Mathematics

WARRINGTON PRIMARY ACADEMY TRUST

EVELYN STREET

Evelyn Street Primary Academy

Medium Term Plans – Small Steps

Evelyn Street Primary Academy – Medium Term Plans

Our curriculum is built on the National Curriculum and the White Rose Scheme, which we then underpin with NCETM (National Council for Excellence in the Teaching of Mathematics) and the Department for Education's maths guidance 2020 to ensure all of our children are ready to progress to the next step in their learning. The fundamental idea behind our curriculum design is to support our children to be able to perform simpler tasks so they can then move on to perform more complex tasks. Through this 'small step' teaching approach we support our children to develop the necessary skills to become 'deep thinkers'. Learning across the year is linked, ensuring there are plenty of opportunities to revisit core skills and apply learning from other topics within maths. This approach means that our children are able to make rich connections and acquire skills that can be recalled quickly and be transferred and applied in different contexts in Maths and more widely. Children are set into two groups across the year group, with targeted support for those struggling or for those needing deeper challenge. We ensure that maths is taught in creative and engaging ways. Wherever possible, mathematical concepts are introduced and explored within everyday contexts, giving children the chance to experience hands-on learning.

Our aim is to ensure that the three core areas of the national curriculum are covered in all our lessons: fluency, reasoning and problem solving. Children get to practice their maths skills regularly, with a focus on developing their ability to recall and apply their knowledge rapidly and accurately. As well as a daily maths lesson, we teach daily 'arithmetic' lessons which focus on calculation and fluency, as well as continually recapping prior knowledge.

What your child will learn

- To talk confidently about Maths and their learning, relating it to real life purposes.
- Use acquired vocabulary in lessons and discussions
- Use mathematical methods independently and show perseverance when tackling problems.
- Use different representations of mathematical concepts.

NURSERY

Evelyn Street Primary School- Number and Number Patterns
Maths progression through EYFS Nursery

Educational Programme: Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

ELG: Number
■ Have a deep understanding of number to 10, including the composition of each number ■ 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

ELG: Numerical Patterns
■ Verbally count beyond 20, recognising the pattern 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 evens and odds, double facts and how quantities can be distributed equally

Focus	Place value: Counting	Place value: Represent	Place value: Use and compare	Addition and subtraction; recall, represent, use	Addition and subtraction: Calculation	Addition and subtraction: Solve problems
Nursery Skills, Knowledge & Understanding	▪ Enjoy counting verbally as far as they can go ▪ Point or touch (tag) each item, saying one number for each item, using the stable order of 1,2,3,4,5 ▪ Use some number names and number language within play, and may show fascination with large numbers	▪ Begin to recognise numerals 0 to 10 ▪ Subitise one, two and three objects (without counting) ▪ Link numerals with amounts up to 5 and maybe beyond	▪ Compare two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. *You've got two, I've got two. Same!*	▪ Count up to five items, recognising that the last number said represents the total counted so far (cardinal principle) ▪ Ascribe mathematical meaning to own marks	▪ Through play and exploration, begin to learn that numbers are made up (composed) of smaller numbers ▪ Begin to recognise that each counting number is one more than the one before	▪ Begin to use understanding of number to solve practical problems in play and meaningful activities ▪ Separate a group of three or four objects in different ways, beginning to recognise that the total is still the same
Learning Outcomes	**Autumn 1** Colours and feelings	**Autumn 2** Families and Celebrations	**Spring 1** Traditional Tales	**Spring 2** Growing and changing	**Summer 1** People Who Help Us	**Summer 2** Wild Animals / Zoo
	⇨ Engage in open-ended play, developing one-to-one correspondence e.g. *one doll in a pram / one peg in each bowl* ⇨ Participate in number songs – beginning to use fingers to represent numbers ⇨ Count by rote from 1-5+ ⇨ Identify a small set that has 'more' or 'less' or the 'same'.		⇨ Count accurately using 1- correspondence for numbers 1-3 ⇨ Identify some representations of numbers 1,2,3, ⇨ Begin to subitise 1-3 ⇨ Match objects to numerals using 1-3 ⇨ Count by rote to 10		⇨ Count forwards and backwards from ⇨ Count accurately using 1- correspondence for numbers 1-5 ⇨ Find 1 more and 1 less than a number between 1 and 5 ⇨ Begin to subitise to 5 ⇨ Recognise and order numbers 1-5+	
	□ Children will be exposed to mathematical vocabulary and mathematical experiences in the indoor and outdoor classrooms. □ Through well-chosen resources such as water play, sand play, construction and small world children will be able to play what they know in a purposeful way whilst learning.					

Evelyn Street Primary School - Shape, Space and Measure
Maths progression through EYFS Nursery

Educational Programme: Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

ELG – NA *See Number & Numerical Pattern links*

Focus	Spatial Awareness	Shape	Pattern	Measures
Nursery Skills, Knowledge & Understanding	▪ Respond to and uses language of position and direction ▪ Predict, move and rotate objects to fit the space or create the shape they would like	▪ Choose items based on their shape which are appropriate for a purpose ▪ Know 2D shapes names ▪ Know some 3D shape names ▪ Show awareness of shape similarities and differences between objects ▪ Enjoy partitioning and combining shapes to make new shapes with 2D and 3D shapes ▪ Attempt to create arches and enclosures when building, using trial and improvement to select blocks	▪ Create their own spatial patterns showing some organisation or regularity ▪ Explore and adds to simple linear patterns of two or three repeating items, e.g., *stick, leaf (AB) or stick, leaf, stone (ABC)* ▪ Join in with simple patterns in sounds, objects, games and stories dance and movement, predicting what comes next	▪ In meaningful contexts, finds the longer or shorter, heavier or lighter and more/less full of two items ▪ Recall a sequence of events in everyday life and stories

Learning Outcomes	Autumn 1 Colours and feelings	Autumn 2 Families and Celebrations	Spring 1 Traditional Tales	Spring 2 Growing and changing	Summer 1 People Who Help Us	Summer 2 Wild Animals / Zoo
	⇨ Sort objects by colour using the words *same* and *different* ⇨ Sort different objects by noticing similarities and differences e.g. *Autumn items* ⇨ Use the language of size - *big/ little, small/large* ⇨ Use language of *long* and *short* to describe lengths ⇨ Copy a simple repeating pattern. ⇨ Follow the daily routine and begin to predict what might happen next with a visual timetable		⇨ Sort objects by shape and size ⇨ Begin to continue a repeating pattern ⇨ Compare amounts using full / empty to make comparisons ⇨ Start to make direct comparisons using longer/ shorter, taller/ shorter to describe ⇨ Compare lengths using practical objects and begin to make some comparisons using appropriate language ⇨ Name simple 2D shapes of circle, triangle, rectangle and square		⇨ Begin to make own repeating pattern ⇨ Describe shapes they see in images and pictures. ⇨ Use words such as round/ straight/ flat to describe shape characteristics. ⇨ Talk about and sequence the events within a school day ⇨ Use time vocabulary of - *day/night/today/tomorrow/before/after that* to describe when an event is happening ⇨ Use words such as heavy/light ⇨ Use words of more or less when describing quantities ⇨ Use positional language to place and describe items - *under/ in/ on/ on top of/ behind/ in front of/* ⇨ Use directional language of up/ down / across to describe locations.	

□ Children will be exposed to mathematical vocabulary and mathematical experiences in the indoor and outdoor classrooms. □ Through well-chosen resources such as water play, sand play, construction and small world children will be able to play what they know in a purposeful way whilst learning.

EYFS

	EYFS -Reception CONTINUOUS PROVISION, VOCABULARY AND LANGUAGE				
Autumn EYFS Reception	**Getting to know you** Create opportunities for settling in and introducing areas of provision. Discuss key times of day and class routines. Explore inside and outside and discuss where things belong. Vocabulary = positional language and time	**Just like me** • Match and sort (pairs and matching, sort into groups based on attributes e.g. long, short, thick, thin) • Compare and order amounts (more/ most, fewer/ fewest, same)	**It's me 1,2,3!** • Representing 1,2,3 – subitise and count • Comparing 1,2,3 (one less, one more, order, more, fewer) • Composition of 1,2,3 (combine, altogether, and, add, equal) ***NCETM Numberblocks episodes 1-5***	**Light and dark** • Four – count on and back, subitise, • Five - count on and back, subitise • One more, one less (predict) ***NCETM Numberblocks episodes 6-7 and 13***	**Alive in 5!** • Introducing zero • Comparing numbers to 5 • Composition of 4 and 5 (how many ways? combination, combine) ***NCETM Numberblocks episodes 8-12, 14 - 15***
		• Compare size, mass and capacity (big, little, large, small, tall, short, long, easier to carry, harder to carry). • Explore pattern (chant word and sound patterns including shapes, opposites, numbers, animals).	• Circles and triangles (curved, straight) • Spatial awareness – position and direction (next to, beside, behind, on top, beneath, between, above, below, over, under, around, through)	• Shapes with 4 sides (squares, rectangles, straight sides, corners) • Night and day (night, day, morning, afternoon, today, tomorrow, yesterday, before, after, now, next, later, timetable, calendar, first, next, fastest, slowest)	• Compare mass (heavy and light, heaviest, heavier, lighter, lightest, estimate) • Compare capacity (full, empty, half full, nearly full, nearly empty, tall, thin, narrow, wide, shallow, deep, holds more, holds less)

End Goals in Autumn term – Through these units and continuous provision, children develop a deep understanding of number to 5, including the composition of each number; they are also able to subitise up to 5. They are beginning to automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts).
Children can verbally count to 5 recognising the pattern of the counting system. They can compare quantities up to 5 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
In addition, children are beginning to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures

