order e.g 1,2,3 ... (stable order principle)
- Know that the last number reached when counting a small set tells you how many there are (cardinal principle)
- Know that anything can be counted to 3, for example drum beats, claps, pictures in a book, large objects and tiny... (Abstraction principle)
- Link numerals and amounts to up to 3 by matching objects to the number
- Experience the language of zero meaning nothing through play and every day practical activities, e.g., there are no oranges left in the bowl
- Display an understanding of the composition of numbers to 3, for example 1 + 2, 0 + 3, 1 + 1 + 1 with objects
- Begin to add and subtract using practical resources to 3, with practitioners modelling the language e.g., add, altogether, total, is the same as, subtract, take away, how many left, more and less, bigger and smaller
- Solve real world maths problems with numbers up to 5 e.g., there are 4 children and 3 chairs how many more chairs do we need? •
- Begin to understand ordinal numbers in real-life situations: first, second ... •
- Order and compare a set of numbers 0-3, and explore the language more and fewer with objects and quantities
- Match items to small numbers in the environment e.g 5 pencils in the pot, 3 glue sticks ... picture clues
- Make pictures and patterns (e.g., in sand or paint) using key mathematical resources, including: numicon, counters, 10-frames and cubes
- Be able to recognise and name numicon pieces for 1, 2, 3,4 and 5
- Say some common shape names, e.g., circle, square, rectangle, triangle
- Talk about and explore 2D and 3D shapes using informal language sides, corners, straight, flat, round
- Enjoy partitioning and combing shapes to make new shapes, e.g., circle, square, rectangle, triangle, heart, star, diamond
- Sort shapes by a given criteria, for example circles here, straight sides in here use a variety of sized shapes
- Understands and uses the language of position, e.g., on, inside, next to, under, over, in front, behind through play, for example a doll's house or garage
- Create their own spatial patterns showing some organisation or regularity
- Make models in the block area and respond to practitioners using the vocabulary can you make it taller? Shorter? Longer?
- In meaningful contexts, find the longer or shorter, heavier or lighter and more/less full of two items
- Recognise and discuss patterns on clothes, in nature and in the environment, e.g., stripes, spots, checks, etc •
- Notice and correct an error in a repeating pattern show AB patterns correct and incorrect
- Recall a sequence of events in everyday life and stories •
- Show an awareness of a sense of time, e.g., morning, afternoon, evening and night-time
- Begin to sing days of the week begin to understand yesterday and tomorrow



Summer 2

# ler what happens next

#### Spring Term N2 (N2=)

#### By the end of the Spring term N2 children should be able to...

- In preparation for subitising, play games with a dice and dominos
- With support name numicon pieces to 5 whilst printing in sand or paint
- Recite numbers up to 5 and beyond with support Adult to model counting at all times in the school day, for example lining up, giving out fruit...
- Begins to point, touch or move each item, saying one number name for each item 1, 2, 3 (stable order principle) whilst playing
- Begin to recognise numbers which are familiar to themselves, e.g., their age... Have visual number lines on display and begin to refer to them. How old are you 3? 4? Can you find the number 3? ...
- Chant rhymes and songs involving numbers, e.g., five speckled frogs
- Show fingers for numbers to 5 with support whilst counting or singing number songs
- Becoming familiar and aware of (through play) the key mathematical resources, including: numicon, counters, tens frames and cubes
- Compare two small groups of objects, saying when there are the same number of objects in each group, e.g., 'You've got two, I've got two. Same!'
- Play with and begin to name some common shapes, e.g., name circle, square
- Respond to both informal and common shape names, e.g., find something pointy, twisty, wiggly, bumpy, heart, star, flower, straight, wavy, bent
- Classify and sort shapes by a given criteria, for example big circles and small circles
- Classify and sort classroom objects according to a given criteria, e.g., put the books in the book area, cars in the basket ...
- Begin to understand and respond to the language of position, e.g., on, inside, next to, under, over, in front, behind playing with practitioner and following instructions
- Show an awareness of what's happening now and what is happening next through every day activities, getting dressed first socks then shoes
- Create and extend AB patterns, e.g., stick, leaf, stick... red, blue, red ... movement patterns clap, stamp ...

utumn Term N2 (N2-

#### By the end of the Autumn Term N2 children should be able to...

- Shows an interest in numbers through games and playful activities
- Begin to say the number names, some of which are in the right order (rote counting)
- Begin to count on their fingers to 3
- Compare amounts saying which has more or the same
- Listen and enjoy number songs and rhymes join in with some parts e.g finish the line of song, fill in missing parts
- Explore how things look from different viewpoints including things that are near or far away
- Explore differences in size, length, weight and capacity which one is longest? Heaviest? Full? Empty?
- Predict, move and rotate objects to fit the space or create the shape they would like (inset puzzles and pattern blocks)
- Begin to understand some talk about immediate past and future before, now and next
- Join in with simple patters in sounds, objects, games, stories, dance and movements, predicting what comes next

## N1 (N1+)

#### By the end of the Summer Term N1 children should be able to...

- Listen to, enjoy and begin to sing counting songs such as '10 Green Bottles', '1, 2, Buckle My Shoe' and '1, 2, 3, 4, 5, Once I Caught a Fish Alive' as a means to develop early counting
- Join in with listening to books and stories involving numbers, for example My Three Book, and join in with naming numbers in the book
- Talk about numbers around them, for example from door numbers, and begin to know that numbers are part of everyday life
- Say some counting words, engaging in counting-like behaviour, making sounds and pointing or saying some numbers possibly in sequence
- Begin to learn numerals by having fun exploring a range of resources including: foam numbers, numicon pieces, sand, water, chalk, etc.
- Begin to learn about shapes by having fun exploring a range of resources including: 2d shapes, 3d shapes and blocks to create their own simple structures and arrangements
- Begin to explore capacity by selecting, filling and emptying containers
- Begin to compare and recognise changes in number of things, using words like more, lots of, same
- Show interest in what happens next using the pattern of everyday routines, including times of the day such as, meal times or home time

If children are not meeting the demands of these statements at the end of N1, how far behind are they? One term (N1=), two terms (N1-) or working on earlier skills from Development Matters in the Birth to 3 (B, B-, B=, B+). A child who completes 5 terms of nursery, would be seen as on track if recorded as N1= at Easter of N1.



