Beamont Primary School Mathematics

Curriculum INTENT

EYFS – Nursery

Cardinality and Counting
Recite numbers to at least 10.
Accurately count items to 5 with one-to-one correspondence.
Show a secure understanding of the ‘cardinal principle’ (knows the last number reached when counting tells you the total).
Show ‘finger numbers’ up to 5.
Correctly count sounds and actions, as well as objects up to 5.
Develop fast recognition of up to 3 objects, without having to count them individually (‘subitising’).
Experiment with their own symbols and marks as well as numerals.
Link numeral to amounts up to 5.
Comparison
Can use ‘more than’, ‘fewer than’ to compare quantities where the difference is obvious. Can use ‘equal’ to compare small quantities when the quantities are obviously the same.
Composition
Beginning to notice that numbers are made up of smaller numbers
Separates a group of 3 or 4 objects in different ways
Solve real-life maths problems with numbers up to 5.
Pattern
Recognises when objects have the same colour, size or shape and use these criteria to sort sets of mixed objects
Notice and talk about patterns in the environment for example on clothes or wallpaper using informal language.
Continue and copy simple AB patterns with objects, actions and sounds.
Create their own simple AB patterns with objects, actions and sounds.
Shape and space
Responds to both informal language (for example pointy, round, flat) and common shape names (for example, circle, triangle and cube)
Select objects based on their shape: flat surfaces for building, a triangular prism for a roof, etc.
Combines and partitions shapes to make new ones – an arch, a bigger triangle, 2 squares from a rectangle etc.
Shows awareness of shape similarities and differences
Moves, flips and rotates objects to fit the space or create the shape they would like
Responds to and uses positional language
Responds to and uses directional language for example to describe a route
Measure
Make direct comparisons between objects relating to the dimensions height, length, width, thickness.
Make direct comparisons between objects relating to weight.
Make direct comparisons between objects relating to capacity.
Begin to describe a sequence of events (real or fictional) using words such as ‘first’, ‘then’,’after’

Nursery Mathematics LTP

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cardinality & Counting Accurate and consistent verbal counting to 5 **Measures** Understand and use specific attributes to compare height (taller and shorter rather than big and small) **Spatial Reasoning** Understand and use simple language of position that doesn't vary by viewpoint (in, on, under, next to) **Shape** Explore rotating and flipping objects to make a match (posting boxes, inset puzzles, jigsaws) **Sorting & Sequencing** Sort by a single property – colour	**Cardinality & Counting** 1:1 correspondence and cardinality to 3 subitising 1 and 2 **Measures** Understand and use specific attributes to compare length (long, short) **Spatial Reasoning** Understand and use language of position that can vary by viewpoint (in front, behind) **Shape** Explore construction with 3D shapes – combining shapes in two dimensions **Sorting & Sequencing** Sort by 2 properties - colour and size	**Cardinality & Counting** 1:1 correspondence and cardinality to 5 subitising 3 **Measures** Understand and use specific attributes for width and thickness (wide, narrow, thick, thin) **Spatial Reasoning** Understand and use everyday language of direction (up, down, through, over, under) **Shape** Explore pattern and picture making with 2D pattern blocks **Sorting & Sequencing** Sort using different combinations of properties (size attributes linked to measure, colour and shape)	**Cardinality & Counting** Begin to recognise numerals and match to sets **Measures** Understand and use specific attributes for weight/mass (heavy light, heavier, lighter) **Spatial Reasoning** Understand and use language of movement (forwards, backwards, sideways, turn) **Shape** Begin to notice properties of 3D shape and find shapes that are the same **Sorting & Sequencing** Simple AB sequences varying colour or size (continue and copy patterns)	**Cardinality & Counting** Conservation of number to 5 with order irrelevance **Comparison** Compare sets of objects – which has more, fewer – just by looking **Measures** Time – sequence of events (first, next, after, before, morning, afternoon, evening, yesterday, tomorrow) **Spatial Reasoning** Discuss routes and the order and location of things seen extending vocab (in between, above, below, around, beside, across, along) **Shape** Explore more complex construction with 3D shapes – combining shapes to make arches and enclosures **Sorting & Sequencing** Simple AB sequences of sounds, actions and objects (make own patterns)	**Cardinality & Counting** Accurate and consistent verbal counting to 10 **Composition** Separate a group of three or four objects in different ways **Comparison** Making equal sets **Measures** Understand and use specific attributes for capacity (full, empty, part full) Compare capacities **Spatial Reasoning** Understand and use language of distance (far away, near, how far?) **Shape** Begin to notice properties of 2D shapes and find shapes that are the same including on the faces of 3D shapes

EYFS – Reception Year		
EYFS Curriculum (ELGs in bold)	**Key Performance Indicators**	**Potential to deepen the learning**
Cardinality and Counting *(Mostly incorporated within ELG statement **Have a deep understanding of number to 10**)*		
Accurately count a set of up to 10 objects and say how many there are	• Recites 1-10 in a stable counting order • Uses 1:1 correspondence to accurately count a set of up to 5 objects • Understands last number said represents whole set up to 5 • Counts out up to 5 objects from a larger group • Uses 1:1 correspondence to accurately count a set of up to 10 objects • Understands last number said represents whole set up to 10 • Counts out up to 10 objects from a larger group	
Subitise (recognise quantities without counting) up to 5	• Can subitise regular arrangements of the quantities 1-3 e.g. a dice face, fingers or structured manipulatives like numicon or counters on a five frame • Can recognise small amounts (up to three) when they are not in the 'regular' arrangement, e.g. small handfuls of objects • Can subitise regular arrangements of quantities 1-5 e.g. a dice face, fingers or structured manipulatives like numicon or counters on a tens frame • Can subitise small amounts (up to five) when they are not in the 'regular' arrangement, e.g. small handfuls of objects.	• Applies subitising when showing/getting a set or playing a game? (e.g. instantly picks up 5 pebbles on request without counting)
Read and match number symbols to sets of objects	• Can say the number word when shown numerals 1-5 • Counts out and matches sets of objects to numerals 1-5 • Can put the numeral cards 1-5 in order • Can say the number word when shown numerals 6-10 • Counts out and matches sets of objects to numerals 6-10 • Can put the numeral cards 1-10 in order	• Begin to reason and problem solve within the range 1-10
Recognise when amounts have been rearranged and generalise that, if nothing has been added or taken away, then the amount is the same.	• Knows that it doesn't matter which item you count first the count will be the same • Arranges a given set of objects in different ways and still knows how many there are without recounting • Corrects a puppet that thinks there are more objects when items are more spread out	• Begin to reason and problem solve within the range 1-10

Can count forwards and backwards from any number to 10	• **Can count backwards from 10-0** • **Can count forwards to 10 from any start number** • **Can count forwards from any number and stop at a given number e.g. count from 2-7** • **Can count backwards to zero from any number** • **Can count backwards starting from any number to 10 and stop at a given number e.g. count backwards from 8 to 3**	
Verbally count beyond 20, recognising the pattern of the counting system;	• **Begins to count a few numbers past 10** • **Can join in with whole class counting in highly patterned parts e.g. 22, 23, 24** • **Counts to 20 accurately without missing out numbers** • **Can spot the 1-9 pattern appearing again and again within each decade on a 100 square and uses this to support counting from 20-29**	• **Knows the order of the tens to confidently count beyond 29 including over each tens barrier e.g. 69, 70, 71**

Comparison *(Partly incorporated within ELG statement **Have a deep understanding of number to 10**)*		
Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity	• Compares sets with big differences in number and uses more than and fewer than to compare • Can compare sets of items with smaller differences (including some that are the same) by pairing up one-to-one • Can compare more than two sets of objects and use most and fewest	• Can reason about which set has more and how to make them equal
Compare two numbers up to 10 and say which is more/less	• Can say which numeral is more or less by making sets and comparing • Can say which numeral is more or less using the relative position in the counting sequence	• Position numerals on an empty 1-10 number track using reasoning e.g. I know 9 goes here because it is just before 10.
Use 1 more and 1 less relationship to predict how many there will be if you add one or take one away from a set of objects up to 10	• Count out a set of objects onto a tens frame to match a numeral. Add one more object and count or subitise to find the answer to one more question. • Count out objects onto a number track to work out the answer and through doing this make links to counting sequence. • Count out a set of objects onto a tens frame to match a numeral. Take one object away and count or subitise to find the answer to one less question. • Count out objects onto a number track to work out the answer and through doing this make links to using the counting sequence. • Develop mental number line linked to staircase pattern to say 1 more for any number to 10 without apparatus • Develop mental number line linked to staircase pattern to say 1 less for any number to 10 without apparatus	• Investigate other staircase patterns (e.g. going up in steps of 2 from 1 or 2), can they work out what is happening? Can they record the pattern and link it to the number track?