EYFS Reception CONTINUOUS PROVISION, VOCABULARY AND LANGUAGE

	Growing 6,7,8	Building 9, 10	To 20 and beyond
Spring EYFS Reception	6,7,8 – Conceptually subitise by seeing the smaller numbers they are made up of. Make use of 10 frames. - Making pairs (pair, odd one out, odd, even) - Combining 2 groups (total, how many altogether, combine, add, part and wholes) _**NCETM Numberblocks series 2 episodes 1-3**_	9 and 10 – tens frame, rekenrek, fingers, conceptual subitise - Comparing numbers to 10 – collect and compare e.g. votes (more, fewer, same, popular, favourite, most, least, nearly, close to) - Bonds to 10 (bonds, combine, altogether, add, more, part, whole) _**NCETM Numberblocks series 2 episodes 4-7 and 13**_	– over Spring2 and Summer 1 - Building numbers beyond 10 – build and identify numbers beyond 10 in different ways, encourage children to see that the numbers 1-9 repeat after every full 10 e.g. 11 is 1 ten and 1, 12 is 1 ten and 2 etc. Begin to order these numbers and their pictorial representations - Counting patterns beyond 10 – forward and backward from different starting points, place representations and the numerals in sequential order. - Extend - Begin to look at 100 – how many is 100? Take 100 steps, arrange 100 objects onto 10 tens frames _NCETM Numberblocks series 3_ _Children will begin to record their number learning in books, preparing them for year 1_
	- Length and height (longer, bigger, taller, shorter, wider, narrower, furthest, closest, thicker, thinner, compare and record) - Time – sequence events within and across days and understand periods of time e.g. how many times you can catch a ball in 30 seconds or a minute (now, before, after, later, soon, next, then, yesterday, today, tomorrow, days of the week, minute, seconds, minutes)	3d shapes (similarities and differences, flat, curved, straight, round, hollow, solid, sort, make, build, draw, face (triangular and square faces), edge, vertex/corner, cube, cuboid, pyramid, sphere, cone) - Pattern – identify and continue a repeating pattern (pattern, repeat, describe, compare, rule)	Spatial reasoning – match, select and rotate and manipulate shapes into different paces (jigsaws and puzzles). Prompt the use of positional language to explain where shapes and objects are). Make 3 and 4 sided shapes in different ways

End Goals in Spring term - Children have a deep understanding of number to 10, including the composition of each number. They can subitise up to 5 and beyond. They can automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Children can verbally count to 10 and beyond, recognising the pattern of the counting system. They can compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. They explore and represent patterns within numbers up to 10.

In addition, children are beginning to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures

EYFS Reception CONTINUOUS PROVISION, VOCABULARY AND LANGUAGE

Summer EYFS Reception

To 20 and beyond

- Building numbers beyond 10 – build and identify numbers beyond 10 in different ways, encourage children to see that the numbers 1-9 repeat after every full 10 e.g. 11 is 1 ten and 1, 12 is 1 ten and 2 etc. Begin to order these numbers and their pictorial representations
- Counting patterns beyond 10 – forward and backward from different starting points, place representations and the numerals in sequential order.
- Extend - Begin to look at 100 – how many is 100? Take 100 steps, arrange 100 objects onto 10 tens frames

NCETM Numberblocks series 3

Children will begin to record their number learning in books, preparing them for year 1

- Spatial reasoning – match, select and rotate and manipulate shapes into different paces (jigsaws and puzzles). Prompt the use of positional language to explain where shapes and objects are). Make 3 and 4 sided shapes in different ways

First, then, now

- Adding more – children further recognise that the quantity can change when we add more on. Use stories to show more being added. (More. How many do we have? What if I add 3 more? add)
- Taking away - children further recognise that the quantity can change when we take away. Tell and use simple maths stories. Use equipment to support counting and subitising. (Less, take away, subtract)
- Extend – How many did I add on? How many did I take away?

- Spatial reasoning – shapes can be combined and separated to make new shapes. Investigate, triangles, squares, rectangles, 4 sides, 3 sides, tall, long,

Find my pattern

- Doubling – double = twice as many. pairs and add. Find pairs and add them together, relate to double
- Sharing and grouping – shared equally, fair, groups of, remainder, left over. Share counters equally between children. Place 3 counters on each plate (groups). Discuss idea that some are left over. Explore why and what might happen with the remainder.
- Even and odd – share equally into 2 groups. Equal and unequal. Investigate odd and even on the number line.

- Spatial reasoning – Replicate and recreate constructions, models and real life places through building and verbal explanations (positional language) as they make.

On the move

- Deepening learning – opportunities to problem solve and think critically about problems presented in some of the stories they have read so far.
- Patterns and relationships – Explore and investigate relationships between numbers. Copy, create and continue patterns with words, shapes, objects and numbers, and explain these using positional and geometric language.

- Spatial reasoning – children recognise we can make maps and plans to represent places. Explore and make maps and plans of familiar places using objects and pictorial representations.

End Goals in Summer term - Children have a deep understanding of number to 10, including the composition of each number. They can subitise (recognise quantities without counting) up to 5 They 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.

Children verbally count beyond 20, recognising the pattern of the counting system. They compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. They explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

In addition, children have developed their spatial reasoning skills across all areas of mathematics including shape, space and measures. They are able to problem solve and to think critically about number, shape, space and measure.

Year 1

	YEAR 1 VOCABULARY AND LANGUAGE			
Autumn	**Number: Place Value (within 10)** Numeral, count, equal to, equivalent to most, least, half-way, between, compare, order, number, more, less, odd, even, pattern, pair	**Number: Addition and Subtraction (within 10)** Addition, half, halve, subtract, equals, is the same as, number bonds/pairs, missing numbers, add, more, sum, total, altogether, double, one more, two more	**Geometry: Shape** 2D shape, point, pointed, 3D shape, cuboid, cylinder, cube, pyramid, sphere, cone, shape, pattern, flat, curved, straight, round, hollow, solid, sort, size, repeating pattern, corner, side, rectangle (square), circle, triangle, face, edge, vertex, vertices	**Number: Place Value (within 20)** Numeral, teen numbers, forwards, backwards, equal to, equivalent to, above, below
Spring	**Number: Addition and Subtraction (within 20)** Add, near double, half, halve, subtract, is the same as, number bonds/pairs, missing numbers, roughly	**Number: Place Value (within 50)** *includes counting in 2s and 5s* Numeral, twenty-one, twenty-two …, forwards, backwards, equal to, equivalent to, above, below	**Measurement: Length and Height** Measure/ment, centimetre, ruler, metre stick, metre, length, height, width, depth, low, wide, narrow, thick, thin, long/er/est, short/er/est, tall/er/est, high/er/est, far, near, close	**Measurement: Mass and Volume** Weight, mass, Capacity and volume, quarter full, weigh, weighs, balances, heavy/ier/iest, light/er/est, scales, full, empty, half full
Summer	**Number: Multiplication and Division (reinforce multiples of 2, 5 and 10)** count in ones, twos, fives, tens, multiplication, division	**Number: Fractions** Fraction, equal part, one of two equal parts, one of four equal parts, quarter, half	**Geometry: Position & Direction** Underneath, centre, journey, quarter turn, three-quarter turn	**Number: Place Value (within 100)** one hundred	**Measures: Money** Change, costs more, costs less, cheaper, costs the same as, How much…?, How many…?, total	**Measurement: Time** months of the year, seasons, weekend, month, year, earlier, later, first, midnight, date, usually, once, twice, half past, clock face, hour hand, minute hand, hours, minutes

YEAR 1 Autumn SMALL STEPS AND END GOALS

Autumn

Number: Place Value (within 10)

End Goals
- RTP: NPV1 Count within 100, forwards and backwards, starting with any number.
- RTP: NPV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =
- NC: count, read and write numbers to 100 in numerals
- NC: given a number, identify 1 more and 1 less
- NC: identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- NC: read and write numbers from 1 to 20 in numerals and words.

Small steps
- Sort, count and represent objects
- Count, read and write forwards from any number 0 to 10
- Count one more and one less
- One to one correspondence to start to compare groups (too many, not enough, just right)
- Compare groups (equal, more/greater, less/fewer)
- Introduce ><= symbols
- Order groups of objects and order numbers (including ordinal)
- The number line

Number: Addition and Subtraction (within 10)

End Goals
- RTP: NF1 Develop fluency in addition and subtraction facts within 10.
- RTP: AS1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.
- RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.
- NC: read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- NC: represent and use number bonds and related subtraction facts within 20
- NC: add and subtract one-digit including 0
- NC: solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? - 9

Small steps
- Part-whole models
- The addition symbol
- Addition facts
- Bonds for numbers within 10
- Compare number bonds
- Adding together and adding more
- Finding part of the whole
- Subtraction – the symbol. How many left? (crossing out), counting back and finding a part
- Linking addition and subtraction e.g. 7 = 9-2
- Finding the difference
- Comparing addition and subtraction statements with > < =

Geometry: Shape

End Goals
- RTP: G1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.
- NC: recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles] 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].

Small steps
- Recognise and name 3D shapes
- Sort 3D shapes
- Recognise and name 2D shapes
- Sort 2D shapes
- Patterns with 2D and 3D shapes

Number: Place Value (within 20)

End Goals
- RTP: NPV1 Count within 100, forwards and backwards, starting with any number.
- RTP: NPV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =
- NC: given a number, identify 1 more and 1 less
- NC: identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- NC: read and write numbers from 1 to 20 in numerals and words.