## Reception



Doubles to 5 (double 1, 2, 3, 4, 5) concrete aid or fingers (C) • Subitise to 5 - dots on a die, numicom piece, ten-frame, cubes, etc.

Make sensible estimates within 20 using subitising (estimating number of pebbles, conkers, (link)

• Use the vocabulary (link to C&L) of addition and subtraction inc. comparison of quantities to 10 - ie. altogether, add, total, plus, more than, take away subtract, less than, fewer than, greater than, equals, the same as - (E) - in practical contexts ie. counting jumps, skips, hops,

"Who did most hops/jumps/turns?- (ink to PD) Also link to clock face - (1hr after/before) (links

Understand largest, most, smallest, least, fewest and number in-between up to 20 -- 'Order and

Recognise the verbal abbreviation for ordinal numbers and relate this to date of own birthday (e.g 9<sup>th</sup> of May), months of year 1<sup>st</sup>, 2<sup>nd</sup>- and finishing positions in a race. Link to SSM)

Make sensible estimates using subitising within estimating number of pebbles, conkers, (link to

• Begin to use the vocabulary (link to C&L) of addition and subtraction in practical contexts and in discussion – altogether, add, more than, take away, subtract, more than, less than to 7 inc.

Begin to use ordinal numbers first, second ... tenth in real life situations (eg. race results/ days of

#### R- By the end of the Autumn Term children should be able to...

- Recognise and name numbers 0 to 5 when not in order
- Counting, 1:1 correspondence to 5 how many?
- Counting,1:1 correspondence to 5 give me?
- Know that anything can be counted (to 5) claps, drum beats... ٠
- Count an irregular arrangement to 5 ٠
- Understand that zero means nothing ٠
- Match numeral to quantity to 5 concrete and visual •
- Display a deep understanding of the composition of numbers to 5 ٠
- Solve addition and subtraction calculations to 5 practically and visually ٠
- Find 1 more and 1 less numbers to 5 (A) using concrete and number line
- Addition facts to 5 (fingers to help) ٠
- Subtraction facts to 5 (fingers to help)
- Number bonds to 2, 3 and 4 (using concrete aids to help)
- Subitise to 5 dots on a die, numicom piece, ten-frame,
- Experiment with their own symbols and marks as well as numerals
- Understand double 1,2,3 and halving even numbers to 6
- Early Learning Goal: Mathematics | Numerical Patterns

Children at the expected level of development will:

- Be able to verbally count beyond 20, recognising the patterns of the counting system
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than, or the same as the other quantity
- Explore and represent patterns within numbers up to 10, including odd and even numbers, double facts and how quantities can be distributed equally

#### Progression towards the Early Learning Goal

R+ By the end of the Summer term children should be able to... (Children who are achieving 'Above and Beyond' the summer term expectations would be recorded as RM)

- Count by rote from 0 forwards to 20 and beyond
- Count by rote forwards in 1s from any number to 20 and beyond
- Compare and order a variety of quantities up to 10 recognising greater than, less than and the same as in practical context (inc.guantities) (E)
- Understand and use the vocabulary more, most, greater than, fewer, less than and equals, the same as with quantities up to 10 (E)
- Instant recognition of odd and even numbers to 10 represented by structures e.g dots, even numbers always have a partner/pairs ٠ (made visible)

#### Both Number and Numerical Patterns ELG

- Know that addition and subtraction are related (inverse operation to 5 (4+1 = 5 5-1=4) (D)
- Automatic recall of half of numbers 2,4,6, 8, and 10 (B)
- Automatic recall of doubles to 5 (double 1,2,3,4 & 5)(C)

R=	By	the end of the Spring term children should be able to	•
	•	Count in 1s forwards to 20 and beyond – visual aid	

- Count forwards in 1s from any number (to 20) visual aid
- Count back in 1s from 20- visual aid
- Say the number before and after to 10 visual aid
- Compare a variety of quantities up to 5 recognising more/greater than, fewer/less than and the same as (E)
- Understand and use the vocabulary more, most, greater than, fewer, less than and equals, the same as with quantities up to 5 (E)
- Explore odd and even numbers to 10 (represented by structures) recognising and discussing the patterns e.g odd numbers there's always one left out and even numbers always have a partner

#### **Both Number and Numerical Patterns ELG**

- Know that addition and subtraction are related (inverse operations to 5) using concrete aids or fingers (D)
- Doubles to 5 concrete aid or fingers (C)

- results/position in queue) (K)
- Know that a pair means two
- Understand and find pairs of socks, gloves, legs ... (practical) and then count up in 2's with support UtW

  - Form the digits 0 to 5 accurately

  - underneath, next to. Drip Feed

- Pronounce teen numbers correctly sixteen not sixty
- Count by rote in 2s forwards past 10