Composition *(Mostly incorporated within ELG statement* ***Have a deep understanding of number to 10, including the composition of each number****)*		
Notice and subitise small groups within a larger set of objects (conceptual subitising)	• Use subitising to notice small groups (1-3) within a larger group of objects • Use subitising to notice small groups (up to 5) within a larger group of objects • Applies subitising (up to 5) to create groups within groups exploring different ways each number to 5 can look and describes what they see e.g. With my 5 I have made a 3 and a 2	• Begins to combine small groups to a total and articulates this e.g. I know there are 4 because I can see a 2 and a 2 • Be more systematic in exploring all the groups within groups for a given number so they know they have found all the possible representations
In practical activities, partition and recombine numbers up to 5 and then 10 into different pairs of numbers	• Investigates inverse operations through play – taking things away and putting them back • Physically separating a group of up to 10 objects (whole) into two parts (part-part-whole model) • Constructing a group of up to 10 (whole) from two kinds of things (parts) • Explore numbers 6-10 on apparatus that allows children to relate them back to 5 e.g. on tens frames 7 is a whole row of 5 and 2 more, on bead strings 7 is 5 white beads and 2 red ones	• Makes generalisations e.g. each part can never be bigger than the whole
Automatically recall (without reference to rhymes, counting or other aides) number bonds up to 5 (including subtraction facts)	• Use a systematic approach to find all the ways to make all the numbers up to 5 and begin to know some of these facts • In a play-based context, for numbers up to 5, predict all the pairs that can be made when you partition the number (number bonds)	• Makes generalisations and easily notices and uses patterns like always starting with the number and zero and then 1 less than the number and 1 or realising that every pair can be switched around to make a new pair • Reason and problem solve using known facts
Automatically recall (without reference to rhymes, counting or other aides) some number bonds to 10, including double facts.	• Use a systematic approach to find all the ways to make 10 • In a play-based context with 10 objects, predict a few of the pairs that can be made when you partition ten (number bonds) • Link composition work to work in pattern to explore how some numbers can be partitioned into equal parts and learn these double facts	• Uses generalisations from knowing number bonds 1-5 to explain how to find pairs that make 6-9 more efficiently e.g. knows to start with 0 and the number being partitioned, then put the 0 up by 1 and the other number down by 1
Pattern		
Recognise, continue, copy and create repeating patterns	• Can continue an AB pattern • Can copy an AB pattern • Can make their own AB patterns	

	• Can continue an ABC, ABB, AABB, ABBC pattern • Can copy an ABC, ABB, AABB, ABBC pattern Can make their own ABC, ABB, AABB, ABBC patterns	
Identify the unit of repeat in a repeating pattern	• Identify the smallest part of a pattern and use this to 'name' a pattern • Split a pattern into these parts and use this to be able to spot errors in patterns • Use this knowledge to continue a pattern from the midpoint of a unit of repeat • Use this knowledge to correct a pattern without having to start all over again	• Make circular patterns – investigating whether their pattern will fit • Make square border patterns investigating whether their pattern will fit
Symbolise the unit structure of a repeating pattern and generalise the structure to another context	• Use own mark making ideas to record a pattern e.g. record a colour pattern with tally marks in different colours • Use objects to record a pattern e.g. picture cards to represent movements in a dance pattern • Make links between different contexts e.g. link the 2 ideas above by using a red tally to be a spin and a green tally to be a clap for example create the same pattern in a different context	• Apply ability to symbolise patterns to reason about whether a given pattern will fit around a circle or a square border •
Spot and create staircase patterns	• Notice growing patterns in books e.g. There was an old lady who swallowed a fly and order images as a staircase pattern • Make staircase patterns in ones with concrete apparatus such as Cuisenaire rods or numicon • Make link to 1 more and 1 less on number track and develop mental number line until they can say 1 more and 1 less for any number to 10	• Investigate other staircase patterns, can they work out what is happening? Can they record the pattern and link it to the number track?
Explore and represent patterns within numbers up to 10, including evens and odds.	• Sort odd and even representations of numbers e.g. numicon, numberblocks or counters on tens frames • Understand that even numbers can be represented exactly by sets of 2 and odd numbers have an odd one out • Use this to prove with practical apparatus whether a number is odd or even in range 0-10•	• Link odds and evens back to step patterns in twos and predict an odd or even number beyond 10
Explore and represent patterns within numbers up to 10, including double facts and how quantities can be distributed equally.	• Make reflective patterns e.g. using paint and fold in half then add extra pattern components on both sides or using graphics package with reflection enabled • Reflect sets of objects and record how many there are in total • Link sharing equally to known facts from composition work e.g. 2 composed from 1 and 1, 4 (2 and 2), 10 (5 and 5) • Moderation Comment and Date.	• Systematically generate doubles and halves facts to 10 and learn them all off by heart

Reception Mathematics LTP

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cardinality & Counting Accurate counting of sets of objects 1-5 NB S1 episodes 9 & 10 (1:1 correspondence, cardinality) Subitising 1-3 NB S1 episodes 1-4 (introducing 1, 2 and 3) Numeral Recognition 1-5 **Composition** Conceptual subitising - noticing numbers within numbers **Comparison** Compare sets 1-5 using vocab of more / fewer / most /fewest **Measures** Height **Pattern** Simple AB patterns (complete, copy, make own and spot/correct errors in patterns)	**Cardinality & Counting** Accurate counting of sets of objects 1-10 and ordering numbers 1-10 Subitising 1-5 NB S1 episodes 6 & 7 (introducing 4 and 5) **Composition** Applied conceptual subitising NB S1 episode 11 (Stampolines) Inverse operations - splitting and recombining sets of objects 1-5 including part whole model NB S1 episode 12 (Whole of me) **Comparison** Compare numbers using vocab of more/less Find 1 more using sets of objects on tens frames and on a number track **Shape/Space** 2D shapes and their	**Cardinality & Counting** Counting backwards 10-1 & ordering numbers 10-1 **Composition** Systematic approach to partitioning sets of objects 1-5 including part whole model NB S1 episode 14 (Holes) Start to learn number bonds 1-5 **Comparison** Find 1 less using sets of objects on tens frame and on a number track **Measures** Length **Shape/Space** Spatial vocabulary (in front, behind, in between, on, in, under, first second, third) **Pattern** More complex patterns – ABB, ABBC generalising pattern and	**Composition** Splitting and recombining sets of objects 6-9 Use part whole model and tens frame NB S2 episodes 1-5 (introducing 6-10) **Comparison** 1 more/1 less using mental numberline (see Pattern plan) NB S2 episodes 6 & 7 (Just add one & ten green bottles) **Measures** Mass **Shape/Space** representing spatial relationships as maps Spatial vocabulary (forwards, backwards, up, down, across) **Pattern** Numerical Patterns – staircase patterns	**Cardinality & Counting** Counting beyond 10 noticing pattern in ones **Composition** Systematic approach to splitting and recombining sets of objects 1-10 use part whole model and tens frame Consolidate bonds to 5, 4, 3, 2, 1 Make generalisations Start to learn some number bonds for 10 NB S2 Episode 13 (Blast Off!) **Measures** Time – sequence of events **Shape/Space** 3D shapes properties of shapes **Patterns** Numerical patterns odds & evens NB S2 episode 11 (Odds & Evens)	**Cardinality & Counting** Counting beyond 20 noticing pattern in tens **Composition** Look at part whole models splitting numbers 1-10 where both parts are the same – learn those not known Link to doubles and halves work in patterns NB S2 episode 9 (Double Trouble) Splitting into more than 2 parts – link to sharing fairly in comparison NB S2 episode 10 (The three threes) **Comparison** Focus on sharing fairly NB S2 episode 8 (Counting Sheep) **Measures** Capacity **Shape/Space** Relationships

	properties **Pattern** identifying unit of repeat – AB & ABC patterns	transferring to another format e.g. link pattern of shapes to movements	linked to 1 more/1 less in comparison		between shapes **Pattern** Symmetry/reflections Numerical patterns doubles and halves

Year 1

You may need time to revisit some more challenging elements of Place Value and Addition and Subtraction again at the end of the year in addition to consolidating through Measures.			
Block 1			
Number and Place Value to 10			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	1NPV–1 Count within 100, forwards and backwards, starting with any number.	• **Can count to 10 forwards starting from any number** • **Can count backwards to zero starting from any number up to**	*Counting from 1-10 and using this to accurately count sets of objects, pictures, sounds and actions (Check understanding of cardinality & conservation of number from EYFS) *Counting forwards & backwards from different start numbers. *Number sequences *Identify one more/one less * Comparing amounts & using associated vocab * Comparing numbers & using associated vocab and symbols < > and = *Ordering numbers including use of ordinal numbers – first, second, third * Representing numbers using number lines
Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	**1NF–2 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.**	• **Can consistently count a set of objects to 10 accurately** • **Can read numbers from 1 – 10 in numerals** • **Can order objects using language *first, second, third*** • **Can write numbers to 10 in numerals** • **Can complete missing number sequences to 10**	
Given a number, identify one more and one less		• Can identify one more than a given number to 10 • Can identify one less than a given number to 10	
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	**1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =**	• **Can use fingers to show any number to 10** • **Can use practical equipment to represent a number to 10** • **Can compare two numbers that have been created with practical equipment and explain how they are different** • **Can position two numbers on a marked and blank number line, compare the numbers and reason about where they have been positioned**	
Read and write numbers from 1 to 20 in numerals and words.		• **Can read numbers from 1 – 10 in numerals** • **Can write numbers from 1 – 10 in numerals including accurate formation of all numerals 0-9**	

		(NB reading and writing in words has been left until later blocks when more in line with Y1 phonics knowledge)	

Block 2			
Addition and Subtraction within 10			
Substantive Knowledge National Curriculum	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	1AS–2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.	• Can begin to use addition (+), subtraction (-) and equals (=) signs to record their work • Can read the mathematical statements they have recorded • Can read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=)	*Derive Addition facts to 10 using partitioning (Recap partitioning numbers to 5 and known facts from EYFS), extend to include numbers 6-10 * Recording facts as expressions then full number sentences *Commutativity *Systematic approach & Pattern spotting * Begin to know facts off by heart * Addition as aggregation & augmentation *Use practical apparatus to add *Use practical apparatus on number tracks *Use number lines *Derive Subtraction facts to 10 using partitioning (Recap partitioning numbers to 5 and known facts from EYFS), extend to include numbers 6-10 * Recording facts as expressions then full number sentences *Subtraction by partitioning and reduction
Represent and use number bonds and related subtraction facts within 20	1NF–1 Develop fluency in addition and subtraction facts within 10 1AS–1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.	• Can represent and use number bonds and related subtraction facts up to 5, using apparatus • Can recall and use addition and subtraction facts for all numbers up to 5 • Can recall and use addition and subtraction facts for all numbers up to 10 fluently • Can recognise the effect of adding zero. • Can develop the difference between two numbers on a number line • Understands the inverse relationship between addition and subtraction • Can solve missing number calculations to 10	
Add and subtract one-digit and two-digit numbers to 20, including zero		• Can add and subtract numbers mentally, using Reordering • Can use a number line to support adding 1-digit numbers	

Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = $\boxed{}$ - 9.		• Can show that addition can be done in any order (commutative) • Can show that subtraction can't be done in any order • Understands and use a variety of mathematical language associated with addition and subtraction *e.g. Put together, add, altogether, total, take away, distance between, more than and less than* • Can solve missing number addition and subtraction problems involving single-digit numbers. • Can solve simple 1 step problems with addition and subtraction.	*Use practical apparatus to add *Use practical apparatus on number tracks *Use number lines *Related facts *Inverse operations *Finding missing number *Finding the difference *Problem solving

Block 3			
Number and Place Value to 20			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	1NPV–1 Count within 100, forwards and backwards, starting with any number.	• **Can count to 20 forwards starting from any number** • **Can count backwards to zero starting from any number up to 20**	*Understand 1 ten is equivalent to ten ones * Count sets of 11-19 objects exposing structure of _tens and _ones *Count on from ten when identifying representations of teen numbers *Represent teen numbers with practical apparatus *Identify zero as a place holder *Counting forwards and backwards and dual counting i.e. 11, 12, 13 and 1 ten & 1, 1 ten & 2, 1 ten & 3 *Number sequences *One more one less * Position numbers on number lines 10-20, 0-20 marked and unmarked *Comparing amounts & using associated vocab *Comparing numbers & using associated vocab and symbols < > and = *Ordering Numbers *Reading & Writing numbers to 20 as words * Problem solving & consolidation
Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	**1NF–2 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.**	• **Can consistently count a set of objects to 20** • **Can read numbers from 1 – 20 in numerals** • **Can write numbers to 20 in numerals** • **Can complete missing number sequences forwards and backwards to 20**	
Given a number, identify one more and one less		• Can identify one more than a given number to 20 • Can identify one less than a given number to 20	
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	**1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =**	• **Can use practical equipment to represent any number to 20 and explain the value of each digit** • **Can use pictorial representations to represent any number to 20 and explain value of each digit** • **Can compare two numbers that have been created with practical equipment** • **Can position two numbers on a marked number line, compare the numbers and reason about where they have been positioned** • **Can compare numbers using greater than and less than and the symbols < > and =**	
Read and write numbers from 1 to 20 in numerals and words.		• **Can read numbers from 1 – 20 in numerals** • **Can write numbers from 1 – 20 in numerals including accurate formation of all numerals 0-9** • **Can read numbers from 1 – 20 in words** • **Can write numbers from 1-20 in words**	

Block 4			
Addition and Subtraction within 20			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	1AS–2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.	• Can begin to use addition (+), subtraction (-) and equals (=) signs to record their work • Can read the mathematical statements they have recorded • Can read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=)	* Recap addition facts within 10 developing fluency using a variety of strategies *The effect of adding zero and one *Doubles *Near doubles *Add 2 to even/odd numbers *Addition to 20 by counting on using practical resources *Reordering calculations for efficiency *Applying partitioning e.g. 10+3 12+2 *Addition to 20 on a number line – without bridging – single jumps then bigger jumps * Recall number bonds to 10 and use them to make bonds to 20 *Apply number bond knowledge in addition and subtraction calculations e.g. 10-7, 13 + □= 20 *Partitioning 10 into 3 numbers (including 0 sometimes) * Addition by bridging using known facts *Subtraction by reduction and partitioning (Not structure) * Understand why you can't reorder subtraction *Applying partitioning e.g. 14-4, 16-2
Represent and use number bonds and related subtraction facts within 20	1NF–1 Develop fluency in addition and subtraction facts within 10 1AS–1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.	• Can recall and use addition and subtraction facts for all numbers up to 10 fluently • Can recognise the effect of adding zero. • Can represent and use number bonds and related subtraction facts up to 20, using apparatus • Can recall and use addition and subtraction facts for all numbers facts to 20 fluently • Can develop the difference between two numbers on a number line • Understands the inverse relationship between addition and subtraction • Can solve missing number calculations to 20	
Add and subtract one-digit and two-digit numbers to 20, including zero		• Can add and subtract numbers mentally, using Reordering • Can add and subtract numbers mentally, using Partitioning • Can add and subtract numbers mentally, using Bridging through 10 • Can add and subtract numbers mentally, using near doubles • Can use a number line to support adding and subtracting 2-digit and 1-digit numbers	
Solve one-step problems that involve addition and subtraction, using		• Can show that addition can be done in any order (commutative) • Can show that subtraction can't be done in any order • Understands and use a variety of mathematical language associated with addition and subtraction *e.g. Put together, add,*	

concrete objects and pictorial representations, and missing number problems such as 7 = $\square$ - 9.		*altogether, total, take away, distance between, more than and less than* • Can solve missing number addition and subtraction problems involving single-digit numbers. • Can solve simple 1 step problems with addition and subtraction.	*Subtraction within 20 on a number line – without bridging – single jumps then bigger jumps *Subtraction by bridging using known facts *Fact families and inverse operations *Missing number problems *Problem solving

Block 5			
Geometry			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
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].	1G–1 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. 1G–2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.	• **Can recognise 2D shapes in a variety of orientations** **- rectangles (including squares)** **- circles** **- triangles** • **Can describe 2D shapes according to their properties (sides and corners)** • **Arrange 2D shapes to match a compound shape** • **Can recognise 3D shapes in a variety of orientations** - cylinder - triangular prism - cone - cube - cuboid - pyramid - sphere • Can describe 3D shapes according to their properties (faces, vertices and edges) • Arrange 3D shapes to match a compound shape	***Use everyday language to describe 2D shapes** *** Recognise and name common 2D shapes (rectangles (including squares), circles, triangles at a minimum)** *** Use correct mathematical terms to describe the properties of 2D shapes and distinguish between them** * Arrange 2D shapes to match a compound shape * Use everyday language to describe 3D shapes * Recognise and name common 3D shapes (cuboids (including cubes), cylinders, spheres and pyramids) * Use correct mathematical terms to describe the other properties of 3D shapes and distinguish between them * Arrange 3D shapes to match a compound shape

Block 6			
Fractions			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Recognise, find and name a half as one of two equal parts of an object, shape or quantity	No specific Ready to Progress statements for Fractions	• **Understands fractions as equal parts of a whole** • **Can halve a shape or object by splitting it into two equal parts.** • **Can recognise one half as one of two equal parts of a whole** • **Can halve a quantity by splitting it into 2 equal sets**	* Recognise, find and name a half as one of two equal parts of an object or shape * Recognise, find and name a half as one of two equal parts of a quantity * Recognise, find and name a quarter as one of four equal parts of an object or shape * Recognise, find and name a quarter as one of four equal parts of a quantity
Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.		• **Can quarter a shape or object by splitting it into four equal parts.** • **Can recognise one quarter as one of four equal parts of a whole** • **Can find a quarter of a quantity by splitting it into 4 equal sets**	

Block 7			
Geometry – Position & Direction			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	**No specific Ready to Progress statements for Position & Direction**	• **Can distinguish between left and right** • **Can use positional language e.g. next to, top, middle and bottom, on top of, in front of, above, between, around, near, close and far** • **Can use ordinal language e.g. . 1^{st}, 4^{th}** • **Can use the language of direction and motion, including: left and right, up and down, forwards and backwards, inside and outside.** • Can respond to the language of turns making whole turns, half turns, quarter turns and three-quarter turns • Can connect turning clockwise with movement on a clock face.	*Describe position (above, below, in front of, behind, in between, next to, inside, outside etc) *Describe direction and movement without turns (forwards, backwards, sideways, left, right, up, down) *Describe direction and movement with turns (forwards, backwards, turn left, turn right, up, down) *Describe turns (whole, half quarter and three-quarter turns)

Block 8			
Measure – Time			
Substantive Knowledge	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning**

National Curriculum			Detailed in Planning Overview
Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	No specific Ready to Progress statements for Time	• Can use language before, after, next, first in relation to time passing and sequencing of events in familiar stories or day-to-day routines • Can use terms such as morning, afternoon and evening, yesterday and tomorrow	*Ordering events *Days of the week *Months of the year *Time durations – second, minute, hour *Telling the time to the nearest half an hour *Duration problems with clock times
Recognise and use language relating to dates, including days of the week, weeks, months and years		• **Can learn the order of the days of the week and learn that weekend days are Saturday and Sunday** • **Can name and order the months of the year** • **Can record significant dates in a class calendar**	
Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.		• **Can tell time to the hour** • **Can draw hands on the clock for times to the hour** • **Can tell time to half past the hour** • **Can draw hands on the clock for times to the half hour** • **Can recognise times to the hour and half hour in day to day routines** • **Can use clocks and time lines to answer questions such as: *It is half past seven. What time will it be in 4 hours time? What time was it two hours ago***	
Measure and begin to record the following: • time (hours, minutes, seconds)		• **Can measure in hours, seconds and minutes**	
Compare, describe and solve practical problems for: time [for example, quicker, slower, earlier, later]		• **Can estimate and measure whether an activity lasts longer/ less than a minute/hour** • **Can use language of quicker, slower, earlier and later**	

Block 9			
Number and Place Value beyond 20			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**

Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	1NPV–1 Count within 100, forwards and backwards, starting with any number.	• **Can count to 100 and across 100 from any given number** • **Can count backwards from any given number, including crossing 100**	*Counting in ones forwards and backwards to 100 and beyond * Skip counting in multiples of 10 *Make links between 0-10 number line and position of multiples of 10 on 0-100 number line *Count objects efficiently by making groups of 10 *Understand position of a digit tells you the value *Represent 2-digit numbers using concrete apparatus *Position 2-digit numbers on a number line *One more and one less *Ten more and ten less *Comparing amounts & numbers using associated vocab *Odd & even numbers *Count in 2s and odd numbers -forwards and backwards from any multiple *Count in 5s forwards and backwards from any multiple * Problem Solving and Consolidation
Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	**1NF–2 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.**	• **Can read numbers from 1 – 100 in numerals** • **Can write numbers to 100 in numerals** • **Can complete missing number sequences forwards and backwards to 100** • **Can count in twos to 20 forwards and backwards from any multiple** • **Can count in 10s to 100 forwards and backwards from any multiple** • **Can count in 5s to 50 forwards and backwards from any multiple** • **Can count in odd numbers - forwards and backwards** • **Can complete sequences in 2s, 5s, 10s**	
Given a number, identify one more and one less		• Can identify one more than a given number to 100 • Can identify one less than a given number to 100	
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	**1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =**	• **Can use practical equipment to represent any number to 100 and explain value of each digit** • **Can use pictorial representations to represent any number to 100 and explain value of each digit** • **Can compare two numbers that have been created with practical equipment** • **Can position numbers on a marked number line with multiples of 10 marked and reason about where they have been positioned**	
Read and write numbers from 1 to 20 in numerals and words.		• **Can read numbers from 1 – 20 in numerals** • **Can write numbers from 1 – 20 in numerals including accurate formation of all numerals 0-9** • **Can read numbers from 1 – 20 in words** • **Can write numbers from 1-20 in words**	
Block 10			
Multiplication and Division			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**

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.	**1NF–2 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.**	• **Can use concrete objects to double numbers to 10** • **Can use concrete objects to half numbers to 20** • **Can count in steps of 10** • **Can count in steps of 2** • **Can count in steps of 5** • **Can find a total when counting in groups of 10** • **Can find a total when counting in groups of 2** • **Can find a total when counting in groups of 5** • **Can solve word problems involving multiplication** • **Can use an array to represent a multiplication fact** • **Can divide by sharing objects equally** • **Can divide objects by putting into groups of 2** • **Can divide objects by putting into groups of 5** • **Can share objects by putting into groups of 10** • **Can solve word problems involving division**	*Doubling *Halving *Counting in 2s, 5s and 10s (link to PV) *Making equal groups *Applying counting in 2s, 5s and 10s to solve 'groups of' number problems including money problems *Repeated addition *Arrays *Division by sharing *Division by grouping *Problem solving

Block 11			
Measures - Money			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Recognise and know the value of different denominations of coins and notes	No specific Ready to Progress statements for Money but use context to consolidate statements such as 1NF–2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples and 1NF–1 Develop fluency in addition and subtraction facts within 10	• **Can identify coins by sorting them** • **Can recognise the value of each coin and that some coins have a greater value than others** • **Can add up small amounts of money and say how much altogether** • **Can pay for items of a small value *e.g. 3p, 5p, 7p, 9p using coins***	*Sorting and ordering coins *Understand that the value of each coin relates to that number of pennies or pounds *Understand that the value of each note relates to that number of pounds *Making amounts

		• **Can give change using 1p coins** • **Can answer questions such as:** ***Michael had £5. He spent £3. How much did he have left?*** • ***Rosie had a 10p coin. She spent 3p. How much change did she get?***	* Addition and subtraction problems including simple change

Block 12			
Measure – Length, Mass & Capacity			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Compare, describe and solve practical problems for: • lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]	**No specific Ready to Progress statements for Measures but use context to consolidate statements such as 1NF–1 Develop fluency in addition and subtraction facts within 10 and 1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =**	• **Can use direct comparison or non-standard units to compare lengths and heights** • **Can estimate and measure whether an object is longer or shorter than a metre stick/ a class ruler** • **Can use language of longer/ shorter, tall/ short, double/ half in relation to length and height**	***Comparing length/height/** width directly *Using non-standard units to compare lengths and heights *Introducing standard units of measure (cm and m) *Comparing Capacity directly *Using non-standard units to compare capacity *Introducing standard units of measure (litre) *Comparing Weight/Mass directly *Using non-standard units to compare weights *Introducing standard units of measure (kg)
Compare, describe and solve practical problems for: • mass/weight [for example, heavy/light, heavier than, lighter than]		• **Can compare mass of objects by holding them and using direct comparison** • **Can use balance scales to compare the mass of objects using direct comparison or non-standard units** • **Can estimate and measure whether an object weighs more or less than a kilogram** • Can use language of heavy/ light, heavier than and lighter than in relation to mass/weight	
Compare, describe and solve practical problems for: • capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]		• Can use direct comparison or non-standard units to compare the capacity of different vessels • **Can estimate and measure whether a container contains more or less than a litre jug** • Can use language of full/empty, more than/less than, half, full, quarter in relation to capacity/volume	
Measure and begin to record the following: • lengths and heights • mass/weight		• Can use manageable standard units to measure: Length and height (cm and m) • Can use manageable standard units to measure: Mass/weight (kg)	

• capacity and volume		• Can use manageable standard units to measure: Capacity/volume (l) • Can decide which measuring tool could be used in a particular situation	

Year 2

Block 1			
Number and Place Value			
Substantive Knowledge **National Curriculum**	**Ready to Progress** **Expected TAF Statements**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Count in in tens from any number, forward and backward		• **Can count forwards in 10s from any number** • **Can count backwards in 10s from any number**	*Introduction to resources *Read and write numbers to 100 *Recognise Place Value to 100 *Partition numbers into different combinations of tens and ones *Examine patterns using Place Value – Counting in tens *Compare and order numbers – two numbers, up to 5 numbers and then position on a number line *Counting in steps of 10s *Counting in steps of 2s, 3s, and 5s (reflect on which elements to cover now and which to cover in the multiplication and division unit)
Recognise the place value of each digit in a two-digit number (tens, ones)	2NPV–1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning. TAF - Partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus	• **Can partition a 2-digit number into tens and ones using structured resources to support them** • **Can identify the number of tens and ones in a written 2-digit numbers without structured resources**	
Identify, represent and estimate numbers using different representations, including the number line	NPV–2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10. TAF - Read scales* in divisions of ones, twos, fives and tens	• **Can position 2-digit numbers on a marked number line and reason about where they are positioned**	
Compare and order numbers from 0 up to 100; use <, > and = signs		• **Can create 2-digit numbers using concrete equipment and use to compare by reasoning about the size of numbers** • **Can compare numbers by identifying their relative positions in the linear number system (number line)** • **Can position the <, > and = signs correctly between two 2-digit numbers**	
Read and write numbers to at least 100		• **Can read numbers from 1 – 100 in numerals** • **Can write numbers from 1 – 100 in words**	

in numerals and in words			
Use place value and number facts to solve problems.		• **Can use coins to make given amounts of money, applying place value** • **Can solve problems linked to place value**	

Block 2			
Addition and Subtraction			
Substantive Knowledge **National Curriculum**	**Ready to Progress** **Expected TAF Statements**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	2NF–1 Secure fluency in addition and subtraction facts within 10, through continued practice. TAF - Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7 + 3 = 10, then 17 + 3 = 20; if 7 – 3 = 4, then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14)	• Can relate number facts to 10 to adding and subtracting multiples of 10 within 100 • Can recall and use addition and subtraction facts to 20 fluently; derive and use related facts to 100 • Can solve missing box and missing symbol calculations	*Add and subtract within 10 *Relationship between addition and subtraction within and to 10 *Recall and use addition and subtractions facts within and to 20 *Addition and subtraction facts to 100 *Consolidate adding two 1-digit numbers *Consolidate subtracting a 1-digit number from a teen number crossing/bridging the tens boundary *Adding three 1-digit numbers *Odd and even numbers *Add a 2-digit number and ones *Add a 2-digit number and tens
Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • A two-digit number and ones • A two-digit number and tens • Two two-digit numbers • Adding three one-digit numbers	2AS–1 Add and subtract across 10 2AS–3 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number. 2AS–4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers. 2AS–2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?".	• Can add and subtract numbers mentally, including: ○ a 2-digit number and 1s ○ a 2-digit number and 10s ○ 2 simple, 2-digit numbers, which do not involve bridging a 10 ○ adding 3 single-digit numbers • Can add and subtract two 2-digit numbers that bridge a multiple of 10 using jottings or a series of related number sentences to avoid overload of working memory	

	TAF - Add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g. 48 + 35; 72 – 17)	• Can use concrete apparatus or pictorial representations to demonstrate how they have calculated an answer.	*Add two 2-digit numbers – no crossing *Add two 2-digit numbers – crossing the tens boundary *Subtract a 2-digit number and ones * Subtract a 2-digit number and tens * Subtract two 2-digit numbers – no crossing * Subtract two 2-digit numbers – crossing the tens boundary *Finding the difference *Solve word problems
Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	TAF - Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7 + 3 = 10, then 17 + 3 = 20; if 7 – 3 = 4, then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14)	• Can show that addition can be done in any order (commutative) • Can show that subtraction can't be done in any order	
Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.		• Can recognise and use the inverse relationship between addition and subtraction • Can check calculations using the inverse operation	
Solve problems with addition and subtraction: Using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods		• Solve one-step addition problems using mental strategies • Solve one-step subtraction problems using mental strategies • Solve one-step addition problems using a written method in line with school calculation policy e.g. counting on a number line, partitioning • Solve one-step subtraction problems using a written method in line with school calculation policy e.g. counting back on a number line, partitioning • Understand when a word problem involves addition or subtraction	