Small steps
- Count forward and backwards and write numbers to 20 in numerals and words – explore 'teen' suffix
- Numers 11-20 - representations
- Tens and ones
- Count one more and one less
- Compare groups of objects
- Compare numbers
- Order groups of objects
- Order numbers

YEAR 1 Spring SMALL STEPS AND END GOALS

	Number: Addition and Subtraction (within 20)	Place value within 50	Measurement: Length and height Compare lengths & heights <mark>As practical as possible</mark>	Measurement: Mass and Volume <mark>As practical as possible</mark>
Spring	**End Goals** • RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. • NC: read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • NC: represent and use number bonds and related subtraction facts within 20 • NC: add and subtract one-digit and two-digit numbers to 20, including 0 • NC: solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? - 9 **Small steps** • Add by counting on (commutativity and efficiency of starting with largest number) • Find and make number bonds • Doubles and near doubles (e.g. 8 + 7 = double 7 + 1) • Subtraction (not crossing and crossing 10) – use of zero is key • Related facts – introduce more bar models to show relationship between addition and subtraction • Compare number sentences	**End Goals** • RTP: NPV1 Count within 100, forwards and backwards, starting with any number. • RTP: NF2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. • NC: count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • NC: count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s • NC: given a number, identify 1 more and 1 less • NC: identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • NC: read and write numbers from 1 to 20 in numerals and words. **Small steps** • Numbers to 50 • Counting forwards and backwards within 50 • Tens and ones • Represent numbers to 50 • One more one less • Compare objects within 50 • Compare numbers within 50 • Order numbers within 50 • Count in 2s AND count in 5s	**End Goals** • RTP: NPV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = • RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. • NC: compare, describe and solve practical problems for lengths and heights [for example, long/short, longer/shorter, tall/short, double/hal] • NC: measure and begin to record lengths and heights **Small steps** • Compare lengths and heights – longer, shorter, taller • Measuring lengths (non-standard units e.g. cubes, hands, straws – discussion of equal sizes for units used to measure) • Measure length - Introducing the ruler • Adding and subtracting length problems	**End Goals** • RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. • NC: compare, describe and solve practical problems for mass / weight AND capacity and volume • NC: measure and begin to record mass/weight AND capacity and volume **Small steps** • Introduce weight & mass – heavier/lighter • Measure mass – balance scales • Compare mass – use ><= when comparing mass • Weight and mass problems • Introduce capacity and volume – full/empty/more/less • Measure capacity • Compare capacity

YEAR 1 Summer SMALL STEPS AND END GOALS

Summer

Number: Multiplication and Division

End Goals
- RTP: NF2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning
- NC: 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.

Small steps
- Count in 2s, 5s and 10s (up to 50) – refer to pairs and spot patterns on number grid
- Make equal groups – groups may be arranged differently
- Add equal groups
- Make arrays – columns and rows
- Make doubles – repeated addition
- Make equal groups – grouping
- Make equal groups – sharing

Number: Fractions

End Goals
- NC: recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity
- NC: recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity

Small steps
- Find a half – half and whole, ½ = 1 part of 2 equal parts, shared equally in two
- Find a quarter – equal parts and non-equal parts, 1 part out of 4 equal parts

Geometry: Position & Direction

End Goals
- RTP: G2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations
- NC: describe position, directions and movements, including whole, half, quarter and three-quarter turns.

Small steps
- Describe turns – full, half, quarter, three quarter turns
- Describe position – left, right, forward, backwards, position and direction e.g. position of objects and movement of objects using direction. Top, in-between, behind, in front, above, below, beneath

Number: Place Value (within 100)

End Goals
- RTP: NPV1 Count within 100, forwards and backwards, starting with any number.
- NC: count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- NC: count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- NC: given a number, identify 1 more and 1 less
- NC: identify and represent numbers using objects and pictorial representations including the number line, and use the language of correspondence

Small steps
- Counting forwards and backwards within 100 – introduce hundred square. Bundle to 10 to make counting easier. Numbers between.
- Partitioning numbers – place value chart, tens and ones
- Comparing numbers – less than, greater than. link to direction moving up and down number line
- Ordering numbers – ordinal numbers (first, second, third)
- One more, one less

Measures: Money

End Goals
- NC: recognise and know the value of different denominations of coins and notes

Small steps
- Recognising coins – value, representation, exchange 10 1ps for 1 10p
- Recognising notes – value, exchange, worth, break notes into change e.g. £10 is 3 £2 coins and 4 £1 coins-link to bonds
- Counting in coins – count in 2s, 5s and 10s, comparing

Measurement: Time

End Goals
- NC: compare, describe and solve practical problems for time
- NC: measure and begin to record time (hours, minutes, seconds)
- NC: sequence events in chronological order using language
- NC: recognise and use language relating to dates, including days of the week, weeks, months and years
- NC: tell the time to the hour and half past the hour and draw the hands on a clock face to show these times

Small steps
- Before and after – morning, afternoon, evening, ordinal numbers to describe position of events
- Dates – days of the week, today, yesterday and tomorrow, special dates
- Time to the hour – analogue clock, o'clock, hour and minute hand, hours
- Time to the half hour – half past, half way
- Writing time – seconds, minutes and hours
- Comparing time – faster, slower, earlier, later,

Year 2

Term	YEAR 2 VOCABULARY AND LANGUAGE			
Autumn	**Number: Place Value** Groups of, tens, ones, sequence, predict, rule, place value, represents, regroup, even, odd, standard and non-standard partition	**Number: Addition and Subtraction** one hundred more…, one hundred less … , tens boundary, bridging, inverse, check, mentally, calculation, balance, regroup, partition	**Measurement: money** Pounds, pence, £ and p, amount	**Number: Multiplication and division** groups of, lots of, arrays, repeated addition
Spring	**Number: Multiplication and Division** groups of, division, share, array, row, column, multiplication, repeated addition	**Statistics** Tally, graph, block graph, pictogram, represent, label, title, most popular, most common, least popular, least common	**Geometry: Properties of Shape** surface, line symmetry, vertical, straight sides, vertices, edges, faces	**Number: Fractions** equivalent fraction, numerator, denominator, halves, quarters, thirds, equal parts
Summer	**Measurement: Time** 5, 10, 15 minutes past, duration, quarter past, quarter to	**Geometry: Position and Direction** route, clockwise, anticlockwise, full turn, half turn, quarter turn, three quarter turn	**Problem solving** Show how you…, explain your method, describe the pattern, describe the rule, investigate	**Measurement: Length & Height** measuring scale, standard units (cm, m)	**Measurement: Mass, Capacity and Temperature** Temperature, degree celcius, standard units (g, kg, ml, l), thermometer, scales, measure jug

YEAR 2 Autumn SMALL STEPS AND END GOALS

Autumn Y2

Number: Place Value

End Goals

- RTP: NPV1 Recognise place value of each digit in 2 digit numbers; compose and decompose 2 digit numbers (standard + non- standard partitioning)
- NC: read and write numbers to at least 100 in numerals and in words
- RTP: NPV2 Reason about the location of any 2 digit number, including identifying the previous and next multiple of 10.
- NC: identify, represent and estimate numbers using different representations, including the number line
- NC: compare and order numbers from 0 up to 100; use <, > and = signs
- NC: count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward
- NC: use place value and number facts to solve problems.

Small steps

- Recap numbers to 50 (forwards and back, tens and ones, comparing and ordering)
- 100 – count, read and write in numerals and words
- Represent numbers to 100 – variation needed (base 10, numberlines, bead strings, bundles, counters, tens frame, numicon)
- Tens and ones (part-whole) – including non-standard partitioning e.g. 48 = 3 tens and 18 ones
- Tens and ones (addition) – using the + symbol, switch the = location e.g. 60 = 40 + 20 or 40 + 20 = 60 (also show commutativity)
- Place value chart – concrete, pictorial and abstract representations on/in charts
- Multiples of 100 - identify the previous and next multiple of 10
- Compare objects and numbers to 100 – variation of representations and use comparison language and symbols
- Order objects and numbers to 100 – variation of representations. Use comparison and ordinal language
- Recap counting in 2, 5 and 10s – language of even and odd
- Count in 3s – number lines, counting stick, hundred square pattern link to even and odd

Number: Addition and Subtraction

End Goals

- RTP: NF1 Secure fluency in addition and subtraction facts within 10, through continued practice.
- NC: recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- RTP: AS1 Add and subtract across 10.
- NC: add and subtract numbers using various representations mentally, including: a two-digit and 1s, a two-digit and 10s, 2 two-digit numbers, 3 one-digit numbers
- RTP:AS2 Recognise the subtraction structure of 'difference' (How many more…?)
- NC: show that addition of 2 numbers is commutative and subtraction of one number from another is not
- NC: recognise and use the inverse relationship between addition and subtraction (use to check and solve missing number problems)
- RTP: AS3 and AS4 Add and subtract within 100: add and subtract only ones or only tens to/from a two- digit number and add and subtract any 2 two- digit numbers.
- NC: solve problems with addition and subtraction using representations, applying their increasing knowledge of mental and written methods

Small steps

- Number bonds to 20 – relationship between addition and subtraction
- Checking calculation – inverse and using representations to check
- Compare number sentences – balancing equations and completing missing numbers
- Related facts – scaling e.g. 2 + 5 = 7 so 20 + 50 = 70
- Bonds to 100 (tens) – variation using previously taught skills of scaling and balancing equations
- Add and subtract 1s
- 10 more 10 less
- Add and subtract 10s
- Add by making 10 – mental strategies
- Add a 2 digit and 1 digit crossing 10 - place value
- Subtract crossing 10
- Subtract a 1 digit from a 2 digit crossing 10
- Add two 2 digit numbers (not crossing and crossing 10)
- Subtract 2 2 digit from 2 digit (not crossing and crossing 10)
- Recap Find and make number bonds
- Bonds to 100
- Add three 1 digit numbers

Measurement: money

End Goals

- Continue to explore RTP: NPV2 and AS1 –AS4
- NC: recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- NC: find different combinations of coins that equal the same amounts of money.
- NC: solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

Small steps

- Recap - Recognising coins and notes
- Count money – pence
- Count money – pounds and coins (£ symbol – record as £3 and 90p not £3.90)
- Select money
- Make the same amount
- Compare money
- Find the total – revisit addition
- Find the difference – revisit subtraction
- Find change
- Two step problems – bar model

Number: Multiplication and division

End Goals

- RTP: MD1 Recognise repeated addition contexts.

