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
- 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 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| :---: | :---: | :---: | :---: | :---: |
| I wonder what it special | How things change |  | I wonder what happens next |  |

By the end of the Summer term N 2 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 numera
- 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 1 l 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 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
- 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
- Show an awareness of a sense of time e morning aft
- Beain to sing days of the week - begin to understand yernoon, evening and night-time
- Begin to sing days of the week - begin to understand yesterday and tomorrow


## Spring term N 2 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

- Begins to point, touch or move each item, saying one number name for each item-1,2,3 (stable order principle) whilst playing
- Begins to point, touch or move each item, saying one number name for each item - 1,2,3 (stable order principle) whilst plat
- Chant rhymes and songs involving numbers, e.g., five speckled frogs
- Show fingers for numbers to 5 with support whilst counting or singing number song

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 an understand and respond to the language position, inside 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


## 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
- 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 nex

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
- 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 N , how far behind are they? One term ( $\mathrm{N} 1=$ ), two terms ( $\mathrm{N} 1-$-) or working on earlier skills from Development Matters in the Birth to 3 ( $\mathrm{B}, \mathrm{B}$-, $\mathrm{B}=, \mathrm{B}+$ ). A child who completes 5 terms of nursery, would be seen as on track if recorded as $\mathrm{Nl}=$ at Easter of N 1 .

## Reception

## Early Learning Goal. Marnemarics

- Have a deep understanding of number to 10 , incluaing he composition of each number,


## Lingfield

- Subitise (recognise quantities without counting) up to 5
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10 , including double facts.


## Progression towards the Early Learning Goal

Progress in other areas of mathematics curriculum - Trust Ready

## $\mathrm{R}+$ By the end of the Summer term children should be able to...

'incidental' learning (deliberately 'dropping in' previous
teaching and vocabulary) will support retention of facts
and concepts. The focus should be on going wider and
deeper (hence there is no 'exceeding' judgement)
Where possible, links should be made (inc.through
continuous provision to other prime and specific areas of the
EYFS Framework - and to the environment and world in
general (some - but not all - links are highlighted in grey
below). Number lines/tracks, real-life objects and manipulative
should be used routinely to support scaffolding and

Recognise and read numbers to 10 - including when not in order and show that they understand the relationship between them
Display a deep understanding of the composition of numbers to 10 , (e.g make 10 in different ways and combinations using
manipulatives/objects)
Display accurate 1.1 correspondence to 10 Using concrete apparatus - then visually

- Confidently count to 10
- Subitise to 10 (through the use of patterns such as numicom, ten frame, bar modell))
- Match numeral to quantity up to $10-\mathrm{inc}$. out of sequence

To understand 1 more and 1 less for numbers to 10 (A)
Cact
/within 10 using apparatus and/or number line if needed (ie. by using 2 sets of Know that addition and subtraction

- Mentally, quickly recall all doubles to 5 (ie. double 1, 2, 3, 4, 5) (C)
- Mentally, quickly recall half of $2,4,6,8$ and 10 (B)
- Know that doubling and halving are related (inverse operation)
- Subitise to 5 - dots on a dice, numicom piece, ten-frame, pebbles, etc

Know that = means must balance is worth the same a

- Solve addition and subtraction calculations when $=$ is presented in different place (eg. $10=7+3$ )


## $R=\quad$ By the end of the Spring term children should be able to.

Recognise and read numbers to $\mathbf{7}$ including when not in order with the aid of a number line, picture clue

- Accurate 1:1 correspondence concrete, visual to 7

Know that anything can be counted eg. claps, drum beats... to 7

- Count an irregular arrangement to
- Display a deep understanding of the composition of numbers to 7 e.g make 7 in different ways (with concrete aids)
- Becoming more confident with the part whole model for numbers to 7
- Solve addition and subtraction calculations to 10 practically and visually
- Find 1 more and 1 less using numbers to 7 (A) - compare using manipulatives and number lines (links to 'Number Patterns -
compare quantities up to 10) (E)
Quick mental recall - addilition facts to 7 (fingers to help)
- Quick mental recall - subtraction facts within 7 (fingers to help)
- Number bonds to 5, 6 and 7 (using concrete aids to help)
- Know that addition and subtraction are related (inverse operations to 7) (D)