Block 3			
Money			
Substantive Knowledge	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning**

National Curriculum	Expected TAF Statements		Detailed in Planning Overview
Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value	No specific Ready to Progress statements for Money but use the opportunity to consolidate prior statements as appropriate e.g 2NPV–1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning. 2AS–1 Add and subtract across 10. 2AS–2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?". TAF - Use different coins to make the same amount	• **Can record using symbols £ and p (separately, depending on the unit being used)** • **Can add together different coins and find the total Can find coins that make a particular amount *e.g. Which coins could you use to make 20p*?**	*Recognise coins and use £ and p notation (separately) * Say how many different combinations of coins can be used to make a given total e.g. 20p *Reinforce Place Value non-standard partitioning TAF statement by making amounts with just 10ps and 1ps *Find the total amount of money in a purse/bag *Decide which coins could be used to pay for an item *Find the total of 2 items * Finding change *How much left *Range of problems – Decide on the operation needed to solve
Find different combinations of coins that equal the same amounts of money		• **Can say how many different combinations of coins can you use to make a given total *e.g. 20p***	
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change		• **Can find totals of different amounts of money** • **Can decide which coins could be used to pay for the total** • **Can solve subtraction problems such as *Jess has saved 62p. She spends 15p. How much does she have left?*** • **Can find change from a given amount *e.g. Jess buys a banana for 23p. She pays for it using a 50p. How much change does she get?***	

Block 4			
Multiplication and Division			
Substantive Knowledge **National Curriculum**	**Ready to Progress** **Expected TAF Statements**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward		• **Can count in 2s, 5s and 10s from 0** • **Can count forwards and backwards in 10s from any number** • **Can count forwards and backwards in 5s from any number** • **Can count forwards and backwards in 2s from any number** • **Can count in 3s from 0**	*Understand the language of equal groups *Link equal groups to addition *Link equal groups to the multiplication symbol

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	TAF - Recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary	• **Can use concrete objects to show understanding of multiplication** • **Can recall the 10x table in a random order** • **Can recall the 2x table in a random order** • **Can recall the 5x table in a random order** • **Can recognise odd and even numbers**	*2 x table *5 x table *10 x table *Recall 2x, 5x, 10x *Reason about the patterns between the times tables *Write repeated addition number sentences as multiplication number sentences and vice versa. *Use an array to show that multiplication can be done in any order * Derive Division facts using division by grouping and record using the ÷ sign *Sharing *Grouping *Use an array to find 4 related facts *Inverse operations *Solve a range of word problems *Substantial problem solving
Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	**2MD–1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.** MD–2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotative division).	• **Can write addition sentences as multiplication sentences and vice versa** • **Can when shown an array, write the 4 addition and multiplication sentences that the image represents and 2 division facts**	
Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	TAF - Recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary	• **Can use an array to explain the commutative law *e.g. Why 2 x 5 is the same as 5 x 2?*** • **Can use an array to record the 2 division sentences that can be made from the image** • **Can explain why a division calculation cannot be done in any *order e.g. Why is 2 ÷ 10 not 5?***	
Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	MD–2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotative division). TAF - Recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary	• **Can use materials, arrays, repeated addition, mental methods, and multiplication and division facts to solve multiplication word problems in context** • **Can use materials, arrays, mental methods, and multiplication and division facts to solve sharing word problems in context** • **Can use materials, arrays, mental methods, and multiplication and division facts to solve grouping word problems in context** • **Can use materials, arrays, repeated addition, mental methods, and multiplication and division**	

		facts to solve multi-step problems involving multiplication and division in context	

Block 5			
Fractions			
Substantive Knowledge **National Curriculum**	**Ready to Progress** **Expected TAF Statements**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Recognise, find, name and write fractions $\frac{1}{3}, \frac{1}{4}, \frac{2}{4}, \frac{3}{4}$ of a length, shape, set of objects or quantity	TAF - Identify $\frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{2}{4}, \frac{3}{4}$ of a number or shape, and know that all parts must be equal parts of the whole	• Can find unit fractions $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}$ of lengths, shapes or quantities by splitting into equal parts. • Can find non-unit fractions $\frac{2}{3}, \frac{2}{4}, \frac{3}{4}$ of lengths, shapes or quantities by selecting more than one part after splitting equally • Can find unit fractions $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}$ of a set of objects by splitting into equal groups and make links to division • Can find non-unit fractions $\frac{2}{3}, \frac{2}{4}, \frac{3}{4}$ of a set of objects by splitting equally then totalling the number of groups identified by looking at the numerator	*Introduction using real life contexts *Understanding denominators * Name fractions one half, one third and one quarter and use the correct notation *Recognise that one 'whole' could be one whole group of items * Write number sentences which represent the fractions of amounts being calculated * Recognise $\frac{2}{3}, \frac{2}{4}, \frac{3}{4}$ of an object, shape or length; *Recognise $\frac{2}{3}, \frac{2}{4}, \frac{3}{4}$ of a quantity *Comparing fractions - recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ *Count on and back in steps of ½, ¼, and $\frac{1}{3}$ *Consolidation and substantial problem solving
Write simple fractions for example, ½ of 6 = 3		• Can record fractions in writing and understand what each part represents • Can use a fraction as an operator on a number and record as a number sentence • Can calculate by dividing the number by the denominator and multiplying by the numerator	
Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$		• Count in fractions up to 10 and place on a number line • Use a number line to show that ½ is equivalent to $\frac{2}{4}$ • Reason about the equivalence of $\frac{1}{2}$ and $\frac{2}{4}$ using objects or images	

Block 6			
Geometry – Properties of Shape			
Substantive Knowledge	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning**

National Curriculum	Expected TAF Statements		Detailed in Planning Overview
Identify and describe the properties of 2-D shapes, including the number of sides and lines symmetry in a vertical line	2G–1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties TAF - Name and describe properties of 2-D and 3-D shapes, including number of sides, vertices, edges, faces and lines of symmetry.	• Can identify the number of sides on a range of 2D shapes • Can identify the number of vertices on a range of 2D shapes • Can define a polygon as a shape with straight sides and identify whether a 2D shape is a polygon or not • Can identify shapes by counting the number of sides or vertices including knowing quadrilateral as the generic term for a 4-sided shape • Recognises irregular shapes and can reason about this e.g. knows that every 5 sided polygon is a pentagon. • Can distinguish a square and a rectangle as special quadrilaterals and explain which properties define them • Can identify lines of symmetry on 2-D shapes	*Introduction and recap on shapes from Year 1 – includes sorting *Name and describe properties of 2D shapes – includes sorting * Lines of Symmetry *Name and describe properties of 3D shapes – includes sorting and identifying 2D shapes as faces on 3D shapes *Consolidation with further sorting and problem solving
Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces		• Can recognise and name 3-D shapes, including cuboids, prisms and cones • Can describe the properties of 3-D shapes, including number of faces, edges and vertices	
Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]		Can identify 2-D shapes on the surface of a 3-D shape, including: • A triangle on a pyramid • A square on a cube • A rectangle on a cuboid • A circle on a cylinder and cone • A triangle and rectangle on a triangular prism	
Compare and sort common 2-D and 3-D shapes and everyday objects.		• Can sort and classify 2-D and 3-D shapes and everyday objects using a Venn diagram, according to their properties • Can sort and classify 2-D and 3-D shapes and everyday objects using a Carroll diagram	

Block 7			
Measure – Time			
Substantive Knowledge National Curriculum	Ready to Progress Expected TAF Statements	Key Performance Indicators	Sequence of learning Detailed in Planning Overview

Compare and sequence intervals of time		• **Can describe intervals of time in days** • **Can state the difference between time in days.** • Can measure accurately in hours, seconds and minutes • Can add and subtract intervals to times on clocks	*Introduction – comparing simple analogue clocks *Clockwise revision *Telling times O'clock, half past, quarter past and quarter to with hour hand only *Telling times O'clock, half past, quarter past and quarter to with minute hand only – link to fractions as still measuring in hours/fractions of hours *Telling times O'clock, half past, quarter past and quarter to with both hands *Minute hand only – measuring in minutes – link to counting in 5s and 5 x table *Both hands telling time to the nearest 5 minutes *Intervals of time *Time duration problems
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	TAF - Read the time on a clock to the nearest 15 minutes	• **Can tell the time to quarter past the hour** • **Can tell the time to quarter to the hour** • **Can tell the time to the nearest 5 minutes**	
Know the number of minutes in an hour and the number of hours in a day		• **Know that there are 60 minutes in an hour** • **Know that there are 24 hours in a day**	

Block 8			
Statistics			
Substantive Knowledge **National Curriculum**	**Ready to Progress** **Expected TAF Statements**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	**NPV–2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.** TAF - Read scales* in divisions of ones, twos, fives and tens	• **Can generate data in everyday situations *e.g. How many children eat dinner or packed lunch?*** • **Can present data in different ways using a scale of 1, 2, 5 or 10** • **Can answer retrieval questions from the charts and graphs that they are working with**	*Introduction – key vocab *Tally charts *Simple Tables *Simple Pictograms *Block Diagrams *Consolidation – ask and answer questions about different representations
Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity		• **Can answer questions about the data that they have collected using scales of 1, 2, 5 and 10 *e.g. which is the most popular chocolate bar when a full chocolate bar represents 2 people on a pictogram?***	
Ask and answer questions about totalling and comparing categorical data.	2AS–1 Add and subtract across 10 2AS–2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?".	• **Can find the total of two categories on a pictogram, tally, block diagram and simple table** • **Can find the difference between two categories on a pictogram, tally, block diagram and simple table to answer How many more…? How many fewer…? questions**	