Small steps

Recap of year 1 multiplication and division
- Make equal groups
- Add equal groups
- Make arrays

YEAR 2 Spring SMALL STEPS AND END GOALS

Spring Y2

Number: Multiplication and Division

End Goals

- RTP: MD1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables
- RTP: MD2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).
- NC: recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including odd and even numbers
- NC: calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
- NC: show that multiplication of 2 numbers is commutative and division is not
- NC: solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Small steps

- Recognise equal groups – "There are _ equal groups with in each group. There are __ altogether."
- Make equal groups
- Add equal groups – repeated addition
- Multiplication sentences (using x) – introduce to x for first time (3+3+3+3 = 4 x 3). 'Lots of'
- Use arrays – 'lots of' and commutativity
- **Recap** Make doubles
- 2 times tables
- 5 times tables
- 10 times table
- Make equal groups – sharing (use 1:1 correspondence) introduced to division symbol
- Make equal groups – grouping (encourage to link repeated addition, multiplication and division)
- Divide by 2
- Odd and even
- Divide by 5
- Divide by 10

Statistics

End Goals

- RTP: MD1
- RTP: NPV2
- NC: interpret and construct simple pictograms, tally charts, block diagrams and tables
- NC: ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- NC: ask and answer questions about totalling and comparing categorical data

Small steps

- Make tally charts – link to prior learning on 5 times tables. Systematic method of recording data. Represent.
- Draw pictograms – 1:1 concentrate on picture consistency and spacing
- Interpret pictograms – 1:1 ask questions, compare, interpret, suggest, solve problems
- Draw pictograms – link to 2, 5 and 10 times tables
- Interpret pictograms - ask questions, compare, interpret, suggest, solve problems
- Block diagrams – use concrete and pictorial representations for data

Geometry: Properties of Shape

End Goals

- RTP: G1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.
- NC: identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
- NC: identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- NC: identify 2-D shapes on the surface of 3-D shapes
- NC: compare and sort common 2-D and 3-D shapes and everyday objects.

Small steps

- Recognise 2-D and 3-D shapes – in various orientations and proportions
- Count sides on 2D shapes – both regular and irregular shapes
- Count vertices on 2D shapes
- Draw 2D shapes
- Lines of symmetry – vertical line of symmetry, where shapes are being halved. Use mirrors, paper etc.
- Sort 2D shapes – Venn diagrams/tables/charts. Use previously taught language of vertex, side and symmetry
- Make patterns with 2D shapes – ordinal language, predict
- Count faces on 3D shapes – identify 2D shapes on surface of 3D shapes
- Count edges on 3D shapes
- Count vertices on 3D shapes
- Sort 3D shapes - Venn diagrams/tables/charts. Use previously taught language of vertex, edge and faces
- Make patterns with 3D shapes - ordinal language, predict

Number: Fractions

End Goals

- NC: recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity
- NC: write simple fractions, for example 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.

Small steps

- Make equal parts
- Recognise a half – consider equal and unequal visuals
- Find a half
- Recognise a quarter
- Recognise a third
- Find a third
- Unit fractions
- Non-unit fractions
- Equivalence of ½ and 2/4
- Find 3 quarters
- Count in fractions – using knowledge of halves, thirds and quarters, children count to 10

YEAR 2 Summer SMALL STEPS AND END GOALS

Summer Y2

Measurement: Time

End Goals
- NC: compare and sequence intervals of time
- NC: 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.
- NC: know the number of minutes in an hour and the number of hours in a day

Small steps
- **Recap** Telling the time to the hour
- **Recap** Telling the time to the half hour
- O'clock and half past
- Quarter past and quarter to
- Telling time to 5 minutes – using 'past' and 'to' the hour
- **Recap** Writing time
- Hours and days – convert hours to minutes and hours, know there are 24 hours in a day, 60 minutes in an hour
- Find durations – how long
- Compare durations – longer/shorter

Geometry: Position and Direction

End Goals
- NC: order and arrange combinations of mathematical objects in patterns and sequences
- NC: use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Small steps
- **Recap** Describe position – left, right, forward, backwards, in front, behind, on top, bottom, above, below
- Describe movement – give directions with the unit movement as well as the direction
- Describe turns – language of full, half, quarter, three quarter, clockwise and anticlockwise
- Describe movement and turns
- Making patterns with shapes – use language from this unit to describe patters e.g. rotations

Problem solving and consolidation

Measurement: Length & Height

End Goals
- NC: choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit using rulers (tape measure etc)
- NC: compare and order lengths, mass, volume/capacity and record the results using >, < and =

Small steps
- Compare lengths and heights – using language such as taller, shorter, longer, etc.
- Measure lengths – initially use non-standard units such as hands or cubes and discuss issues that may arise from this
- Measure lengths cm – using a scale (must measure from zero)
- Measure lengths m – discuss appropriate units of measure and equipment
- Compare lengths - use comparative language and inequality symbols
- Order lengths – use ordinal and comparative language e.g. longest
- Four operations with lengths – link to real life contexts

Measurement: Mass, Capacity and Temperature

End Goals
- NC: choose and use appropriate standard units for mass (kg/g); temperature (°C); capacity (litres/ml) use scales, thermometers and measuring vessels
- NC: compare and order measures and record the results using >, < and =

Small steps
- **Recap** Introduce weight and mass
- **Recap** Measure mass
- Compare mass
- Measure mass in grams – standard unit, read scales in 2, 5 and 10 intervals
- Measure mass in kilograms - standard unit, read scales in 2, 5 and 10 intervals
- **Recap** Introduce capacity and volume
- **Recap** Measure capacity
- Compare volume
- Millilitres - standard unit, read scales in 2, 5 and 10 intervals
- Litres - standard unit, read scales in 2, 5 and 10 intervals
- Temperature - introduced to thermometers and the units 'degrees Centigrade', written °C for the first time

Years 3/4

Term	3/4 overview		
Autumn	**Number: Place Value**	**Number: Addition and Subtraction**	**Number: Multiplication and Division**
	• *Language of 25, 50, 75, 100 must be needs to be a fluent spoken language pattern* • *Yr 3= Multiplication tables - Divide 2, 5, 10 and recite in 4, 8, count 3, 11* • *Yr 4 = Multiplication tables - Divide 2, 4, 5, 10, 11 and multiply 3, 8 and recite 6, 7, 9, 12*		
Spring	**Number: Multiplication and Division** · **Measurement: Length, Perimeter and area** · **Number: Fractions** · **Measures: Mass and Capacity**		
	Yr 3= Multiplication tables - Divide 2, 5, 10 and multiply 4, 8, recite 3, 11 *Yr 4 = Multiplication tables - Divide 2, 3, 4, 5, 8, 10, 11 and multiply 6, 7, 9, 12*		
Summer	**Number: Decimals Measure: Money** · **Measurement: Time** · **Statistics** · **Geometry: Properties of shape Position and direction**		
	Yr 3= Multiplication tables - Divide 2, 4, 5, 10 and multiply 8, 3, 11 *Yr 4 = Multiplication tables - Divide all to 12 x 12*		

Term	3/4 key vocabulary overview			

3/4 key vocabulary overview

Autumn

Number: Place Value

Yr 3 = ten times the size of, previous and next multiple of 10 or 100, ascending and descending,
Scale up, regroup, interval

Yr 4 = consecutive, integer, positive, negative (do not use minus to refer to negative numbers), closest multiple, rounded to

Number: Addition and Subtraction

Yr 3 = partition, regroup, estimate, check, inverse, efficiency,
Missing part, minuend, subtrahend, difference
sum, addend

Yr 4 = scaling, formal, columnar, estimate, regroup

Number: Multiplication and Division

Yr 3 = Factor, product, double and double again, six fours are twenty-four (verbalise sound pattern of 3 relevant numbers), quotient, sharing (partitive), grouping (quotitive)

Yr 4 = dividend, multiple, divisor, remainder, factor pairs, commutative, distributive, quotient, represents, correspondence problems

Spring

Number: Multiplication and Division

Yr 3 = Factor, product,
Double and double again, six fours are twenty-four (verbalise sound pattern of 3 relevant numbers), quotient, sharing (partitive), grouping (quotitive)

Yr 4 = dividend, multiple, divisor, remainder, factor pairs, commutative, distributive, quotient, represents, correspondence problems

Measurement: Length, Perimeter and area

Yr 3 = perimeter, length (m/cm/mm), duration

Yr 4 = metric unit, rectilinear, mm, cm, m, km (kilo), units of measure, area

Number: Fractions

Yr 3 = tenths, unit/non-unit fraction, numerator, denominator mixed number, equal parts, interval

Yr 4 = proper and improper, equivalent

Measures: Mass and Capacity

Yr 3 = volume/capacity (l/ml)Grams, kilograms, mass (kg/g); litres, millilitres,

Yr 4 = unit of measure, metric

Summer

Number: Decimals Measure: Money

Yr 3 = add and subtract amounts of money to give change, using both £ and p in practical contexts

Yr 4 = equivalent, 2 decimal places (2dp), round, nearest whole number, tenth, hundredth, estimate, compare

Measurement: Time

Yr 3 = Calendar, a.m. p.m., Roman numerals, 12 hour clock and 24 hour clock, analogue and digital, use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight, duration, year and leap year

Yr 4 = convert, approximately, difference

Statistics

Yr 3 = interpret, present, pictogram, bar chart, frequency table, Venn diagram, axis/axes

Yr 4 = interpret, present discrete and continuous data, using appropriate, time graphs, Carroll diagram

Geometry: Properties of shape Position and direction

Yr 3 = 2-D shapes and 3-D shapes, parallel, perpendicular, polygon, polyhedron, sphere, cuboid, cylinder, pyramid, cone, prism, horizontal, vertical, orientation, angles, turn, greater than, less than, half turn, right angle, quarter turn, clockwise, anti-clockwise

Yr 4 = quadrilateral, triangle, regular, irregular, symmetry, orientation, edge, vertex, isosceles, equilateral, scalene, trapezium, parallelogram, rhombus, interior angles, acute, obtuse, straight line, properties, coordinates, plot, translation, first quadrant, x and y axis