Haff of numbers $2,4,6,8$, and 10 concrete aid (B)
Dubitise to 5 dots on a die, numicom piece 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 to UtW)
- Use the vocabulary (link to C\&L) of adaition and subiraction inc. comparison of quanities to 10 - ie. altogether, add, total, plus, more than, take away subtract, less than, fewer than, greater than, equals, he same as - (L) - in practical contexts ie. counting jumps, skips, hops, catches, turns, etc (link to PD)
- Recognise numerals of personal significance (ie. age, number in family, numerals on clocks, door numbers, etc).
- Order and compare sets of numbers up to 20 using '1 more than, less than, fewer' etc. (A) "Who did most hops/jumps/turns?- (ink to PD) Also link to clock face - (1hr after/before) (links o 'Number Patterns - compare quantities up to 10
- Know which month/day comes before/ after a given month/day (F)
- Understand largest, most, smallest, least, fewest and number in-between up to 20 --' Order and compare 3 objects according to length, height, mass (G) link to SSM
Say number sequen
$16,17,18,13,12,11$ ?
- Record their work using objects, pictures and/or diagrams
- Recognise the verbal abbreviation for ordinal numbers and relate this to date of own birthday (e.g $9^{\text {th }}$ of May), months of year $1^{\text {tht }}, 2^{\text {nd }}$ - and finishing positions in a race. Link to SSM)
- Link ordinal numbers to months/days of week - 1st 2nd (K) ...link to SSM
- Understand what makes a number odd or even using idea of one left over
- Make sensible estimates using subitising within estimating number of pebbles, conkers, (link to UtW), etc.)
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. comparison of quantities (E)
- Begin to use ordinal numbers first, second ... tenth in real life situations (eg. race results/ days of the month) (K) (SSM)
Count in 2 s within 10 - pairs of matching objects knowing when you have one left over practical
- Understand largest, smallest \& number in-between up to 7
- Form the digits 0-7 accurately (link to 7 days in a week SSM)
- Say number sequences within 10 - forwards and backwards eg 4,5,6,?? 7,6,5 ? ?

Counting, $1: 1$ correspondence to 5 - give me?

- Know that anything can be counted (to 5) claps, drum beats..
- Count an irregular arrangement to 5
- Understand that zero means nothing
- Match numeral to quantity to 5 - concrete and visual
- Display a deep understanding of the composition of numbers to 5
- Solve addition and subtraction calculations to 5 - practically and visually
- Find 1 more and 1 less numbers to 5 (A) - using concrete and number line
- 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 results/position in queue) (K)
- Understand and find pairs of socks, gloves, legs (practical) and then count up in 2's with support UtW
- 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
- Form the digits 0 to 5 accurately
- Written number sequences $0-5$ forwards and backwards e.g 2,3,4,? $5,4,3$, ? ?
- Understand and use directional language - forwards, backwards, furn around, on top underneath, next to. Drip
Feed


## Early Learning Goal: Mathematics | Numerical Patterns

Children at the expected level of development will:
Be able to verbally count beyond 20 , recognsing the patterns of the counting system

## Lingfield

- 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


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

## Count by rote from 0 forwards to 20 and beyond

- Count by rote forwards in 1 s 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 contex (inc.quantities) (E)
Instant recognition of odd and even numbers to 10 represented by structures e.g dots, even numbers always have a partner/pairs (made visible)

## Both Number and Numerical Patterns ELG

- Know that addition and subtraction are related (inverse operation to $5(4+1=5 \quad 5-1=4)$ )(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 1 s forwards to 20 and beyond - visual aid
- Count forwards in 1 s from any number (to 20 ) - visual aid
- Count back in 1 s 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)
- Explerstand 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)
- Know that adarition and subiraction are

Count to/back in Is from 20 - count people onto/off a queve/ add/take away single objects
Conounce teen numbers correctly - sixteen not sixty

## SSM

Chant the months of the year by heart $(J)$
Begin to link ordinal numbers to each month (K)

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

Name the four seasons

- Becoming aware of the analogue clock counting around the clock to 12 and recognise and
- Becoming aware it, just as numbers can
- Classify and sort objects according to a criteria and begin to sort objects using own criteria (H)
- Continue given repeating patterns (sound, colour, shape, objects) link to UtW
- Create own repeating patterns using UtW
- Order and compare 3 objects according to length, mass, capacity (G)

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

- Count by rote in 2 s to 10 - visual aid
- Count by rote in 10 s to 50 - visual aid
- 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