#### SSM

- Chant the months of the year by heart (J)
- Begin to link ordinal numbers to each month (K)
- Name the four seasons
- read o'clock times
- clock, watch)
- it, just as numbers can
- Continue given repeating patterns (sound, colour, shape, objects) link to UtW
- Create own repeating patterns using UtW
- deep, shallow (UtW)
- Recognise and calculate using coins 1p, 2p, 5p, 10p, 20p
- Count by rote in 2s to 10 visual aid
- Count by rote in 10s to 50 visual aid
- Instant recall +1 -1 numbers to 20 visual aid (A)
- Pronounce numbers correctly with support copy me

#### SSM

- Chant the days of the week
- Know there are 7 days in a week
- Know which day comes before/ after a given day
- Know which days are the weekend
- Know what day it is today, yesterday, tomorrow
- Chant the months of the year with support (J)
- Know which month your birthday is in



Begin to understand and use ordinal numbers first, second -- in real life situations (eq. race

 Order and compare sets of numbers and quantities/objects up to 5 (UtW)(E) Understand biggest and smallest numbers within 5 using pratical/visual aids

• Written number sequences 0-5 forwards and backwards e.g 2,3,4,? 5,4,3, ?? • Understand and use directional language - forwards, backwards, turn around, on top,

#### Progress in other areas of mathematics curriculum – Trust Ready

Count to/back in 1s from 20 – count people onto/off a queue/ add/take away single objects

# • Know which day and month comes before/ after a given day and month (F)

Becoming aware of the analogue clock counting around the clock to 12 and recognise and

Becoming aware of the language associated with time (long hand, short hand, hour, minutes,

Compose and decompose shapes, children recognise a shape can have other shapes within

• Classify and sort objects according to a criteria and begin to sort objects using own criteria (H) • Order and compare 3 objects according to length, mass, capacity (G)

• Understand and use the vocabulary longer, taller, wider, shorter, narrower, heavier, lighter,

• Half of numbers 2,4,6,8,10 - concrete (B)	<ul> <li>Understand general time of day and chrono vocab: morning, lunch, tea, hometime, bed</li> <li>Understand position through words – eg. "Th (under, on top, next to, behind, in front) (PDe</li> <li>Name and describe common solid shapes of Sort objects using two criteria e.g Sort solid sh</li> <li>Find something bigger than, smaller than, ta to UtW</li> </ul>
	<ul> <li>Find something the same size, equal to (leng</li> <li>Continue a simple repeating pattern e.g red</li> <li>Notice and correct an error in a repeating p</li> <li>To talk about money using the terms, pennie</li> <li>To read price tags in role play shop up 1p, 2p</li> </ul>
<ul> <li>By the end of the Autumn Term children should be able to</li> <li>Count by rote forwards and backwards to 10 – visual aid</li> </ul>	SSM
<ul> <li>Hold fingers up correctly for each number to 10</li> <li>Count on and back in 1s from any number to 10 – visual aid and fingers</li> <li>Know by heart the number before and after numbers to 5</li> <li>Chant rhymes involving numbers e.g 1,2 buckle my shoe</li> </ul>	<ul> <li>Chant the days of the week with support</li> <li>Begin to know what day it is today</li> <li>Begin to know what day it is tomorrow</li> </ul>
Chant a number song involving even/ odd numbers e.g Odd Bodd and Even Steven	<ul> <li>Sort objects using a given criteria e.g big, sm</li> <li>Name and describe common flat shapes cir</li> <li>Use the language flat, sides and corners</li> <li>Classify and sort objects into sets according block area, pencils into colours, buttons e.g.</li> <li>Copy a given pattern (sound, colour, shape, apple, grape, orange square, triangle, squ</li> <li>Use templates/ stencils as patterns to produce and templates</li> <li>Copy given pictures/patterns, block area mak</li> <li>Understand position through words and real under the table," (under, on top, next to, be top of the mat)</li> <li>Discuss simple routes – forwards, backwards, Begin to describe a sequence of events, real Pay for items in role play shop using pennies</li> <li>Know that coins are collectively called mone</li> </ul>
abulary to be taught at EYFS – Please see in vocabulary document	

logy of day in school and at home (develop etc)

e bag is under the table," – with no pointing ev – PE – move under)

ube, cuboid, Use the language solid, face, edges apes straight edges, curved edges ller than, shorter than, heavier, lighter, deeper...link

th, weight, capacity)link to UtW , blue, red ... apple, banana, apple ... attern s, pence, change, amount , 5p,10p

all, heavy, light (link to UtW)

cle, square, rectangle, triangle

to given criteria, areas in classroom with labels, colour, shape, holes in centre,

objects - )e.g clap, clap, click... red, blue, red ... are ... (link to UtW)

ce an identical image e.g draw around stencils

(both natural and manmade e.g conkers, twigs, ke a model from given picture(link to UtW) scenarios, pictures – for example, "The bag is hind, in front) link to PD (PE – 'under the bench/on

turn, corner (outdoor provision) l or fictional, using words such as 'first', 'then..