3/4 Autumn END GOALS

Number: Place Value		Number: Addition and Subtraction		Number: Multiplication and Division	
3	4	3	4	3	4
• NPV1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10. • NPV2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. • NPV3 Reason about the location of any three- digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. • NPV4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. • NC: solve number problems and practical problems involving these ideas	• NPV1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. • NPV2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. NC: identify, represent and estimate numbers using different representations • NPV3 Reason about the location of any four- digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100 (AND 10), and rounding to the nearest of each. • NC: count backwards through 0 to include negative numbers • NC: solve number and practical problems that involve all of the above and with increasingly large positive numbers • NC: count in multiples of 25 and 1,000 • NC: read Roman numerals to 100 and know that over time, the numeral system changed to include 0 and place value	• AS1 Calculate complements to 100, for example: 46 + ? = 100 • AS2 Add and subtract up to three-digit numbers using columnar methods. • AS3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction. • NF1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. • NF3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). • NC: solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	• NF3 Apply place-value knowledge to known additive facts (scaling facts by 100) • NC: add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • NC: estimate and use inverse operations to check answers to a calculation • NC: solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	• MD1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division. • NF2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number • NF3 • NPV1 • NC: solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	• NF1 Recall multiplication and division facts up to 12x12 and recognise products in multiplication tables as multiples of the corresponding number. • NF3 Apply place-value knowledge to known multiplicative number facts (scaling facts by 100) • MD1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • MD2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. • NC: count in multiples of 6, 7, 9, 25 and 1,000

3/4 Autumn SMALL STEPS

Number: Place Value		Number: Addition and Subtraction		Number: Multiplication and Division	
Yr 3 Small steps	Yr 4 Small steps	Yr 3 Small steps	Yr 4 Small steps	Yr 3 Small steps	Yr 4 Small steps
• Recap numbers to 100 through – Represent numbers to 100, Partition numbers to 100, Number line to 100 - use base 10, number lines, bundles, place value charts • Tens and ones in addition – part-whole model, commutative, =, balance equations • Partition with 100 - Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. • Hundreds – ten tens make 100, count in multiples of 100 to 1000 • Represent numbers to 1000 – base 10, hundreds, tens and ones, part whole, number lines, place value grids, • 1, 10 and 100 more or less • Number line to 1,000 • Estimating on a number line to 1,000 • Partition numbers to 1000 • Flexible partitioning of numbers to 1000 • Compare numbers to 1000 – various representations • Order numbers to 1000 – ascending and descending • Count in 50s – multiples of 5 and 10 (scale up	• Recap Representing numbers to 1000 – Base 10 to show digit size. Zero in different places. • Recap 100s, 10s and 1s – Value of digits • Recap Number line to 1000 – Estimate, position and locate numbers on a number line where scale varies • Round to the nearest 10 – Number lines. Which multiple of 10 does ___ lie between? • Round to nearest 100 - Number lines. Which multiple of 100 does ___ lie between? • Count in 1,000s – Explore what a thousand is. How many hundreds are in ___ thousand? • 1000s, 100s, 10s, 1s – Various representations to 9999 (10 times bigger each place value step) • Partitioning – Standard and non-standard up to 9999 • Number line to 10,000 – Estimate, locate and position • Recap Find 1, 10 and 100 more or less, then 1000 more or less – Cross 10/100/1000s barrier. Sequences. • Compare numbers – Vary representations to compare • Order numbers • Round to nearest 1000 - Number lines. Which multiple of 1000 does ___ lie between? • Count in 25s • Negative numbers – Real life. First time encounter negative numbers • Roman numerals to 100 – Build on clock face from Yr 3	• Recap and subtract multiples of 100 • Mentally add and subtract 1s - pattern • Mentally add and subtract 3 digit and 1 digit numbers crossing and not crossing 10 – place value, mental arithmetic • Mentally add a 2 digit and 1 digit (crossing 10) – regroup 10 ones for 1 ten, partition, bridge • Mentally add a 3 digit and 1 digit (crossing 10) • Mentally subtract 1 digit from 2 digit (crossing 10) – regroup 10 ones for 1 ten, partition, bridge • Mentally subtract 1 digit from 3 digit (crossing 10) – exchange and regroup • Add and subtract 3 digit and 2 digit (not crossing 100) • 3 digit + 2 digit (crossing 100) THEN 3 digit – 2 digit (crossing 100) • Add and subtract 100s • Spot a pattern – make it explicit (observe patterns in calculations to predict answers) • 2 digit + 2 digit (crossing 10) THEN 2 digit – 2 digit (crossing 10) • Add and subtract a 2 digit and 3 digit – not crossing 10 or 100 • 2 digit + 3 digit (crossing 10 or 100) THEN 3 digit – 2 digit (crossing 10 or 100) • 3 digit + 3 digit (not crossing and crossing 10 or 100) THEN 3 digit – 3 digit (no exchange and exchange) • Estimate answers • Check answers – inverse, different methods	• Add and subtract 1s, 10s, 100s and 1000s • Recap Add two 3 digit numbers no exchange – Place value charts • Add two 4 digits – no exchange • Recap Add two 3 digits numbers with exchange • Add two 4 digit with one exchange and then more than 1 exchange • Recap Subtract 3 digit from a 3 digit – no exchange • Subtract two 4 digits numbers – no exchange • Recap Subtract a 3 digit number from a 3 digit with exchanges • Subtract two 4 digit numbers with one and then more than 1 exchange • Efficient subtraction – Compare strategies for different questions (avoid always relying on column) • Estimate answers – Link to knowledge of rounding • Checking strategies – Inverse operations	• Recap multiplication (equal groups), using the symbol, using arrays • Recap 2 and 5 times tables • Recap making equal groups by sharing and grouping • Recap division by 2, 5 and 10 • Multiply by 3 THEN divide by 3 • Multiply by 4 THEN divide by 4 – (double and double again) • Multiply by 8 THEN divide by 8 –(double and double and double again)	• Multiply by 10 and 100 • Divide by 10 and 100 • Multiply by 1 and 0 • Divide by 1 and itself • Recap Multiply and divide by 3 • Recap 3 times table • Multiply and divide by 6 • 6 times tables and division facts • Multiply and divide by 9 • 9 times tables and division facts • Multiply and divide by 7 • 7 times tables and division facts • Scaling facts using 6, 9 and 7 times tables e.g. 6 x 7 = 42, 60 x 7 = 420 etc (RTP materials NF3)

3/4 Spring END GOALS

Number: Multiplication and Division		Measurement: Length, Perimeter and area		Number: Fractions		Measures: Mass and Capacity Number: Decimals	
Multiplication and division	**Multiplication and division**	**Length and perimeter**	**Length, perimeter and area**	**Fractions**	**Fractions**	**Measure**	**Decimals**
• MD1 • NC: recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • NC: write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods • NC: solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	• NF1, NF3, MD2 • MD3 Understand and apply the distributive property of multiplication • NF2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders • NC: use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers • NC: recognise and use factor pairs and commutativity in mental calculations • NC: multiply two-digit and three-digit numbers by a one-digit number using formal written layout • NC: solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	• NPV2, AS2 and NPV3 • NC: measure, compare, add and subtract: lengths (m/cm/mm) • NC: measure the perimeter of simple 2-D shapes	• NPV4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. • G2 Find the perimeter of regular and irregular polygons. • NC: convert between different units of measure • NC: measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • NC: find the area of rectilinear shapes by counting squares	• F1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts (unit fractions and non-unit fractions with small denominators) • F2 Find unit fractions of quantities using known division facts (multiplication tables fluency). • F3 Reason about the location of any fraction within 1 in the linear number system. • NC: count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • NC: recognise and show, using diagrams, equivalent fractions with small denominators • NC: compare and order unit fractions, and fractions with the same denominators • F4 Add and subtract fractions with the same denominator, within 1. • NC solve problems that involve all of the above	• F1 Reason about the location of mixed numbers in the linear number system. • F2 Convert mixed numbers to improper fractions and vice versa. • F3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. • NC: recognise and show, using diagrams, families of common equivalent fractions • NC: count up and down in hundredths; recognise that hundredths arise when dividing an object by a 100 and dividing tenths by 10. • NC: solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number • NC: solve simple measure and money problems involving fractions and decimals to 2 decimal places	• NC: measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	• NC: find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths • NC: recognise and write decimal equivalents of any number of tenths or hundredths