- Know which month your birthday is in
- Understand position through words - eg. "The bag is under the table," - with no pointing (under, on top, next to, behind, in front) (PDev - PE - move under)
- Name and describe common solid shapes cube, cuboid, Use the language solid, face, edge
- Sort objects using two criteria e.g Sort solid shapes straight edges, curved edges
- Find something bigger than, smaller than, taller than, shorter than, heavier, lighter, deeper...lin o UtW
Find something the same size, equal to (length, weight, capacity) link to UtW
- Continue a simple repeating pattern e.g red, blue, red ... apple, banana, apple ..
- Notice and correct an error in a repeating pattern
- To talk about money using the terms, pennies, pence, change, amount
- To read price tags in role play shop up $1 p, 2 p, 5 p, 10 p$

R- By the end of the Autumn Term children should be able to
Count by rote forwards and backwards to 10 - visual aid
Hold fingers up correctly for each number to 10
Count on and back in is from any number to 10 -visual
Know by heart the number before and after numbers to 5
Chant a number song involving even/ odd numbers e.g Ödd Boodd and Even Steven

- Chant the days of the week with support
- Begin to know what day it is today
- Begin to know what day it is tomorrow
- Sort objects using a given criteria e.g big, small, heavy, light (link to UtW)
- Name and describe common flat shapes circle, square, rectangle, triangle
- Use the language flat, sides and corners

Classify and sort objects into sets according to given criteria, areas in classroom with labels, block area, pencils into colours, buttons e.g colour, shape, holes in centre,

- Copy a given pattern (sound, colour, shape, objects - le.g clap, clap, click... red, blue, red apple, grape, orange... square, triangle, square ... (link to UtW)
Use templates/ stencils as patterns to produce an identical image e.g draw around stencils
Copy given pictures/patterns from resources (both natural and man made e.g conkers, It leaves, inset shape patterns, block area make a model from given picture(link to UtW)
- Understand position through words and real scenarios, pictures - for example, "The bag under the table," (under, on top, next to, behind, in front) link to PD (PE - 'under the bench/on top of the mat --)
mple routes - forwards, backwards, turn, corner (outdoor provision)
- Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then
s in role play shop using pennies
- Know that coins are collectively called money and we spend them, save them


## Year One



[^0]
## Autumn

count in steps of 2,3, and 5 from 0 , and in tens from any number, forward and backward

- recognise the place value of each digit in a two-digit number (tens, ones)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use < > and = signs
- read and write numbers to at least 100 in numerals and in words
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
- adding three one-digit number
- a two-digit number and ones
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
- a two-digit number and tens
- that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot

| 8 | - Recognise and use symbols for pounds ( $£$ ) and pence ( p ); combine amounts to |
| :--- | :--- | :--- | make a particular value

- find different combinations of coins that equal the same amounts of money
$9 \quad$ - 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
- 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. recognise, find, name and write fractions $1 / 4$ (including $1 / 4$ to and $1 / 4$ past), $1 / 3$, $1 / 2$ of a length, shape, set of objects or quantity
- write simple fractions for example, $1 / 2$ of $6=3$ and recognise the equivalence of $2 / 4$ and $1 / 2$ including all parts need to make a whole


## Spring

- recap: count in steps of 2,3, and 5 from 0 , and in tens from any number, forward and backward
- recap: recognise the place value of each digit in a two-digit no.s (tens, ones
- recap: compare and order numbers from 0 up to 100; use < > and = signs
- Partition two digit numbers in different combinations up to 100
- Revisit adding two, two digit numbers moving away from apparatus and including problem solving
(GD use reasoning about numbers and relationships to solve more complex
problems and explain thinking)
- 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
- know the number of minutes in an hour and the number of hours in a day.
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
- two two-digit numbers (including bridging when adding)
- solve problems with addition and subtraction subtraction:
- using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- applying their increasing knowledge of mental and written methods
- 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. Subtraction of numbers using empty number line linked to difference and counting forward
- choose and use appropriate standard units to estimate and measure length/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ) and mass $(\mathrm{kg} / \mathrm{g})$ 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 =
- interpret and construct simple block diagrams
- ask and answer simple questions by counting the number of objects in each
category and sorting the categories by quantity
- solve problems involving multiplication using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
(GD including making deductions outside known multiplication facts and solving
word problems that involve more than one step)
- identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
- compare and sort common 2-D and 3-D shapes and everyday objects.
(GD including similarities and differences)
- recap: recognise, find, name and write fractions $1 / 3,1 / 4,2 / 4$ and introduce $3 / 4$ of a length, shape, set of objects or quantity


## summer

recap: recognise, find, name and write fractions $1 / 3,1 / 4,2 / 4$ and introduce $3 / 4$ of a length, shape, set of objects or quantity