ey and we spend them, save them

# Year One

	Autumn	Spring	Summer
1 2 3	<ul> <li>count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 20 in numerals;</li> <li>given a number, identify one more and one less</li> <li>identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to more than less</li> </ul>	<ul> <li>count to and across 50, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 50 in numerals;</li> <li>recap: given a number, identify one more and one less (mental maths sessions)</li> <li>recap: identify and represent numbers using objects and nictorial</li> </ul>	<ul> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 100 in numerals;</li> <li>recap: given a number, identify one more and one less (mental maths sessions)</li> <li>recap: identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to a second second</li></ul>
	than (fewer), most, least	<ul> <li>receipt identify the represent numbers using objects the pretontal representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</li> <li>compare, describe and solve practical problems for:         <ul> <li>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] – and also:</li> <li>measure and begin to record the following:                 <ul> <li>lengths &amp; heights, and also:</li> <li>mass &amp; weight</li> </ul> </li> </ul> </li> </ul>	<ul> <li>recap: compare, describe and solve practical problems for:         <ul> <li>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li>mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li>capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> </ul> </li> <li>recap: measure and begin to record the following:         <ul> <li>lengths and heights</li> <li>mass/weight – and also:</li> <li>capacity and volume</li> </ul> </li> </ul>
<u>4</u> 5	<ul> <li>read, write and interpret mathematical statements involving addition (+) and equals (=) signs</li> <li>represent and use number bonds within 10 (revision of Rec) then 20</li> <li>add one-digit and two-digit numbers to 20, including zero</li> <li>solve one-step problems that involve addition using concrete objects and pictorial representations, and missing number problems</li> </ul>	<ul> <li>recognise and use language relating to dates, including days of the week, weeks, months and years</li> <li>tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</li> </ul>	• describe position, direction and movement, including whole, half, quarter and three quarter turns linked to time
6 7	<ul> <li>read, write and interpret mathematical statements involving subtraction (-) and equals (=) signs</li> <li>represent and use number bonds and related subtraction facts within 20</li> <li>subtract one-digit and two-digit numbers to 20, including zero</li> <li>solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = -9.</li> </ul>	<ul> <li>recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</li> </ul>	<ul> <li>Recognise and know the value of different denominations of coins up to £1 introduce notes.</li> <li>count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens link to addition and subtraction</li> </ul>
8	<ul> <li>recognise, find and name a half as one of two equal parts of an object, shape or quantity</li> <li>Recognise and name common 2-D shapes, including: for example, rectangles</li> </ul>	• tell the time to the hour and half past the hour and draw the hands on a clock face to show these times (and quarter linking to fractions above)	
9	(including squares), circles and triangles	<ul> <li>recognise and know the value of different denominations of coins and notes up to 50p linked to arrays</li> <li>count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens linked to addition and subtraction</li> </ul>	<ul> <li>Recap week</li> <li>recognise and name common 2-D and 3-D shapes, including:</li> <li>2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</li> </ul>
10	<ul> <li>recognise and know the value of different denominations of coins up to 20p</li> <li>compare, describe and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li>measure and begin to record the following: mass/weight</li> </ul>		• 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 linked to fractions.
12	<ul> <li>Recognise and name common 3-D shapes, including: for example, cuboids (including cubes), pyramids and spheres</li> <li>Recap 2D shapes</li> </ul>	<ul> <li>compare, describe and solve practical problems for: capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> <li>measure and begin to record the following: capacity and volume linked to addition and subtraction</li> </ul>	

New Vocabulary to be taught:

numbers zero-hundred number bonds one digit two digit ten ones subtract multiples fraction quarter half and full turn earlier later length height mass/weight measure capacity/volume whole, half, quarter three quarter turns months of the year pounds pence sphere pyramid cylinder hexagon pentagon arrays share divide

	Autumn	Spring	Summer
1 2	<ul> <li>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li> <li>recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>identify, represent and estimate numbers using different representations, including the number line</li> <li>compare and order numbers from 0 up to 100; use &lt;&gt; and = signs</li> <li>read and write numbers to at least 100 in numerals and in words</li> </ul>	<ul> <li>recap: count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li> <li>recap: recognise the place value of each digit in a two-digit no.s (tens, ones)</li> <li>recap: compare and order numbers from 0 up to 100; use &lt; &gt; and = signs</li> <li>Partition two digit numbers in different combinations up to 100</li> <li>Revisit adding two, two digit numbers moving away from apparatus and including problem solving</li> <li>(GD use reasoning about numbers and relationships to solve more complex problems and explain thinking)</li> </ul>	<ul> <li>recap: recognise, fi of a length, shape,</li> <li>solve problems invo- mental methods, a contexts</li> </ul>
3	<ul> <li>add and subtract numbers using concrete objects, pictorial representations,</li> </ul>	<ul> <li>tell and write the time introducing to five minutes, including quarter past, half past, to the hour and draw the hands on a clock face to show these times, clockwise and anti clockwise</li> <li>know the number of minutes in an hour and the number of hours in a day.</li> <li>Add and subtract numbers using concrete objects, pictorial representations,</li> </ul>	<ul> <li>compare and seque</li> <li>tell and write the ti draw the hands on</li> <li>know the number</li> </ul>
5 6 7	<ul> <li>and mentally, including: <ul> <li>adding three one-digit numbers</li> <li>a two-digit number and ones</li> </ul> </li> <li>add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul> <li>a two-digit number and tens</li> </ul> </li> <li>that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> </ul>	<ul> <li>and mentally, including: <ul> <li>two two-digit numbers (including bridging when adding)</li> </ul> </li> <li>solve problems with addition and subtraction subtraction: <ul> <li>using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>applying their increasing knowledge of mental and written methods</li> <li>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> </ul> </li> <li>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> <li>Subtraction of numbers using empty number line linked to difference and counting forward</li> </ul>	<ul> <li>add numbers using including:         <ul> <li>two two-</li> <li>recognise and use fand use this to che</li> </ul> </li> </ul>
8	<ul> <li>Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>find different combinations of coins that equal the same amounts of money</li> </ul>	<ul> <li>choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) and mass (kg/g) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> <li>compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</li> <li>interpret and construct simple block diagrams</li> <li>ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> </ul>	<ul> <li>Solve problems wit</li> <li>show that addition and subtraction of</li> </ul>
9	<ul> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>interpret and construct simple pictograms</li> <li>ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>ask and answer questions about totalling and comparing categorical data.</li> </ul>	<ul> <li>solve problems involving multiplication using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> <li>(GD including making deductions outside known multiplication facts and solving word problems that involve more than one step)</li> <li>identify and describe the properties of 2-D shapes, including the number of</li> </ul>	<ul> <li>Introduction of number</li> <li>choose and use ap         <ul> <li>capacity (I</li> <li>temperate</li> <li>to the nearest appropri</li> </ul> </li> </ul>
11	<ul> <li>recognise, find, name and write fractions ¼ (including ¼ to and ¼ past) , 1/3, ½ of a length, shape, set of objects or quantity</li> <li>write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½ including all parts need to make a whole</li> </ul>	<ul> <li>sides and line symmetry in a vertical line</li> <li>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</li> <li>identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li> <li>compare and sort common 2-D and 3-D shapes and everyday objects.</li> <li>(GD including similarities and differences)</li> </ul>	<ul> <li>recap: interpret an</li> <li>ask and answer sim category and sortir</li> <li>ask and answer que</li> </ul>
12		• <b>recap</b> : recognise, find, name and write fractions 1/3 , ¼ , 2/4 and introduce ¾ of a length, shape, set of objects or quantity	• recap: write simple equivalence of 2/4