3/4 Spring SMALL STEPS

Number: Multiplication and Division		Measurement: Length, Perimeter and area		Number: Fractions		Measures: Mass and Capacity Number: Decimals	
Multiplication and Division	Multiplication and Division	Length and Perimeter	Length, Perimeter and area	Fractions	Fractions	Mass and capacity	Decimals
• **Recap** Consolidate 2, 4 and 8 times tables • Compare statements – use understanding of multiplication and division to compare statements using ><= • Related calculations – scaling (if one number is 10 times bigger, the answer will be 10 times bigger) • Multiply 2 digit by 1 digit – partition, regroup, scale, place value grids • Divide 2 digit by 1 digit – partition, regroup, scale, place value grids • Scaling – 'as many' e.g. 3 times as many girls as boys. Use bar models • How many ways? – systematic, combinations	• 11 and 12 times tables • Multiply 3 numbers – introduce the associative law (it doesn't matter how we group when we multiply e.g. 2 x 3 x 5 = 6 x 5 or 15 x 2) • Factor pairs – factor x factor = product • Understand and apply the distributive property of multiplication (RTP materials MD3) • Efficient multiplication – mental (laws) • Written methods – partition, number lines • Multiply 2 digit by 1 digit include a recap from yr3 – repeated addition to formal method without and with regrouping • Multiply 3 digit by 1 digit – teach misconception of 0 in tens column e.g. 305 x 7 • Divide 2 digits by 1 digit include a recap from yr3 – include regrouping • Divide 3 numbers by 1 digit - partition • Correspondence problems – all combinations an possibilities	• Measuring length – introduced to mm for first time • **Recap** Measure length (m) • Equivalent lengths (m and cm) – 100cm = 1m (refer to ½ also) • Equivalent lengths (mm and cm) – 10mm = 1cm (refer to ½ also) • **Recap** Compare lengths – comparative language after conversion to appropriate units • Add lengths – convert and add lengths in appropriate unit using addition strategies • Subtract lengths – convert and subtract lengths in appropriate unit using subtraction strategies • Measure perimeter - introduced to perimeter for the first time • Calculate perimeter – use properties of 2D shapes to support calculation of perimeter	• Recap Equivalent lengths – m and cm multiply and divide by 100 • Recap Equivalent lengths – mm and cm multiply and divide by 10 • Kilometres – multiply and divide by 1000 • Recap Add and subtract lengths – mixed mm, cm, m and km • Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales accordingly for mm, cm, m and km (RTP materials NVP4) • Recap Measure perimeter • Perimeter on a grid • Find the perimeter of regular and irregular polygons (RTP materials G2). • Perimeter of a rectangle • Perimeter of a rectilinear shape • What is area? – introduced to the idea of area for the first time • Counting squares – on rectilinear shapes • Making shapes – make shapes of a given area using squares • Comparing area – of rectilinear shapes using >< =	**Recap Y2 fractions** Equal parts, recognize a half, find a half, recognize a quarter, find a quarter, recognize a third, find a third, unit and non-unit fractions, equivalence of ½ and 2/4, count in fractions to 10 • Making the whole – partition whole into fractions • Tenths – divide whole into 10 equal parts • Count in tenths –11/10 as 1 1/10 • Tenths as decimals – introduce decimals for first time (tenths), compare tenths in words, decimals and fractions • Fractions on a number line – read scales in 2, 4, 5 and 10 equal parts • Fractions of an amount – unit fractions leading to non-unit fractions • Equivalent fractions - explore through bar models • Compare fractions – unit fractions then fractions with the same denominator • Order fractions • Add fractions – same denominator, total less than 1 • Subtract fractions – same denominator, within 1	• Recap Unit and non-unit fractions • What is a fraction? –different representations • Recap Tenths and Recap Count in tenths • Equivalent fractions including recap of year 3 – bar models, shapes and number lines, proportional reasoning (double, multiply by 3, halve etc.) • Fractions greater than 1 – parts in a whole, proper and improper, mixed numbers • Count in fractions – above a whole, make connections to mixed numbers and improper fractions • Recap Add fractions – same denominator, less than 1 • Add 2 or more fractions – same denominator, above 1, improper fractions. Address misconception of adding denominator • Recap subtract fraction – same denominator, within 1 • Subtract 2 fractions – same denominator, improper fractions • Subtract from whole amounts – not just 1, but also 2 etc. e.g. 2 = 18/9 so 2 – 3/9 = 18/9 – 3/9 • Recap Fractions of a set of objects – unit and non-unit • Calculate fractions of a quantity – link to division and multiplication • Problem solving – calculate quantities (finding whole when given fractional part e.g. 1/3 is 20 so the whole is 20 x 3)	• **Recap** Compare mass • Measure mass – read scales, g and kg (1kg = 1000g) • Compare mass – convert to appropriate unit • Add and subtract mass – convert then add or subtract • **Recap** Compare volume • Measure capacity – read scale, ml and l (1l = 1000ml) • Compare capacity • Add and subtract capacity • **Recap** Temperature – reading scales	• Recognise tenths and hundredths – important to see size compared to 1 whole • Tenths as decimals – stay within 1 • Tenths on a place value grid – greater than 1 • Tenths on a number lines – link to cm and mm • Divide 1 digit by 10 – link to place value chart or gattegno • Divide 2 digits by 10 - link to place value chart or gattegno • Hundredths – 1 whole divided into 100 equal parts, 1 tenth divided into 10 equal parts • Hundredths as a decimals – convert between visual, fraction, decimal and words • Hundredths on a place value grid • Divide 1 or 2 digits by 100 – link to place value grid

3/4 Summer END GOALS

Number: Decimals Measure: Money		Measurement: Time		Statistics		Geometry: Properties of shape	
3 = Consolidation of place value and money	4 = Decimals and money	3 = Time	4 = Time	3 =Statistics	4 = Statistics	3 =Properties of shape	4 = Properties of shape and Position and Direction
• NPV2 and AS2 • NPV4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. • NC: add and subtract amounts of money to give change, using both £ and p in practical contexts	**Decimals** • NC: compare numbers with the same number of decimal places up to 2 decimal places • NC: recognise and write decimal equivalents to ¼; ½; ¾ • NC: round decimals with 1 decimal place to the nearest whole number **Money** • NC: estimate, compare and calculate different measures, including money in pounds and pence • NC: solve simple measure and money problems involving fractions and decimals to 2 decimal places. • NC: round decimals with 1 decimal place to the nearest whole number	• NC: tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • NC: estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight • NC: know the number of seconds in a minute and the number of days in each month, year and leap year • NC: compare durations of events	• NC: read, write and convert time between analogue and digital 12 and 24-hour clocks • NC: solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days	• NC: interpret and present data - bar charts, pictograms and tables • NC: solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.	• NPV4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. • NC: interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs • NC: solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	• G1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations. • NC: recognise that 2 right angles make a half-turn, 3 make three quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle • NC: recognise angles as a property of shape or a description of a turn • G2 Draw polygons by joining marked points, and identify parallel and perpendicular sides. NC: identify horizontal and vertical lines • NC: draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	• NC: identify acute and obtuse angles and compare and order angles up to 2 right angles by size • G2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. • NC: compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • G3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry. **Position and direction** • NC: describe positions on a 2-D grid as coordinates in the first quadrant • G1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. • NC: describe movements between positions as translations of a given unit to the left/right and up/down

3/4 Summer SMALL STEPS

Number: Decimals Measure: Money		Measurement: Time		Statistics		Geometry: Properties of shape and Position and Direction	
3 =Consolidation and Money	4= Decimals and money	3 = Time	4 = Time	3 = Statistics	4 = Statistics	3 = Properties of shape	4 = Properties of shape and Position and Direction
Consolidation • **Recap** Count money (p) – count coins with a value below £1 and compare amounts • **Recap** Count money (£) – count coins/notes with a value above £1 and compare amounts • Divide £1 and £10 into 2, 4, 5 and 10 parts – link to each coin • Pounds and pence – combining coins and notes • Convert £ and p • Add money – part-whole, bar models • Subtract money – number lines • Give change – number lines	**Decimals** • **Recap** Bonds to 10 and 100 – e.g. 53 + ___ = 100 (discuss misconception of 57 being the answer) • Make a whole – link to above learning but now within 1 e.g. 0.53 + __ = 1 (discuss misconception of 0.57 being the answer). Use fractions to support • Write decimals – value of digits, partitioning • Compare decimals – to 2dp • Order decimals – to 2 dp • Round decimals – to the nearest whole. Language of previous and next multiple of 1 • Halves and quarters – ½ = 50/100, 0.5, ¼ = 25/100, 0.25 and ¾ = 75/100, 0.75 **Money** • Pounds and pence – first time introduce to decimal notation e.g. £3.56, link to prior learning • Comparing and Ordering money – compare notation of pence and pounds e.g. 450p < £0.45 • Estimating money – rounding to nearest pound (link to prior but from 2dp this time) • **Recap** Convert pounds to p • **Recap** Add money • **Recap** Subtract money • **Recap** Find change • Four operations – link to prior learning on fractions e.g. finding the whole. Jen has ¼ of the money, she has £12, how much was there originally? (no need to formally add/subtract decimals yet)	• **Recap** O'clock and half past • **Recap** Quarter past and quarter to • Months and years – investigate the number of days in each month and in a year (Inc. leap yr,) • Hours in a day • Telling the time to 5 minutes – Roman numerals • Telling the time to the minute • Using a.m. and p.m. – analogue and digital • 24 hour clock – compare times • Finding the duration – concrete materials (clocks) and number lines needed • Comparing durations • Start and end times – based on duration, when will an event start and end based on information • Measuring time in seconds – stop watches to gain deeper understanding of how long seconds are	• **Recap** Telling time to 5 mins • **Recap** Telling time to the minute • **Recap** Using a.m. and p.m. • **Recap** 24 hour clock • Hours, minutes and seconds – convert between units of time • Years, months, weeks and days • Analogue to digital – 12 hours (4 digit form e.g. 09:45am) • Analogue to digital – 24 hour •	• **Recap** Make tally charts • **Recap** Draw pictograms (2, 5, 10) • **Recap** Interpret pictograms (2, 5, 10) • Pictograms – understand value of key, consistent size and shaped symbols, parts of symbols, construct • Bar charts – scale of 1, 2, 5, 10, • Tables – variation of table type	• Interpret charts – revisit bar charts, pictograms and tables for discrete data • Comparison, sum and difference – answer questions about discrete data • Introduce line graphs – continuous data (including time and negative numbers) • Line graphs	• Turns and angles – ¼, ½, ¾ turn clockwise and anti-clockwise • Right angles in shapes – different orientations • Compare angles – introduce acute and obtuse when comparing to right angles • Draw accurately – lengths • Horizontal and vertical – identify in symmetry • Parallel and perpendicular – notation of arrows and right angle 'square' • Recognise and describe 2D shapes – use prior learning from unit, **recap regular and irregular** • Recognise and describe 3D shapes – faces, edges and vertices • Make 3D shapes – construction and using nets	**Properties of shape** • **Recap** Turns and angles • **Recap** Right angles in shapes • **Recap** Compare angles • Identify angles – acute and obtuse with knowledge of 90 degrees and 180 degrees • Compare and order angles • **Recap** Recognise and describe 2D shapes – recap regular and irregular • Triangles – isosceles, scalene and equilateral • Quadrilaterals – rhombus, parallelogram, trapezium • **Recap** Horizontal and vertical • Lines of symmetry – examples and non-examples • Complete a symmetric figure **Position and direction** • Describe a position – coordinates in the first quadrant (x and y axis) • Draw on a grid – plot points in the first quadrant • Mark points to make a polygon on a grid (RTP resources) • Move on a grid – plot new points including moving polygons based on translation instructions • Describe a movement on a grid – describe how a point or polygon has translated