Block 9			
Geometry – Position and Direction			
Substantive Knowledge **National Curriculum**	**Ready to Progress** **Expected TAF Statements**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Order and arrange combinations of mathematical objects in patterns and sequences		• **Can continue and create patterns of shapes, including those in different orientations.** • **Can identify the unit of repeat**	*Describe Position *Describe Direction and Movement without turns *Describe Turns *Describe combination of movements and turns *Continue and create patterns and sequences with shapes in different orientations
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).		• **Confidently uses and understands terms, forwards, backwards, left and right, up and down to describe routes on a grid** • **Can recognise when an image has been rotated a whole, half, quarter or three-quarter turn** • **Can rotate themselves or an object clockwise or ant-clockwise** • Can program robots using instructions given in right angles	

Block 10			
Measures – Length, Height, Mass, Capacity & temperature			
Substantive Knowledge **National Curriculum**	**Ready to Progress** **Expected TAF Statements**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	**NPV–2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.** TAF - Read scales* in divisions of ones, twos, fives and tens	• **Can make sensible estimations in relation to all areas of measure** • **Can measure accurately in centimetres and metres using rulers and metre sticks** • **Can record measures using correct abbreviations cm and m** • **Can measure accurately in grams and kilograms using measuring scales** • **Can record measures using correct abbreviations g and kg** • Can measure accurately in millilitres and litres using measuring vessels • Can record measures using correct abbreviations ml and l • Can measure accurately in degrees Celsius • Can record measures using correct abbreviations °C • Can measure accurately in hours, seconds and minutes • **Can decide the correct unit of measure to use in a given situation *e.g. What unit of measure would we use to measure the mass of an apple?*** • **Can decide on the appropriate measuring tool to use in a given situation *e.g. what would you use to see how much water is in this cup?***	*Introduction – choosing sensible units to measure in, appropriate measuring equipment *Number lines recap *Understanding Length and height *Accurately measuring in cm and m, comparing and ordering lengths/heights *Understanding Capacity/volume *Comparing and ordering capacity ***Understanding mass** *Comparing and ordering by mass *Understanding temperature *Accurate reading of degrees, comparing and ordering temperatures *Measures word problems linked to addition and subtraction *Measures word problems linked to multiplication and division
Compare and order, mass, volume/capacity and record the results using >, < and =		• **Can compare and order different units of measure** • **Can use ‹ › and = to record comparisons**	

Year 3

Block 1			
Number and Place Value			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Count from 0 in multiples of 50 and 100; find 10 or 100 more or less than a given number NB – counting in multiples of 4 and 8 have been moved to multiplication unit		• **Can count in multiples of 50 and 100 and use doubling to explain the relationship between them** • **Can find 10 more or less than a given number and explain which digit changes and which stays the same** • **Can find 100 more or less than a given number and explain which digit changes and which stays the same**	*Introduction to resources *Count in 100s – Ensure the link to counting in 10s *Value of digits with a range of representations *Systematic problem solving – making a range of 3-digit numbers with 3-digit cards *Partitioning in non-standard ways 1, 10, 100 more or less *Counting in 50s *Comparing objects using a range of representations *Comparing and ordering 2 numbers *Comparing and ordering numbers on a number line *Comparing and ordering a range of numbers
Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	3NPV–2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.	• **Can identify the number of hundreds, tens and ones in a 3-digit number** • **Can identify the larger of two 3-digit numbers and explain reasoning**	
Compare and order numbers up to 1000	**3NPV–3 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** 3NPV–4 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.	• **Can position 3-digit numbers on a number line and explain reasoning about where they are positioned**	
Identify, represent and estimate numbers using different representations	**3NPV–1 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.**	• **Can use representations such as dienes, place value counters and money to represent 3-digit numbers**	
Read and write numbers up to 1000 in numerals and in words		• **Can use understanding of numbers 1 – 100 to read and write numbers to 1000**	

Solve number problems and practical problems involving these ideas.		• **Can solve problems involving number and link to areas such as money and measure**	*Application to substantial problems
Block 2			
Addition and Subtraction			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Add and subtract numbers mentally, including - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds	3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. NF–3 Apply place-value knowledge to known additive and multiplicative number facts AS–1 Calculate complements to 100 AS–3 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.	• Can add and subtract numbers using place value and partitioning, including counting on and back on a number line • Can add and subtract multiples of 10 and compensate • Can count on to find the difference between two numbers	*Consolidate number facts from KS1 *Related number facts with no bridging *Missing box and inverses with no bridging *Add a 3-digit number and ones mentally using bridging *Subtract a 3-digit number and ones mentally using bridging *Add a 3-digit number and tens mentally using bridging and extending to compensating *Subtract a 3-digit number and tens mentally using bridging and extending to compensating *Adding and subtracting a 3-digit number and hundreds mentally *Estimation *Finding the difference *Problem solving with mental calculations *Written addition *Written subtraction *Deciding on most appropriate method *Problem solving and consolidation.
Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	AS–2 Add and subtract up to three-digit numbers using columnar methods AS–3 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.	• Can calculate using a formal written method for TU+TU, no bridging and with bridging • Can calculate using a formal written method for HTU+TU, no bridging and with bridging • Can calculate using a formal written method for HTU+HTU, no bridging and with bridging • Can calculate using a formal written method for TU-TU, no bridging and with bridging • Can calculate using a formal written method for HTU-TU, no bridging and with bridging • Calculate using a formal written method for HTU-HTU, no bridging and with bridging.	

Estimate the answer to a calculation and use inverse operations to check answers	AS–3 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.	• Round numbers to estimate answers to a problem • Understand how to use the inverse to check answers to a calculation	
Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	AS–3 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.	• Identify the correct information to solve a problem • Find missing box calculations in mental addition • Check solutions and results to see whether they are reasonable	

Block 3			
Multiplication and Division			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Count from 0 in multiples of 4, 8	**3NF–2 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.**	• **Can count in multiples of 4 and 8 and use doubling to explain the relationship between them** • **Can find 100 more or less than a given number and explain which digit changes and which stays the same**	Recap 2x, 5x, 10x tables Commutativity 4x tables 8x tables 3x tables Links and the development of multiplication Arrays and the links to division Extending related facts Scaling How many ways
Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables		• **Can recall the 3x table** • **Can recall the 4x table** • **Can recall the 8x table** • **Can use doubling to explain the relationship between the 2, 4 and 8 times tables** • **Can derive related division facts** • **Can understand that division cannot be done in any order**	
Write and calculate mathematical statements for multiplication and division using the multiplication tables	NF–3 Apply place-value knowledge to known additive and multiplicative number facts	• **Can use multiplication facts to solve TU x U using partitioning** • **Can use multiplication facts to solve TU x U using the grid method** • **Can begin to use multiplication facts to solve TU x U using a formal written method**	

that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods		• **Can use derived facts to solve problems involving division *e.g. Flowers are grown in rows of 10. There are 73 flowers. How many full rows can be planted?*** • **Can use mental methods to divide TU by U *e.g. For 42 ÷ 3, partition and calculate 30 ÷ 3 and 12 ÷ 3 then recombine*** • **Can begin to use a formal written method to divide TU by U**	Consolidation of mental strategies and problem solving Written multiplication 2-digit by 1-digit Written division 2-digit by 1-digit Consolidation and problem solving
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.	**MD–1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotative and partitive division.**	• **Can solve missing box calculations relating to recall of multiplication and division facts** • **Can solve problems linked to scaling measures *e.g. 4 times as high*** • **Can solve correspondence problems such as *3 tops, 4 football shorts, how many different outfits can be made?*** • **Can solve division problems *e.g. 12 sweets between 3 children or 4 cakes between 8 children***	

Block 4			
Money			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Add and subtract amounts of money to give change, using both £ and p in practical contexts	No specific Ready to Progress statements for Money but use the opportunity to consolidate prior statements as appropriate e.g. **AS–1** Calculate complements to 100 when finding change from £1 and **3NF–2** Recall multiplication facts, and corresponding division facts, in the 10, 5, 2 times tables when finding the totals of amounts.	• **Can record using £ and p** • **Can add and subtract amounts of money** • **Can add and subtract mixed units** • **Can give change**	Recognising coins Making amounts Find the total of two amounts Find the difference between two amounts Giving change Consolidation and problem solving

Block 5			
Fractions and Decimals			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
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		• Understands tenths are dividing an object or a number into ten equal parts. • Understands tenths are 10 parts of one whole. • Can find and place tenths on a number line. • Can use tenths in money and metres • Can compare and order numbers to 1dp	Introduction/recap on Fractions using Fraction strips Unit fractions Non-unit fractions Making a whole Making a half Placing fractions on a number line (ordering fractions while exploring equivalents) Equivalent fractions Ordering and comparing fractions Placing tenths on a number line – link to decimal representation Fraction of an amount Addition of Fractions Subtraction of Fractions
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3F–2 Find unit fractions of quantities using known division facts (multiplication tables fluency).	• Understand the numerator and denominator in a proper fraction. • Can calculate unit fractions by dividing. • Can compare unit fractions on a number line. • Can calculate non unit fractions by dividing.	
Recognise and show, using diagrams, equivalent fractions with small denominators		• Can recognise that one whole is equivalent to two halves, three thirds, four quarters • Can work out equivalent fractions using diagrams.	
Add and subtract fractions with the same denominator within one whole	3F–4 Add and subtract fractions with the same denominator, within 1.	• Can identify fractions that will total 1 • Can add fractions with the same denominator up to 1. • Can convert fractions to have common denominators.	
Compare and order unit fractions, and fractions with the same denominators	3F–3 Reason about the location of any fraction within 1 in the linear number system.	• Can compare and order fractions with the same denominator. • Can use equivalent fractions to compare and order fractions that are not the same denominator.	
Solve problems that involve all of the above.		• Can solve problems that involve all elements of the Year 3 fraction curriculum.	
Block 6			
Geometry			