New vocabulary to be taught:

< smaller than > greater than = equals inverse partition combinations difference multiplication division multiply divide odd even pictogram block diagram tally clockwise anti clockwise estimate measur thermometers centimetres metres kilograms grams millilitres litres Celsius temperature commutative equivalence three quarters third symmetry vertical horizontal straight line triangular prism edges vertice minutes

d, name and write fractions 1/3 , ¼ , 2/4 and introduce ¾ et of objects or quantity ving division, using materials, arrays, repeated subtraction, d multiplication and division facts, including problems in
nce intervals of time ne to five minutes, including quarter past/to the hour and clock face to show these times f minutes in an hour and the number of hours in a day
concrete objects, pictorial representations, and mentally,
git numbers including bridging the inverse relationship between addition and subtraction to calculations and solve missing number problems.
addition and subtraction.
f two numbers can be done in any order (commutative) ne number from another cannot
to 1000 (multiples of 100) ropriate standard units to estimate and measure res/ml) re (°C)
te unit, using scales and measuring vessels
construct tally charts, block diagrams and simple tables ble questions by counting the number of objects in each the categories by quantity stions about totalling and comparing categorical data.
ractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the and $\frac{1}{2}$
re scales ces vertex faces right angles orientation analogue

Autumn	Spring	Summer
Read and write numbers up to 999 in numerals and in words	Count, recognize the place value and compare numbers to 999	Recap of read and write
Recognise the place value of each digit in a three-digit number (H, T, Ones) compare and order numbers up to 999	solve number problems and practical problems involving these ideas	the place value of each of Number bonds to 1000 (
Apply partitioning relating to place value (ie: 146 = 100 + 40 and 6; 146 = 130 + 16) Identify and represent these numbers using different representations.	Teach the children the formal written method for addition with up to three digits <b>NOT PAST 999</b> using the Dienes method from Y2 as a starting point to introduce carrying. Ensure estimation is used first	<b>Recap</b> of count up and d equivalent fractions.
Find 10 or 100 more or less than a given number		
Count from 0 in multiples of 4, 8, 50 and 100 Introduce 4 x table and associated division – link to x2 tables Recap x5 and x10 and links between them	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction – inc. adding and subtracting amounts of money to give change using £ and p in practical contexts use inverses to check answers	Solve fraction related pr
Add and subtract numbers <b>mentally</b> including:		Introduce that an angle
<ul><li> 3 digit number and ones</li><li> 3 digit number and tens</li></ul>	Teach the children the formal written method for subtraction with up to three digits <b>NOT PAST 999</b> using the Dienes method from Y2 as a starting point to introduce carrying.	Identify right angles, rec and 4 make a complete t
3 digit number and hundreds	Ensure estimation is used first. Link to checking inverse to check answers.	Identify if angles are gre
Including missing number problems Counting in 50 and 100s and finding 10 more / less or 100 more / less		
measure and compare, add/subtract lengths, mass, volume and capacity using the partitioning method from Y2 and perimeter of 2d shapes.	Introduce 8 x table and link to 4x table and associated division. Write and calculate statements for multiplication and division using the tables that	Draw 2D and make 3D sl
	they know mentally progressing to formal written methods	different orientations an parallel lines
count using multiples of 2,3,4 & 5 and use associated division (use these in graphs).recap 5 and 10 times tables interpret and present data using bar charts (including horizontal and vertical axis) and pictograms and tables	count up and down in 1/10 understanding that 10 <sup>th</sup> arise that 10ths arise by dividing objects into 10 equal parts and dividing one digit no.s or quantities by 10. recognise and find fractions of sets of objects	
	add and subtract fractions with the same denominator within one whole	problem solving with ad
Solve one and two step questions associated with these (bar charts, pictograms and tables.	compare and order unit fractions and fractions with the same denominator. begin to solve fraction problems	complex problems
Assessment, consolidation week	tell the time to nearest 5 minutes (Y3 obj) read time with increasing accuracy to the nearest minute	6 x table – link to x3 tabl tell the time on the analy the year and the roman solve problems involving year and leap year with
	Autumn         Read and write numbers up to 999 in numerals and in words         Recognise the place value of each digit in a three-digit number (H, T, Ones) compare and order numbers up to 999         Apply partitioning relating to place value (ie: 146 = 100 + 40 and 6; 146 = 130 + 16)         Identify and represent these numbers using different representations.         Find 10 or 100 more or less than a given number         Count from 0 in multiples of 4, 8, 50 and 100         Introduce 4 x table and associated division – link to x2 tables         Recap x5 and x10 and links between them         Add and subtract numbers mentally including:         • 3 digit number and tens         • 3 digit number and hundreds         Including missing number problems         Counting in 50 and 100s and finding 10 more / less or 100 more / less         measure and compare, add/subtract lengths, mass, volume and capacity using the partitioning method from Y2 and perimeter of 2d shapes.         count using multiples of 2,3,4 & 5 and use associated division (use these in graphs), recap 5 and 10 times tables         interpret and present data using bar charts (including horizontal and vertical axis) and pictograms and tables         Solve one and two step questions associated with these (bar charts, pictograms and tables.         Assessment, consolidation week	Autom         Spring           Read and write numbers up to 999 in numerals and in words         Count, recognize the place value of each digit in a three-digit number (H, T, Ones)         Count, recognize the place value and compare numbers to 999           Apply partitioning relating to place value (je: 146 = 100 + 40 and 6; 146 = 130 + 16)         Teach the children the formal written method for addition with up to three digits. NOT PX5 999 using the Dienes method from 12 as a starting point to introduce darying. Ensure estimation is used from 12 as a starting point to introduce darying.           Find 10 or 100 more or less than a given number         Add and subtract numbers with up to three digits, using formal written method for subtraction — ink to 2 tables           Recap vs and x10 and links between them         Add and subtract numbers with up to three digits, using formal written method for subtraction — ink to 2 tables           Add and subtract numbers metally including:         3 digit number and ones           3 digit number and nes         Teach the children the formal written method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes method for subtraction with up to three digits NOT PX5 999 using the Dienes