Years 5/6

	5/6 Overview					
Autumn	**Number: Place Value**		**Number: Four operations**			**Number: Fractions**
Spring	**Number: Decimal and Percentages**		**Measure: Convert units**	**Number: Ratio**	**Measure: Perimeter, Area and Volume**	**Yr 5 FDP consolidation** / **Yr6 Number: Algebra**
Summer	**Geometry: Property of Shape and Position and Direction**		**Statistics**			**Investigations and consolidation**

5/6 Key Vocabulary Overview

Autumn

Number: Place Value

Yr 5 = negative/positive, ascending/ descending order, ten thousand, hundred thousand, midpoint,

Yr 6 = digit total, 10 million

Number: Four operations

Yr 5 = inverse, integer, regroup, factor pair, common factor, divisibility, square number, cube number, prime number, composite number , one tenth times the size, one hundredth times the size, regroup, scale, remainders

Yr 6 = prime factor, Highest Common Factor, Lowest Common

Number: Fractions

Yr 5 = common denominator, mixed number, proper, improper, 'of', partition

Yr 6 = Highest Common Factor, Lowest Common Multiple, Simplify

Spring

Number: Decimal and Percentages

Yr 5 = hundredth, zero point (0.), thousandth, percent, approximate, bonds, sequences,

Yr 6 = thousandth, integer, equivalence

Measure: Convert units

Yr 5 = Metric, imperial, inches, pounds (lb)

Yr 6 = miles

Number: Ratio

Yr 5 = scaling

Yr 6 = Ratio, proportion, scale, scale factor, part:part relationship, multiplicative relationship

Measure: Perimeter, Area and Volume

Yr 5 = compound, formula, square metre, adjacent, opposite

Yr 6 = dimensions, cubic centimetres, cubic metres,

Yr 5 FDP consolidation

Yr6 Number: Algebra

Yr 6 = Expression, substitute, formula, equation, represent, possibilities, enumerate, combinations, variables

Summer

Geometry: Property of Shape and Position and Direction

Yr 5 = first quadrant, translation, reflection, point, vertex/vertices, image and object

Yr 6 = Angles, protractor, reflex, regular, irregular, equilateral, scalene, isosceles, quadrilaterals, vertically opposite angles, interior and exterior angles

Statistics

Yr 5 = discrete, continuous, two-way tables

Yr 6 = Mean, average, pie charts, circle, circumference, diameter, radius

Investigations and consolidation

5/6 Autumn END GOALS

Number: Place Value

- NPV2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.
- NPV3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.
- NC: read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit
- NC: count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000
- NC: interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0
- NC: round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000
- NC: solve number problems and practical problems that involve all of the above
- NC: read Roman numerals to 1,000 (M) and recognise years written in Roman numerals

- NPV2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.
- NPV3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.
- NPV4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.
- NC: read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- NC: use negative numbers in context, and calculate intervals across 0
- NC: solve number and practical problems that involve all of the above

Number: Four operations

- NF2 Apply place-value knowledge to known additive facts
- NC: add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar)
- NC: add and subtract numbers mentally with increasingly large numbers
- NC: use rounding to check answers and determine, in context, levels of accuracy
- NC: solve + AND - multi-step problems in contexts, deciding which operations and methods to use and why.
- MD1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.
- MD2 Find factors and multiples of positive integers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.
- NC: know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers and establish whether a number up to 100 is prime; recall prime numbers to 19
- NC: multiply and divide numbers mentally drawing upon known facts
- NC: recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})
- NC: solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes
- NC: solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.
- MD3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.
- NC: multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- MD4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.
- NC: solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

- AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).
- AS/MD2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
- NC: multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- NC: divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- NC: divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
- NC: perform mental calculations, including with mixed operations and large numbers.
- NC: identify common factors, common multiples and prime numbers
- NC: use their knowledge of the order of operations to carry out calculations involving the 4 operations
- NC: solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- NC: solve problems involving addition, subtraction, multiplication and division
- NC: use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Number: Fractions

- 5F2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system.
- 5F1 Find non-unit fractions of quantities.
- NC: compare and order fractions whose denominators are all multiples of the same number
- NC: identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- NC: recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number
- NC: add and subtract fractions with the same denominator and denominators that are multiples of the same number
- NC: multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

- 6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions.
- 6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value.
- 6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.
- 6NPV–4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.
- NC: add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- NC: multiply simple pairs of proper fractions, writing the answer in its simplest form
- NC: divide proper fractions by whole numbers
- NC: associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.

5/6 Autumn SMALL STEPS

Number: Place Value		Number: Four operations		Number: Fractions	
• Roman numerals (to 1000 – partitioning) • Recap 1000s, 100s, 10s, 1s – varied representation • Numbers to 10,000 – add and subtract powers of 10 also • Recap Rounding to nearest 10, 100 and 1000 • Numbers to 100,000 – place value grid and number lines • Compare and order numbers to 100,000 - varied representation • Round within 100,000 – number lines and place value grids • Numbers to 1 million – partitioning • Counting in powers of 10 – Above and below zero. Gattegno charts • Compare and order within 1 million • Round numbers within 1 million • Negative numbers – See NCETM resources	• Recap Numbers to a million • Numbers to 10,000,000 – focus on placement of the comma • Read and write numbers to 10,000,000 • Powers of 10 • Number line • Compare and order any integer • Recap Round to 10, 100, 1000 • Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts (RTP materials NPV 4)Round any integer – number lines and refer to 'which multiples of 10/100/1000 does ___ lie between?' • Negative numbers – add on and subtract from positive and negatives • Revise Roman Numerals	• Apply place-value knowledge to additive facts e.g. 6 + 9 = 15 so 60 + 90 = 150 (RTP materials NF2) • Recap Add two 4 digit numbers with one and more than one exchange • Add integers with more than 4 digits – integers, formal column method • Recap Subtract two 4 digit numbers with one and more than one exchange • Subtract two integers with more than 4 digits– formal column method • Round to estimate and approximate – approximate is to advance near the answer and estimate is to calculate roughly • Inverse operations • Multistep addition and subtraction problems – bar models to represent and solve problems • Multiples - arrays • Factors – arrays, factor x factor = product • Common factors – Venn diagrams • Prime numbers - composite • Square numbers – odd number of factors • Cube numbers • Recap multiply by 10, 100 • Multiply by 10, 100, 1000 - relate to real life contexts • Recap divide by 10, 100 • Divide by 10, 100, 1000 – relate to real life contexts • Multiples of 10, 100, 1000 – factorise e.g. 560 = 56 x 10 or 8 x 7 x10 • New - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. (hyperlinked to resources) • Recap Multiply 2 digits by 1 digit - regrouping • Recap Multiply 3 digits by 1 digit • Multiply 4 digits by 1 digit – address misconception of 0 in tens or hundreds column e.g. 6007 x 8 • Multiply 2 digits (area model) – chn view size and scale of multiplying • Multiply 2 digits by 2 digits – link to prior lesson but move to formal strategy • Multiply 3 digits by 2 digits • Multiply 4 digits by 2 digits • Recap Divide 2 digits by 1 digit • Recap Divide 3 digits by 1 digit • Divide 4 digits by 1 digit • Divide with remainders – no need to express remainders as decimals yet but need to interpret them in context	• Recap Add whole numbers with more than 4 digits • Recap Subtract whole numbers with more than 4 digits • Recap Inverse operations (addition and subtraction) • Recap Multistep addition and subtraction problems – Bar models • Add and subtract integers – appropriate strategies • Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (RTP materials AS/MD 1) • Common multiples • Recap factors • Common factors • Derive related calculations (RTP materials AS/MD 2) Reason from known facts • Primes to 100 – refer to composite • Square and cube numbers • Order of operations – BIDMAS (refer to exceptions e.g. AS done left to right) • Mental calculation and estimations • Recap 4 digit x 1 digit • Multiply up to 4 digit by 2 digit • Recap Divisibility rules and strategies e.g. 72 ÷ 3 = (60 ÷ 3) + (12 ÷ 3) • Recap Divide with remainders (fractions and decimals) • Short division • Division using factors – e.g. 4320 divided by 15 can be completed by doing 4320 divide by 5 and then by 3 • Long division (at least 4 sessions) – refer to dividend and divisor • Mixed four operations reasoning and problem solving	• Recap What is a fraction? • Equivalent fraction (including recap of year 4) • Recap Fractions greater than 1 • Improper to mixed number – conversion (diagrams and associated division facts) • Mixed numbers to improper - conversion (diagrams and associated multiplication facts) • Number sequences – increasing and decreasing, number lines • Compare and order fractions < 1 – bar models and finding common denominators • Compare and order fractions > 1 - bar models and finding common denominators, mixed and improper • Add and subtract fractions – same denominator • Add fractions within 1 – use bar models and common denominators • Add 3 or more fractions - common denominators • Add fractions – proper fractions, total greater than 1 • Add mixed numbers – record answer in the simplest form • Subtract fractions – subtract with different denominators for first time, explore take away and difference • Subtract mixed numbers – no need to break the whole up • Subtract mixed numbers or from wholes – breaking the whole • Subtract 2 mixed numbers • Multiply fractions by an integer – link to repeated addition • Multiply non-unit fractions by an integer – reinforce concept of commutativity e.g. 3/6 x 3 = 3 x 3/6 • Multiply mixed numbers by an integer – multiple methods inc. mixed to improper then multiply or repeated addition or partitioning mixed number • Recap Calculate fractions of quantity • Fractions of an amount • Using fractions as operators – link language of 'of' to multiplication	• Recap Equivalent fractions • Simplify fractions • Recap Improper fractions to mixed numbers • Recap Mixed numbers to improper fractions • Fractions on a number line – Intervals and scales • Compare and order (denominator) – lowest common multiple • Compare and order (numerator) – the larger the denominator the smaller the fraction • Add and subtract fractions (2 sessions) • Recap Add mixed numbers • Add fractions • Recap Subtract mixed numbers • Subtract fractions • Mixed addition and subtraction • Multiply by integer – relate to real life e.g. time • Multiply by fraction – relate to the word of e.g. ½ x ¼ is half a quarter which is 1/8 • Divide fraction by integer – spot the pattern materials e.g. ¾ divided by 3 is ¼, 6/8 divided by 2 is 3/8 (pictorial and concrete) • Four operations with fractions – bar models • Fraction of amount • Fraction of amount (find the whole)