- solve problems involving division, using materials, arrays, repeated subtraction, mental methods, and multiplication and division facts, including problems in contexts
- compare and sequence intervals of time
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
- add numbers using concrete objects, pictorial representations, and mentally, including:
- two two-digit numbers including bridging
- 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:
show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
introduction of numbers to 1000 (multiples of 100 )
- choose and use appropriate standard units to estimate and measure
capacity (litres/ml)
temperature ( ${ }^{\circ} \mathrm{C}$ )
to the nearest appropriate unit, using scales and measuring vessels
- recap: interpret and construct tally charts, block diagrams and simple tables
- ask and answer simple questions by counting the number of objects in each
category and sorting the categoles by quantity
- ask and answer questions about totalling and comparing categorical data.
recap: write simple fractions for example, $1 / 2$ of $6=3$ and recognise the equivalence of $2 / 4$ and $1 / 2$

|  | Autumn | Spring | Summer |
| :---: | :---: | :---: | :---: |
| 1 | Read and write numbers up to 999 in numerals and in words | Count, recognize the place value and compare numbers to 999 solve number problems and practical problems involving these ideas | Recap of read and write and compare numbers to 1000 including understanding the place value of each digit Number bonds to 1000 (using multiples of 50 and 100) ie. $650+350$ |
| 2 | Recognise the place value of each digit in a three-digit number (H, T, Ones) compare and order numbers up to 999 |  |  |
| 3 | Apply partitioning relating to place value (ie: $146=100+40$ and 6; $146=$ $130+16)$ <br> Identify and represent these numbers using different representations. | Teach the children the formal written method for addition with up to three digits NOT PAST 999 using the Dienes method from Y2 as a starting point to introduce carrying. Ensure estimation is used first | Recap of count up and down in 1/10. Recognise and show using diagrams equivalent fractions. <br> Introduce non-unit fractions after revisiting unit fractions and ordering these. <br> Solve fraction related problems |
| 4 | Find 10 or 100 more or less than a given number |  |  |
| 5 | Count from 0 in multiples of 4, 8,50 and 100 Introduce $4 \times$ table and associated division - link to x2 tables Recap $\times 5$ and $\times 10$ 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 |  |
| 6 <br> 7 | Add and subtract numbers mentally including: <br> - 3 digit number and ones <br> - 3 digit number and tens <br> - 3 digit number and hundreds <br> Including missing number problems <br> Counting in 50 and 100s and finding 10 more / less or 100 more / less | Teach the children the formal written method for subtraction with up to three digits NOT PAST 999 using the Dienes method from Y2 as a starting point to introduce carrying. <br> Ensure estimation is used first. Link to checking inverse to check answers. | Introduce that an angle is a description of a turn or a property of a shape. <br> Identify right angles, recognise two right angles make a half turn and three make $3 / 4$ and 4 make a complete turn. <br> Identify if angles are greater or less than a right angle |
| 8 | measure and compare, add/subtract lengths, mass, volume and capacity using the partitioning method from Y 2 and perimeter of 2d shapes. | Introduce $8 \times$ table and link to 4 x table and associated division. Write and calculate statements for multiplication and division using the tables that they know mentally progressing to formal written methods | Draw 2 D and make 3D shapes using modelling materials, recognize 3D shapes in different orientations and describe them. Use terminology perpendicular and parallel lines |
| 9 |  |  |  |
| 10 | 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 $10^{\text {th }}$ 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 <br> add and subtract fractions with the same denominator within one whole |  |
| 11 | 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 | problem solving with addition and subtraction including missing number and more complex problems |
| 12 | Assessment, consolidation week | tell the time to nearest 5 minutes ( Y 3 obj ) read time with increasing accuracy to the nearest minute | $6 \times$ table - link to $\times 3$ tables and doubling/halving tell the time on the analogue clock (this has been an ongoing objective throughout the year and the roman numeral clock). solve problems involving time, seconds in a minute, days in a month and days in a year and leap year with the required vocabulary |

 millimetres kilometre century pentagonal hexagonal octagonal quadrilateral horizontal diagonal vertical compass points -North, East, South West