New Vocabulary to be taught:

3 digits carry exchange tenths carry exchange denominator numerator Roman numerals perpendicular parallel lines leap year angles angles right angle non unit fractions unit fractions polygon degrees bar charts sum am pm noon afternoon midnight millimetres kilometre century pentagonal hexagonal octagonal quadrilateral horizontal diagonal vertical compass points –North, East, South West

and compare numbers to 1000 including understanding digit (using multiples of 50 and 100) ie. 650 + 350

down in 1/10. Recognise and show using diagrams

tions after revisiting unit fractions and ordering these.

oblems

is a description of a turn or a property of a shape.

cognise two right angles make a half turn and three make  $\frac{3}{4}$  turn.

eater or less than a right angle

hapes using modelling materials, recognize 3D shapes in nd describe them. Use terminology perpendicular and

dition and subtraction including missing number and more

les and doubling/halving logue clock (this has been an ongoing objective throughout numeral clock).

g time, seconds in a minute, days in a month and days in a the required vocabulary

	Autumn	Spring	Summer	
1	Recognise the place of value in a 4 digit number, Order and compare numbers beyond 1000 up to 9999,	<b>Recap</b> place of value in a 4 digit number, ordering and comparing numbers beyond 1000 up to 9999	Identify lines of symmetry in 2D shapes presented in different orientations. Complete a simple symmetric figure with respect to specific line of symmetr	
2	Count in 1000's and find 1000 more or less than a given number. identify represent and estimate numbers using different representations	Count in 1000's and find 1000 more or less than a given number <b>(recap 100 more/less)</b>		
3	Round numbers to 9999 to the nearest 10,100 Recall multiplication facts in all known tables and the corresponding division facts introducing 9x table linked to 3x	<b>Recap</b> rounding numbers to 9999 to the nearest 10, 100 – but then also 1000. Solving numbers and practical problems including estimating, comparing and calculating different measures	Recap: Rounding to the nearest 10, 100 and now also 1000. Recap: Round decimals with one decimal place to the nearest whole numbe	
4	Know the effect of multiplying and dividing by 10, 100 or 1000 specifically – identifying the value of the digits – and linked to converting measures km – m	<b>Recap</b> of formal methods with addition and subtraction using estimating and checking with inverse	Solve numbers and practical problems in numbers up to 9999 using	
5	and mm to cm (& vice versa)	Solve 2 step problems including involving money and other measures in contexts deciding which operation to use and why	<b>Recap</b> : finding the effect of dividing a one or two digit number by 10 or 100 identifying the values of the digits as 1s 1/10ths and 1/100 Recognise and write decimal equivalents of any number of 10ths or 100ths.	
6	Count up and down in 100ths and understand that this arises when dividing an object by 100 and dividing 10ths by 10. Compare decimals with the same number of decimal places and round	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout Solve problems involving multiplying, including using the distributive law (ie.	Recognise and write decimal equivalents to ¼, ½, 3/4 Solve simple measure and money problems involving fractions and decimals two decimal places.	
7	decimals to nearest whole number – linking to £ and measures (to 2 dec.places)	$39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$ . use factor pairs where appropriate	Find the area of rectilinear shapes by counting squares Measure and calculate the perimeter of a rectilinear figure	
8	Solve simple money problems involving decimals to two decimal places.	Add and subtract fractions with the same denominator. Recognise, using diagrams, families of common equivalent fractions. Solve problems involving harder fractions to calculate quantities and fractions to divide quantities including non-unit fractions where the answer is a whole	Read, write, convert time, between analogue and digital 24 (and <b>recap</b> 12 hour) clock. <b>Recap</b> : Solve problems converting from hours to minutes, mins to seconds, years to months, weeks to days	
9	Add and subtract numbers with up to 4 digits using the formal written	number.	Interpret and present discrete and continuous data using appropriate	
10	methods of columnar addition and subtraction where appropriate- also using estimating and checking with inverse	Read, write, convert time, between analogue and digital 12 hour clocks. Solve problems converting from hours to minutes, mins to seconds, years to	graphical methods including bar charts and time graphs. Solve, compare sum and difference problems using the information present	
11	Solve two step problems in contexts deciding which operation to use and why	months, weeks to days	in these using the formal addition and subtraction methods	
12	Describe positions on a 2d grid as coordinates in the first quadrant. Plotting specified points and drawing sides to complete a given polygon Describe movements between positions as translations of a given unit to the left/right and un/down	Compare and classify geometric shapes including quadrilaterals and triangles based on their properties and sizes including acute and obtuse angles Compare and order angles up to 2 right angles by size	Read Roman numerals to 100 (I toC) and know this system changed over tim	