Substantive Knowledge National Curriculum	Ready to Progress	Key Performance Indicators	Sequence of learning Detailed in Planning Overview
Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.	• Can describe the properties of 2D shapes, including semi-circles, using accurate language about lengths of lines and numbers of vertices • Can recognise shapes with equal side lengths • Can recognise lines of symmetry in 2D shapes • Can sort and classify collections of 2D shapes in different ways using a range of properties • Can use Venn and Carroll diagrams to classify 2D shapes • Can draw 2D shapes with the aid of modelling equipment such as geometric paper, geo boards and geo strips • Can describe the properties of 3D shapes, including hemispheres and prisms, using language such as base, face, vertex and edge • Can recognise and name 3D shapes viewed from different angles • Can recognise and name unseen 3D shapes in a feely bag • Can construct 3D shapes using matchsticks and plasticine	2D shape introduction Angles in shapes Triangles Quadrilaterals Regular/Irregular Symmetry 3D Shapes Recognise 3D shapes in different orientations Angles as a description of turn Horizontal and vertical lines Consolidation and problem solving
Recognise angles as a property of shape or a description of a turn	G–1 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.	• Can recognise that angles are the amount of turn between two lines • Can describe properties of shapes in terms of the angles formed at vertices	
Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle		• Can identify right angles as 90° • Can recognise that two right angles make a half turn or 180° • Can recognise that three right angles make a three quarter turn or 270° • Can recognise that four right angles make a half turn or 360° • Can use the terms acute and obtuse to describe angles less or greater than a right angle	
Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.	• Can identify horizontal and vertical lines • Can identify pairs of parallel lines within shapes and around them • Can identify pairs of perpendicular lines within shapes and around them	

Block 7

Statistics

Substantive Knowledge	Ready to Progress	Key Performance Indicators	Sequence of learning

National Curriculum			Detailed in Planning Overview
Interpret and present data using bar charts, pictograms and tables	No specific Ready to Progress statements for Statistics but use the opportunity to consolidate prior statements as appropriate e.g. **3NPV–3** Reason about the location of any three-digit number in the linear number system and **3NPV–4** 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. **3NF–1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	• **Can interpret data from a pictogram when one symbol represents more than one unit** • **Can interpret data in graphs and understand varying scales of multiples of 2, 5 and 10 when reading values presented in bar charts** • **Can create a tally chart and understand that grouping in 5s helps with the accuracy and speed of counting the totals** • **Can transfer data from a tally chart to a table** • **Can create a bar chart to represent data**	Create tally chart and link to counting in 5s Transfer data from a tally chart to a table Pictograms when one symbol represents more than one unit Bar charts Interpret data from graphs and understand varying scales of multiples of 2, 5 and 10 when reading scales Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables
Solve one-step and two-step questions [for example, 'how many more?' and 'how many fewer?'] using information presented in scaled bar charts and pictograms and tables		• **Can answer questions from a bar chart that involve comparison, sum and difference** • **Can answer questions from a pictogram that involve comparison, sum and difference** • **Can answer questions from a table that involve comparison, sum and difference**	

Block 8 Measure – Time			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks		• **Can read times in analogue format to the minute** • **Can read times in digital format to the minute** • **Can read clocks displayed using Roman numerals to the minute**	Recap telling the time to the nearest 5 mins Analogue time to the minute Digital time format to the minute Show link to Roman Numerals on a clock Use a time line to show morning and afternoon, link to am/pm and then 24 hour time
Estimate and read time with increasing accuracy to the nearest minute; record and compare time		• **Can estimate how long something should take to complete**	

in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight		• **Can use vocabulary accurately: seconds, minutes, hours, o'clock, am/pm, morning, afternoon, noon and midnight** • **Can solve routine problems involving time using a time line**	Include the vocabulary of noon and midnight Match a range of clocks Estimate the time taken for activities in seconds – convert to minutes. Repeat for minutes to hours Days in each month, year and leap year A - Duration when given start and end B - End when given start and duration C - Start when given end and duration Range of duration problems – identify whether the problem is type A, B or C and solve using an efficient method Application to substantial problems
Know the number of seconds in a minute and the number of days in each month, year and leap year		• **Can say how many seconds there are in a minute** • **Can say how many days there are in a month** • **Can say how many days there are in a year (including leap years)**	
Compare durations of events [for example to calculate the time taken by particular events or tasks].		• **Can identify the finish time of an event when given the start and the duration** • **Can work out the difference between the start and finish time of an event.** • **Can work out the start time if given the duration and end timings of an event.**	

Block 9

Measure – Length and Perimeter

Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Measure, compare, add and subtract: lengths (m/cm/mm);	No specific Ready to Progress statements for Length and Perimeter but use the opportunity to consolidate prior statements as appropriate e.g. **3NPV–3** Reason about the location of any three-digit number in the linear number system and **3NPV–4** 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. **3NF–1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	• **Can show something that they think is just shorter/longer than a metre/ centimetre/millimetre and can check if they are right using correct apparatus** • **Can measure accurately in m/cm/mm;** • **Can compare measures using the appropriate scale** • **Can read scales accurately and say what each division is worth** • **Can add and subtract measures** • **Can compare and use mixed units *e.g. 1m and 20cm*** • **Can work out equivalents in all areas of measure *e.g. 5m = 500cm*** • Can complete simple scaling by integers (e.g. a given quantity or measure is twice as long or five times as high) and connects this to multiplication.	Consider links to PE/Sports Day, Olympics/Commonwealth Games **Length** Explore tools for measuring length Explore vocab for measuring length Model units of length Read scales Measure in metres Measure in mm/cm Work out equivalent lengths

Measure the perimeter of simple 2-D shapes		• **Can measure the sides of regular polygons in centimetres and millimetres and find their perimeters in centimetres and millimetres**	Order and compare lengths using conversion Addition and subtraction problems linked to length. Multiplication and division problems linked to length. **Perimeter** Measure perimeter Find perimeters using addition and multiplication knowledge.

Block 10			
Measure – Mass and Capacity			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml)	No specific Ready to Progress statements for Mass and Capacity but use the opportunity to consolidate prior statements as appropriate e.g. **3NPV–3** Reason about the location of any three-digit number in the linear number system and **3NPV–4** 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. **3NF–1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	• **Can say which object in the classroom is heavier than 100 g/kilogram/half-kilogram and know how to check if they are correct.** • **Can measure accurately in kg/g; l/ml** • **Can compare measures using the appropriate scale** • **Can read scales accurately and say what each division is worth** • **Can add and subtract measures** • **Can compare and use mixed units *e.g. 1kg and 200g*** • **Can work out equivalents in all areas of measure *e.g. 1 litre = 1000ml*** • Can complete simple scaling by integers (e.g. a given quantity or measure is twice as much or 3 times the amount of	**Mass** Explore tools for measuring mass Explore vocab for measuring mass Model units of mass Read scales Measure in g/kg Work out equivalent weights Order and compare measurements using conversion Addition and subtraction problems linked to mass. Multiplication and division problems linked to mass. **Capacity** Explore tools for measuring capacity Explore vocab for measuring capacity Model units of capacity Find a container that holds more and less than a litre Read scales Measure in l/ml

		flour) and connects this to multiplication.	Work out equivalent volumes Order and compare measurements using conversion Addition and subtraction problems linked to capacity. Multiplication and division problems linked to capacity.

Year 4

<table>
<tr><th colspan="4">Block 1</th></tr>
<tr><th colspan="4">Number and Place Value</th></tr>
<tr><th>Substantive Knowledge

National Curriculum</th><th>Ready to Progress</th><th>Key Performance Indicators</th><th>Sequence of learning
Detailed in Planning Overview</th></tr>
<tr><td>Count in multiples of 6, 7, 9, 25 and 1000</td><td></td><td>• Can count in multiples of 6, 7 and 9
Can count in multiples of 25 and 100 and explain the link between the two amounts</td><td rowspan="5">*Introduction to resources
*Building 4-digit numbers out of a range of concrete resources
*Counting in 1000's to gain confidence with 4-digit numbers
*Composing 4-digit numbers and discussing column value of each digit of these numbers (including the role of 0 in a number)
*Recognising that there are 10 hundreds in a thousand, 100 tens in 1000, 1000 ones in 1000 and using this to represent a 4-digit number
*Standard and non-standard partitioning
*Finding 1000 more or less than a given number
* Ordering and comparing numbers beyond 1000
*Counting in 1000s, 500s, 100s, 50s and 25s
* Positioning numbers on a blank and scaled number lines with a variety of starting and ending points and a range of increments.
*Rounding numbers to the nearest 10, 100 and 1000

*Reading and representing numbers on a number line to include negative numbers</td></tr>
<tr><td>Find 1000 more or less than a given number</td><td></td><td>• Can find 1000 more than a given number and explain which digit changes
• Can find 1000 less than a given number and explain which digit changes</td></tr>
<tr><td>Count backwards through zero to include negative numbers</td><td></td><td>• Can count backwards in a range of multiples to include negative numbers and understand the value of the digits</td></tr>
<tr><td>Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</td><td>NPV–2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning</td><td>• Can identify the number of thousands, hundreds, tens and ones in a 4-digit number</td></tr>
<tr><td>Order and compare numbers beyond 1000</td><td>NPV–3 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 rounding to the nearest of each.