|  | Autumn | Spring | Summer |
| :---: | :---: | :---: | :---: |
| 2 | Recognise the place of value in a 4 digit number, Order and compare numbers beyond 1000 up to 9999, Count in 1000's and find 1000 more or less than a given number. identify represent and estimate numbers using different representations | Recap place of value in a 4 digit number, ordering and comparing numbers beyond 1000 up to 9999 <br> Count in 1000 's and find 1000 more or less than a given number (recap 100 more/less) <br> Recap 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 | Identify lines of symmetry in 2D shapes presented in different orientations. Complete a simple symmetric figure with respect to specific line of symmetry |
| 3 | Round numbers to 9999 to the nearest 10,100 Recall multiplication facts in all known tables and the corresponding division facts introducing $9 x$ table linked to $3 x$ |  | Recap: Rounding to the nearest 10,100 and now also 1000 . <br> Recap: Round decimals with one decimal place to the nearest whole number <br> Solve numbers and practical problems in numbers up to 9999 using |
| 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 $\mathrm{km}-\mathrm{m}$ | Recap of formal methods with addition and subtraction using estimating and checking with inverse <br> Solve 2 step problems including involving money and other measures in contexts deciding which operation to use and why |  |
| 5 |  |  | Recap: finding the effect of dividing a one or two digit number by 10 or 100 identifying the values of the digits as $1 \mathrm{~s} 1 / 10$ ths and $1 / 100$ <br> Recognise and write decimal equivalents of any number of 10ths or 100ths. Recognise and write decimal equivalents to $1 / 4,1 / 2,3 / 4$ Solve simple measure and money problems involving fractions and decimals to two decimal places. |
| 6 | Count up and down in 100ths and understand that this arises when dividing an object by 100 and dividing 10 ths by 10 . <br> Compare decimals with the same number of decimal places and round decimals to nearest whole number - linking to $£$ and measures (to 2 dec.places) | Multiply two-digit and three-digit numbers by a one-digit number using formal written layout <br> Solve problems involving multiplying, including using the distributive law (ie. $39 \times 7=30 \times 7+9 \times 7$ and associative law $(2 \times 3) \times 4=2 \times(3 \times 4)$. use factor pairs where appropriate |  |
| 7 |  |  | 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 number. | Read, write, convert time, between analogue and digital 24 (and recap 12 hour) clock. <br> Recap: 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 methods of columnar addition and subtraction where appropriate- also using estimating and checking with inverse <br> Solve two step problems in contexts deciding which operation to use and why |  | Interpret and present discrete and continuous data using appropriate graphical methods including bar charts and time graphs. Solve, compare sum and difference problems using the information presented in these using the formal addition and subtraction methods |
| 10 |  | Read, write, convert time, between analogue and digital 12 hour clocks. Solve problems converting from hours to minutes, mins to seconds, years to months, weeks to days |  |
| 11 |  |  |  |
| 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 up/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 ( toC ) and know this system changed over time |
| New Vocabulary to be taught <br> 4 digit numbers decimals hundredths co-ordinates first quadrant heptagon nonagon decagon quadrilaterals -parallelogram, rhombus, trapezium isosceles equilateral and scalene triangles acute obtuse tetrahedron polyhedron digital analogue round negative numbers minus positive area perimeter time graphs rectilinear squared millennium |  |  |  |