negative numbers minus positive area perimeter time graphs rectilinear squared millennium

dividing a one or two digit number by 10 or 100 e digits as 1s 1/10ths and 1/100 al equivalents of any number of 10ths or 100ths. al equivalents to ¼, ½, 3/4 money problems involving fractions and decimals to

fference problems using the information presented ddition and subtraction methods

.00 (I toC) and know this system changed over time

	Autumn	Spring	Summer			
1	Read, write, order and compare numbers to at least 100 000 and determine	interpret negative numbers in context, count forwards and backwards with	read, write, order and com			
	the value of each digit including related problem solving	positive and negative whole numbers, including through zero	the value of each digit inclu			
2	count forwards or backwards in steps of powers of 10 for any given number up	solve comparison, sum and difference problems using information presented	count forwards or backwar			
3	to 100000	in a line graph	to 100000			
	round any number up to 100 000 to the nearest 10, 100, 1000, 10 000	complete, read and interpret information in tables, including timetables.	round any number up to 1			
	including related problem solving		100 000 including related p			
			formal writton mothods in			
			context checking using rou			
4	add and subtract whole numbers with 4 digits including using formal written	multiply and divide whole numbers <b>but now also those involving decimals</b> by	Recan: multiply and divide			
5	methods (columnar addition and subtraction)	10. 100 and 1000 and convert between different units of metric measure (for	100 and 1000 convert bety			
5	solve related multi- step problems in context and check using rounding	example, kilometre and metre; centimetre and metre; centimetre and	kilometre and metre; centi			
		millimetre)	and kilogram; litre and mill			
6	multiply and divide whole numbers by 10, 100 and convert between different	recognise and use thousandths and relate them to tenths, hundredths and	recognise mixed numbers a			
	units of metric measure (eg; centimetre and metre; centimetre and millimetre,	decimal equivalents	to the other and write mat			
	£ and pence)	recognise the per cent symbol (%) and understand that per cent relates to	example, 5 2 + 5 4 = 5 6 = 1			
7	identify multiples and factors, including finding all factor pairs of a number,	'number of parts per hundred', and write percentages as a fraction with	multiply proper fractions a			
	and common factors of two numbers	denominator 100, and as a decimal	materials and diagrams			
	identify, name and write equivalent fractions of a given fraction, represented	read and write decimal numbers as fractions [for example, $0.71 = 10071$ ]				
8	add and subtract fractions with the same denominator and denominators that	round decimals with two decimal places to the pearest whole number and to	use the properties of recta			
0	are multiples of the same number	one decimal place	lengths and angles			
3	compare and order fractions whose denominators are all multiples of the	read, write, order and compare numbers with up to three decimal places	<b>Recap</b> : distinguish betweer			
	same number	solve problems involving number up to three decimal places	about equal sides and angle			
	know and use the vocabulary of prime numbers, prime factors and composite	solve problems which require knowing percentage and decimal equivalents of	calculate and compare the			
	(nonprime) numbers	$\frac{1}{2}$ , $\frac{1}{5}$ 2/5, 4/5 and those fractions with a denominator of a multiple of 10	using standard units, squar			
	establish whether a number up to 100 is prime and recall prime numbers up to	or 25	estimate the area of irregu			
	19					
10	Multiply numbers up to 4 digits by a one digit number using a formal written	<b>Recap:</b> multiply numbers up to 4 digits by a one-digit number using a formal	Reacan: divide numbers un			
10	method, and introduce using a long multiplication for 2 digit by 2 digit -	written method, including long multiplication for two-digit numbers	number using the formal w			
	estimate answers	Introduce 3 digit x 2 digit	remainders appropriately f			
11	measure and calculate the perimeter of composite rectilinear shapes in	know angles are measured in degrees: estimate and compare acute, obtuse				
12	centimetres and metres	and reflex angles	understand and use approx			
		draw given angles, and measure them in degrees (o )	common imperial units suc			
		identify:				
		angles at a point and one whole turn (total 3600)				
		angles at a point on a straight line and 2 1 a turn (total 1800)				
		dictinguish between regular and irregular polygons based on reasoning about				
		equal sides and angles.				
13	calculate and compare the area of rectangles (including squares), and including	estimate volume [for example, using 1 cm3 blocks to build cuboids (including	Reacp: 3 digit x 2 digit - le			
	using standard units, square centimetres (cm2) and square metres (m2) and	cubes)] and capacity [for example, using water]				
	estimate the area of irregular shapes	recognise and use square numbers and cube numbers, and the notation for				
	divide numbers up to 4 digits by a one-digit number using the formal written	squared ( 2 ) and cubed (3 )				
	method of short division and interpret remainders appropriately for the					
	context					
Ongoing	solve problems involving converting between units of time	1 <b>1 1 1 1 1 1 1 1 1 1</b>				
objectives	use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.					
	solve problems involving multiplication and division including using their Knowledge of factors and multiples, squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of those (inc. using – sign at different points of number contenees).					
	solve problems involving addition, subtraction, inditiplication and division and a combination of these (inc. using = sign at different points of number sentences) solve problems involving simple rates					
New Vocabi		rasions and productio involving simple rates.				
Ten thousar	nd, hundred thousand, million, prime numbers prime factors composite numbers	proper/improper fractions mixed numbers composite rectilinear shapes remain	nders reflex angles metric			
and irregula	ir polygons squared and cubed numbers percentage degrees protractor square	e centimetres square metres x axis y axis				