Class 5/6 Spring END GOALS

Number: Decimal and Percentages		Measure: Convert units		Number: Ratio		Measure: Perimeter, Area and Volume		Yr 5 FDP consolidation Yr 6 Algebra	
5	6	5	6	5	6	5	6	5	6
NPV1 - 4. NC: read and write decimal numbers as fractions NC: recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents NC: read, write, order and compare numbers with up to 3 decimal places F–3 and NC: solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and fractions with a denominator of a multiple of 10 or 25. NC: recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal fraction MD1 and NF2 NC: add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) NC: add and subtract numbers mentally with increasingly large numbers NC: use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy NC: solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. NC: multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 NC: solve problems involving number up to 3 decimal places NC: use all four operations to solve problems involving measure using decimal notation including scaling. NC: solve problems involving numbers up to 3 decimal places	NPV2 NC: identify the value of each digit in numbers given to three decimal places NPV1 (NC) giving answers are up to three decimal places NC: multiply one-digit numbers with up to 2 decimal places by whole numbers NC: use written division methods in cases where the answer has up to 2 decimal places NC: solve problems which require answers to be rounded to specified degrees of accuracy NC: solve problems involving the calculation of percentages NC: recall and use equivalences between simple fractions, decimals and percentages, including in different contexts NC: recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	NPV5 Convert between units of measure, including using common decimals and fractions. NC: understand and use approximate equivalences between metric units and common imperial units (inches, pounds, pints) NC: solve problems involving converting between units of time NC: use all four operations to solve problems involving measure using decimal notation including scaling.	NC: solve problems involving the calculation and conversion of units of measure, using decimal notation up to 2 decimal places where appropriate NC: use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places NC: convert between miles and kilometres	NC: solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	AS/MD3 Solve problems involving ratio relationships. NC: solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts NC: solve problems involving the calculation of %s and the use of % for comparison NC: solve problems involving similar shapes where the scale factor is known or can be found NC: solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	G2 Compare areas and calculate the area of rectangles (including squares) using standard units. NC: including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes NC: measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres, estimate NC: estimate volume and capacity	G1. NC: recognise that shapes with the same areas can have different perimeters and vice versa NC: recognise when it is possible to use formulae for area and volume of shapes NC: calculate the area of parallelograms and triangles NC: calculate, estimate and compare volume of cubes and cuboids using standard units(cm³ and m³ and other units)	Consolidation	6AS/MD–4 Solve problems with 2 unknowns. NC: use simple formulae NC: generate and describe linear number sequences NC: express missing number problems algebraically NC: find pairs of numbers that satisfy an equation with two unknowns NC: enumerate possibilities of combinations of 2 variables.

5/6 Spring SMALL STEPS

Number: Decimal and Percentages		Measure: Convert units		Number: Ratio		Measure: Perimeter, Area and Volume		Yr 5 FDP consolidation Yr 6 Algebra	
5	6	5	6	5	6	5	6	5	6
• Decimals to 2dp • Decimals as fractions • Understand thousandths • Thousandths as decimals • Rounding decimals – to nearest tenth • Order and compare decimals –to 3dp • Understand percentages • Percentages as fractions and decimals • Equivalent fractions and decimals • Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts (RTP materials for NPV4) • Equivalent f.d.p • Adding decimals within 1 – make use of place value counters and grids • Subtracting decimals within 1 • Complements to 1 - bonds • Adding decimals – crossing the whole • Adding decimals with the same number of decimal places • Subtracting decimals with the same number of decimal places • Adding decimals with a different number of decimal places • Subtracting decimals with a different number of decimal places • Adding and subtracting wholes and decimals – place value • Decimal sequences • Multiplying decimals by 10, 100 and 1,000 • Dividing decimals by 10, 100 and 1,000	• **Recap** Decimals up to 2 decimal places • **Recap** Understand thousandths • **Recap and extend** – Round decimals rounded to specified degrees of accuracy • Three decimal places – value and comparison *Understand the relationship between powers of 10 from 1 hundredth to 10 million* • Multiply by 10, 100 and 1,000 – refer to making 'ten times the size' • Divide by 10, 100 and 1,000 - refer to making '1 tenth times the size' • Multiply decimals by integers – link to money and measure and scaling knowledge • Divide decimals by integers • Division to solve problems – bar models • Decimals as fractions • Fractions to decimals – relate to division e.g. ¾ = 3 divided by 4, and children can show this • **Recap** Understand percentages • Fractions to percentages • Equivalent FDP – address misconception of 2/10 = 2% or 0.1 = 1% • Order FDP • % of an amount • Percentages – missing values – bar models	• **Recap** Kilometres • Kilograms + kilometres • Millimetres + millilitres • Metric units - conversions • Imperial units – first encounter • Converting units of time – including fractions and decimals. Address misconception of using column method etc. • Timetables	• Metric measures – length, mass, capacity, volume, estimate • Convert metric measures • Calculate with metric – real life including scaling • Miles and kilometres use ≈ • Imperial measures – real life contexts	• Practical problem involving scaling (recipes)	• Using ratio language - 'for every 1 girl, there are 2 boys' • Ratio and fractions – address misconception that 1:2 is 1/2 • Introducing the ratio symbol • Calculating ratio - use bar models to represent the problem • Using scale factors – 'times as big' • Calculating scale factors (refer to %) • Ratio and proportion problems	• Measure perimeter – use rulers • **Recap** Perimeter on a grid • **Recap** Perimeter of a rectangle • **Recap** Perimeter of rectilinear shapes • Calculate perimeter – unknown sides • **Recap** Counting squares • Area of rectangles • Area of compound shapes – unknown sides • Area of irregular shapes – annotate, approximate • What is volume? • Compare volume • Estimate volume – relate to real life contexts • Estimate capacity - relate to real life contexts (begin to read scales)	• Shapes - (rectilinear shapes with same area) • Area and perimeter – rectilinear shapes • Area of a triangle – over 3 steps (count squares, relate to rectangles, apply rule) • Area of parallelogram – relate to rectangle. Use examples and non-examples • **Recap** What is volume? • Volume – counting cubes • Volume of a cuboid - formula	•	• Find a rule – one step (one operation on the input. work backwards) • Find a rule – two step (two operations on the input. work backwards) • Forming expressions – letter represents unknown • Substitution – expression can have different value depending on what is substituted in • Formulae – link to area and volume • Forming equations • Solve simple one-step equations – bar models • Solve two-step equations - bar models • Find pairs of values • Enumerate possibilities

5/6 Summer END GOALS

Geometry: Position and direction		Geometry: Property of Shape		Statistics		
5	6	**5**	**6**	5	6	
• NC: identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	• NC: describe positions on the full coordinate grid (all 4 quadrants) • NC: draw and translate simple shapes on the coordinate plane, and reflect them in the axes	• G1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size. • NC: acute, obtuse and reflex angles • NC: identify: angles at a point and 1 whole turn (total 360°), angles at a point on a straight line and half a turn (total 180°) other multiples of 90° • NC: use the properties of rectangles to deduce related facts and find missing lengths and angles • NC: distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • NC: identify 3-D shapes, including cubes and other cuboids, from 2-D representations	• G1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. • NC: recognise, describe and build simple 3-D shapes, including making nets • NC: compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • NC: recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	• NPV4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. • NC: solve comparison, sum and difference problems using information presented in a line graph • NC: complete, read and interpret information in tables, including timetables	• NC: illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • NC: interpret and construct pie charts and line graphs and use these to solve problems • NC: calculate and interpret the mean as an average	**Investigations and consolidation Problem Solving**

5/6 Summer SMALL STEPS

Geometry: position and direction		Geometry: Property of Shape		Statistics		
5	6	5	6	5	6	
• **Recap** Describe position • **Recap** Draw on a grid • Position in the first quadrant – coordinates • Translation • Translation with coordinates • **Recap** Lines of symmetry • **Recap** Complete a symmetric figure • Reflection – mirrors • Reflection with coordinates- points of a polygon	• Recap The first quadrant • Four quadrants – link to Christmas activities. Focus on missing coordinates. • Translations - Missing coordinates • Reflections – through x and y axis. Missing coordinates	• **Recap** Identify angles • **Recap** Compare and order angles • Measure angles in degrees – introduce reflex angles and link angles to compass points • Measuring with protractor - acute • Measuring with protractor - obtuse • Drawing lines and angles accurately • Calculating angles on a straight line • Calculating angles around a point • **Recap** Triangles • **Recap** Quadrilaterals • Calculating lengths and angles in shapes – squares, rectangles and triangles • Regular and irregular polygons • Reasoning about 3-D shapes - nets	• Measure with a protractor • **Recap** Draw lines and angles accurately • Introduce angles – link to clock and compass • **Recap** Angles on a straight line • **Recap** Angles around a point – will be needed to pie charts in the next unit • Calculate angles • Vertically opposite angles • Angles in a triangle • Angles in a triangle – special cases (equilateral, isosceles) • Angles in a triangle – missing angles (including exterior angles) • Angles in special quadrilaterals • Angles in regular polygons • Draw shapes accurately – protractor and ruler • Draw nets of 3-D shapes	• **Recap** Interpret charts • **Recap** Comparison, sum and difference – discrete data (pictograms and tables) • **Recap** Introduce line graphs – continuous data • Read and interpret line graphs – estimate by reading between intervals • Draw line graphs – scales • Solve problems with line graphs • Two-way tables – try to link to foundation topics and Science work • Timetables – A recap on time may be required	• Read and interpret line graphs • Draw line graphs • Use line graphs to solve problems • Circles – associated vocabulary e.g. diameter • Read and interpret pie charts – fractions, angles and division • Pie charts with percentages - 100% of the chart = 360 degrees • Draw pie charts – link to prior learning • The mean	**Investigations and consolidation** **Problem Solving**