|  | Autu | Spring | Sum |
| :---: | :---: | :---: | :---: |
| 1 | Read, write, order and compare numbers to at least 100000 and determine the value of each digit including related problem solving | interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero solve comparison, sum and difference problems using information presented in a line graph complete, read and interpret information in tables, including timetables. | read, write, order and compare numbers to at least 1000000 and determine the value of each digit including related problem solving |
| 2 | count forwards or backwards in steps of powers of 10 for any given number up to 100000 <br> round any number up to 100000 to the nearest $10,100,1000,10000$ including related problem solving |  | count forwards or backwards in steps of powers of 10 for any given number up |
| 3 |  |  | to 1000000 <br> round any number up to 1000000 to the nearest $10,100,1000,10000$ and 100000 including related problem solving ( 2 weeks) <br> Recap: add and subtract whole numbers with at least 4 digits, including using formal written methods including related multi- step problem solving in context checking using rounding (columnar addition and subtraction) |
| 4 | add and subtract whole numbers with 4 digits, including using formal written methods (columnar addition and subtraction) <br> solve related multi- step problems in context and check using rounding | multiply and divide whole numbers but now also those involving decimals by 10,100 and 1000 and convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre) | Recap: multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) |
| 5 |  |  |  |
| 6 | multiply and divide whole numbers by 10,100 and convert between different units of metric measure (eg; centimetre and metre; centimetre and millimetre, £ and pence) | recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents <br> 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 read and write decimal numbers as fractions [for example, $0.71=10071$ ] ( add \% too) | recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements $>1$ as a mixed number [for example, $52+54=56=151$ ] <br> multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams |
| 7 | identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers <br> identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths <br> add and subtract fractions with the same denominator and denominators that are multiples of the same number compare and order fractions whose denominators are all multiples of the same number <br> 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 |  |  |
| 8 |  | round decimals with two decimal places to the nearest whole number and to one decimal place <br> read, write, order and compare numbers with up to three decimal places solve problems involving number up to three decimal places solve problems which require knowing percentage and decimal equivalents of $1 / 2,1 / 41 / 52 / 5,4 / 5$ and those fractions with a denominator of a multiple of 10 or 25 | use the properties of rectangles to deduce related facts and find missing lengths and angles <br> Recap: distinguish between regular and irregular polygons based on reasoning about equal sides and angles. <br> 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 |
| 9 |  |  |  |
| 10 | Multiply numbers up to 4 digits by a one digit number using a formal written method, and introduce using a long multiplication for 2 digit by 2 digit estimate answers | Recap: multiply numbers up to 4 digits by a one-digit number using a formal written method, including long multiplication for two-digit numbers Introduce 3 digit $\times 2$ digit | Reacap: 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 |
| 11 | measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres | know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles <br> draw given angles, and measure them in degrees (o ) identify: <br> angles at a point and one whole turn (total 360o ) <br> angles at a point on a straight line and 21 a turn (total 180o ) <br> other multiples of 90 o <br> distinguish between regular and irregular polygons based on reasoning about equal sides and angles. |  |
| 12 |  |  | understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints |
| 13 | 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 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 | estimate volume [for example, using 1 cm 3 blocks to build cuboids (including cubes)] and capacity [for example, using water] recognise and use square numbers and cube numbers, and the notation for squared ( 2 ) and cubed (3) | Reacp: 3 digit $\times 2$ digit - leading to 4 digit $\times 2$ digit |
| Ongoing objectives | solve problems involving converting between units of time <br> use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. <br> solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes <br> solve problems involving addition, subtraction, multiplication and division and a combination of these (inc. using $=$ sign at different points of number sentences) solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. |  |  |
| New Voca Ten thous | lary to be taught |  | rs reflex angles metric imperial units inches pounds pints gallons regular |


and irregular polygons squared and cubed numbers percentage degrees protractor square centimetres square metres xaxis yaxis

|  | Autumn | Spring | Summer |
| :---: | :---: | :---: | :---: |
| 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 | 3-4 week block, covering weaknesses and misconceptions, identified through ongoing AfL |
| 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 | Solve problems (including multi-step problems) involving deciding which operations and methods to use and why and use estimation to check answers 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 including using negative numbers in context and calculate intervals across zero |  |
| 4 | Round any number (up to hundredths) to a required degree of accuracy solve related problems (link to $£$ and measures) | Recognize that shapes with the same areas can have different perimeters and recognize where it is possible to use formulae for area of shapes and calculate the area of parallelograms and triangles and use simple formulae |  |
| 5 |  |  | 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 full coordinate grid ( 0.5 week) draw 2-D shapes using given dimensions and angles.( 0.5 week) |
| 7 | Use common factors to simplify fractions; use common multiples to express fractions in the same denomination and compare and order fractions, including fractions $>1$ with different denominators | Multiply simple pairs of proper fractions, writing the answer in its simplest form. <br> Divide proper fractions by whole numbers (ie $1 / 3 \div 2=1 / 6$ ) | Draw and translate simple shapes on the coordinate plane and reflect them in 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 and build simple 3D shapes - including making nets $3 f$ - calculate and estimate volume of cubes and cuboids using standard units (ie.cm3) |
| 9 | Recall and use equivalences between simple fractions, decimals and percentages and associate a fraction with division and calculate decimalfraction equivalences | Interpret and construct pie charts and line graphs and use these to solve problems | Convert between miles and km . |
| 10 | 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 the relative sizes of 2 quantities where missing values can be found using integer multiplication and division facts. |
| 11 | Compare 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 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 | Use knowledge of the order of operations to carry out calculations involving the four operations <br> Solve problems, including multi-step problems, involving 4 rules, including problems which require answers to be rounded | Solve problems involving similar shapes where the scale factor is known |
| 12 |  |  | Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples |
| New Vocabulary to be taught <br> Radius, diameter, circumference , algebra, formulae, line graph, nets, translate, miles, mean average, axis, four quadrants |  |  |  |


[^0]:    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