pare numbers to at least 1 000 000 and determine	
ding related problem solving	

ds in steps of powers of 10 for any given number up

000 000 to the nearest 10, 100, 1000, 10 000 and problem solving ( 2 weeks)

hole numbers with at least 4 digits, including using cluding related multi- step problem solving in nding (columnar addition and subtraction)

whole numbers and those **involving decimals** by 10, veen different units of metric measure (for example, metre and metre; centimetre and millimetre; gram ilitre)

and improper fractions and convert from one form hematical statements > 1 as a mixed number [for L 5 1 ]

nd mixed numbers by whole numbers, supported by

ngles to deduce related facts and find missing

n regular and irregular polygons based on reasoning es.

area of rectangles (including squares), and including re centimetres (cm2) and square metres (m2) and lar shapes

to 4 digits by a one-digit ritten method of short division and interpret or the context

kimate equivalences between metric units and h as inches, pounds and pints

ading to 4 digit x 2 digit

imperial units inches pounds pints gallons regular

1   Read, write, order and compare numbers up to 1,000,000 and determine the value of each digit	Divide numbers up to 4 digits by 1 and then 2-digit whole numbers using formal long division and, where appropriate, short division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Solve problems (including multi-step problems) involving deciding which operations and methods to use and why and use estimation to check answers	3-4 week block, covering w ongoing AfL
	Solve problems (including multi-step problems) involving deciding which	
2 Identify the value of each digit [and order] up to 3 decimal places and multiply numbers by 10, 100, and 1000 giving answers up to 3 decimal places	to calculations	
3 Use week 2 work to: read, write and convert between standard units, converting measurements of length, mass, volume from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to 3 decimal places	Generate and describe linear number sequences <i>including</i> using negative numbers in context and calculate intervals across zero	
4Round any number (up to hundredths) to a required degree of accuracy5solve related problems (link to £ and measures)	Recognize that shapes with the same areas can have different perimeters <i>and</i> recognize where it is possible to use formulae for area of shapes <i>and</i> calculate the area of parallelograms and triangles <i>and</i> use simple formulae	SATS WEEK
6 Multiply numbers with up to 2 decimal places by whole numbers identify common factors, common multiples and prime numbers	Find pairs of numbers that satisfy an equation with 2 unknowns and express missing number problems algebraically	Describe positions on the f draw 2-D shapes using give
7 Use common factors to simplify fractions; use common multiples to express fractions in the same denomination <i>and</i> compare and order fractions, including fractions > 1 <i>with different denominators</i>	Multiply simple pairs of proper fractions, writing the answer in its simplest form. Divide proper fractions by whole numbers (ie $1/3 \div 2 = 1/6$ )	Draw and translate simple the axes
8 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	Use written division methods where the answer has up to 2 decimal places	Recognize and describe an 3f – calculate and estimate (ie.cm3)
9 Recall and use equivalences between simple fractions, decimals and percentages <i>and</i> associate a fraction with division and calculate decimal-fraction equivalences	Interpret and construct pie charts and line graphs and use these to solve problems	Convert between miles and
<b>10</b> Solve problems involving the calculation of percentages and the use of percentages for comparison	Calculate and interpret the mean as an average – link to charts/graphs	Solve problems involving th can be found using integer
11Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons Illustrate and name parts of circles, including radius, diameter and	Use knowledge of the order of operations to carry out calculations involving the four operations Solve problems, including multi-step problems, involving 4 rules, including	Solve problems involving si
12 circumference and know that the diameter is twice the radius; Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	problems which require answers to be rounded	Solve problems involving u fractions and multiples
New Vocabulary to be taught Radius diameter circumference algebra formulae line graph nets translate miles mea	n average axis four quadrants	

veaknesses and misconceptions, identified through

full coordinate grid (0.5 week) ven dimensions and angles.(0.5 week)

shapes on the coordinate plane and reflect them in

nd build simple 3D shapes – including making nets e volume of cubes and cuboids using standard units

ıd km.

the relative sizes of 2 quantities where missing values r multiplication and division facts. similar shapes where the scale factor is known

Inequal sharing and grouping using knowledge of