NPV–4 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</td><td>• Can identify the larger of two 4-digit numbers and explain reasoning
• Can position 4-digit numbers on a number line and explain reasoning about where they are positioned</td></tr>
</table>

Identify, represent and estimate numbers using different representations	NPV–1 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	• **Can use equipment to represent numbers and to explain reasoning about the size of numbers**	* Reading and writing Roman numerals up to 100
Round any number to the nearest 10, 100 or 1000	**NPV–3 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 rounding to the nearest of each.**	• **Can round numbers to the nearest 10** • **Can round numbers to the nearest 100** • **Can round numbers to the nearest 1000** • **Can explain the rules of rounding**	
Solve number and practical problems that involve all of the above and with increasingly large positive numbers		• **Solve problems involving place value, including word problems and problems linked to money and measure**	
Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.		• **Can read Roman numerals to 100** • **Can understand how the numeral system developed over time**	

Block 2			
Addition and Subtraction			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and	4NF–3 Apply place-value knowledge to known additive and multiplicative number facts	• Can calculate THTU + HTU (no bridging) • Can Calculate THTU + HTU (bridging 10) • Can Calculate THTU + HTU (bridging 100) • Can Calculate THTU + THTU (no bridging) • Can Calculate THTU + THTU (bridging 10)	*Recapping known facts (bonds within 10, to 10, to 20, compliments to 100) *Scaling known facts by 10, 100 and 1000 to create related facts *Adding multiples of 1, 10, 100 and 1000 to a number with no bridging

subtraction where appropriate	(scaling facts by 100),	• Can Calculate THTU + THTU (bridging 100) • Can Calculate THTU + THTU (bridging 10 and 100) • Can calculate THTU - HTU (no bridging) • Can Calculate THTU - HTU (bridging 10) • Can Calculate THTU - HTU (bridging 100) • Can Calculate THTU - THTU (no bridging) • Can Calculate THTU - THTU (bridging 10) • Can Calculate THTU - THTU (bridging 100) • Can Calculate THTU - THTU (bridging 10 and 100) • Can reflect on when it is appropriate to use a standard written method in an addition or subtraction calculation with up to 4 digits	*Adding 1 digit to a 3 or 4-digit number using bridging *Adding a multiple of 10 to a 3 or 4-digit number using bridging *Adding a multiple of 100 to a 4-digit number using bridging *Subtracting multiples of 1, 10, 100 and 1000 from a number with no bridging *Subtracting 1 digit from a 3 or 4-digit number using bridging *Subtracting a multiple of 10 from a 3 or 4-digit number using bridging *Subtracting a multiple of 100 from a 4-digit number using bridging *Using the concept of 'finding the difference' within subtraction *Understanding the inverse relationship between addition and subtraction and generating fact families *Using inverse operations within addition and subtraction to check calculations *Reordering calculations to look for known facts and aid efficiency * Compensating and Adjusting *Standard written method of addition (4 digit add 4 digit) *Standard written method of subtraction (4 digit subtract 4 digit) *Reflecting on the most efficient strategy *Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why.
Estimate and use inverse operations to check answers to a calculation		• Can estimate the answer of an addition or subtraction up to 4 digits Can use addition and subtraction to calculate the inverse	
Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.		• Can use a calculation skill in a problem using units of measure (km, m, cm, mm, kg, g, l, ml, hours, minutes and seconds)	
Block 3			
Multiplication and Division			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**

Recall multiplication and division facts for multiplication tables up to 12 × 12	**NF–1 Recall multiplication and division facts up to 12x12 and recognise products in multiplication tables as multiples of the corresponding number.**	• **Can explain how to use known facts to derive others** • **Can recall the 3x 4x 8x table from year 3** • **Can recall the 6x table** • **Can recall the 7x table** • **Can recall the 9x table** • **Can recall the 11x table** • **Can recall the 12x table** • **Can derive related division facts** • **Understands that division cannot be done in any order**	*Recap 2, 5 and 10 times tables including patterns and generalisations *Recap 4, 8 and 3 times tables including patterns and generalisations *Teach 6, 12, 9, 11 and 7 times tables *Multiplying by 10 and 100 *Dividing by 1, 10 and 100 *Using scaling numbers by 10 and 100 to solve calculations using known facts *Using arrays investigate fact families and the commutative law and inverse relationship of multiplication and division *Solve missing box calculations using known facts and inverse operations *Strategies for mental calculation (partitioning, doubling and halving, compensating) *Find factors of numbers using a systematic approach *Multiplying 3 numbers using the most efficient strategy *Solving problems including using scaling and correspondence *Written strategy for multiplication (Check school calculation policy) * Written strategy for division if stated in school calculation policy *Solve a range of problems using multiplication and division using an efficient strategy. *Solve multi-step problems involving all 4 operations. Choose an efficient method for calculating and explain which methods have been used.
Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers	**4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)** MD–3 Understand and apply the distributive property of multiplication	• **Understands how a multiplication fact can be used to multiply by a multiple of 10** • **Understands how a multiplication fact can be used to multiply by a multiple of 100** • **Understands how to multiply 3 one-digit numbers together** • **Understands the effect of multiplying by 1 and 0** • **Understands the effect of dividing by 1** • **Understands how a multiplication fact can be used to solve a division calculation**	
Recognise and use factor pairs and commutativity in mental calculations	**MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.**	• **Can identify factors of a 2-digit number** • **Understands that multiplication can be done in any order**	
Multiply two-digit and three-digit numbers by a one-digit number using formal written layout		• **Can use a formal written method to multiply TU by U** • **Can use a formal written method to multiply HTU by U**	
Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one	NF–2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders	• **Can solve word problems involving multiplication** • **Can solve word problems involving division** • **Can solve scaling problems involving measures** • **Can solve correspondence problems** ***e.g. There are 3 starters, mains and desserts on a menu, how many possible meals could you have?***	

digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.			

Block 4			
Fractions			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Recognise and show, using diagrams, families of common equivalent fractions	F–1 Reason about the location of mixed numbers in the linear number system F–2 Convert mixed numbers to improper fractions and vice versa.	• Can use common multiples to generate equivalent fractions. • Can simplify fractions using common factors	*Recapping children's prior knowledge of fractions *Investigating using pictorial or practical resources how to make a whole *Placing fractions on a 0-1 number line *Placing mixed numbers and improper fractions on a number line *Equivalent fractions using multiplication *Finding fractions of an amount (unit and non-unit fractions) *Adding fractions with the same denominator (total may exceed one whole) *Subtracting fractions with the same denominator (start number may be more than one whole)
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		• Can use unit fractions to solve a problem. • Can use non-unit fractions to solve a problem.	
Add and subtract fractions with the same denominator	F–3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers	• Can add multiples of common fractions such as a ½ and 1/4 • Can add and subtract fractions with a common denominator • Can use equivalent fractions to add and subtract fractions of the same denominator.	

Block 5			
Decimals and Money			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.		• Understands hundredths are dividing an object or a number into 100 equal parts. • Understand tenths are dividing an object or a number into 10 equal parts. • Understands hundredths can be made by dividing tenths into 10 equal parts. • Can find and place hundredths on a number line. • Can use hundredths in money and measure • Can compare and order numbers to 2dp	*Recap year 3 decimals unit and look at counting in tenths *Using money, base 10 or a bead string investigate a hundredth as a fraction and a decimal (1 out of100 beads is 1/100 or 0.01 because we have 1 in the hundredth column *Positioning hundredths on a number line and using this to order and compare decimals to 2 dp *Positioning decimals to 1 dp on a number line and using this to discuss which whole number this decimal would round to *Identifying where 0.5, 0.25 and 0.75 would be on a number line and discussing that these are positioned at ½, ¼ and ¾ points on the number line *Dividing a 1 or 2-digit number by 10 or 100 and reading the answer as ones, tenths and hundredths *Connecting tenths and hundredths – how many hundredths are there in a tenth? *Linking to money – how many 10p are in a pound? How many 1p are in a pound *Comparing different amounts of money ^recapping calculating strategies from number unit to calculate with money to 2 dp *Solve problems involving money
Recognise and write decimal equivalents of any number of tenths or hundredths		• Can identify and calculate 1/10 as a decimal • Can identify the pattern when finding other tenths. • Can identify and calculate 1/100 as a decimal • Can identify the pattern when finding other hundredths.	
Recognise and write decimal equivalents to ¼, ½ and ¾		• Can recall decimal equivalent to 1/2 • Can recall decimal equivalent to 1/4 Can recall decimal equivalent to ¾	
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	MD–1 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.	• Can explain the effect of dividing a one-digit number by 10 • Can explain the effect of dividing a two-digit number by 10 • Can explain the effect of dividing a one-digit number by 100 • Can explain the effect of dividing a two-digit number by 100	
Round decimals with one decimal place to the nearest whole number		• Can identify the nearest whole number to a one decimal place number.	

Compare numbers with the same number of decimal places up to two decimal places		• Can compare and order 1 dp numbers on a number line. Can compare 2dp numbers on a number line	
Estimate, compare and calculate different measures, including money in pounds and pence		• **Can use decimal place value knowledge to compare different measures.** • **Can calculate with measures**	
Solve simple measure and money problems involving fractions and decimals to two decimal places.		• Knows how many 10ps are in a £1 • Knows how many 1ps are in a £1 • Knows how many centimetres are in a metre. • Can solve problems involving money to 2dp • Can solve problems involving length to 2dp	

Block 6			
Geometry			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	**G–2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.**	**Can recall and recognise in a variety of shapes that:** • **an equilateral triangle has three equal sides and three equal angles** • **isosceles triangles have two equal sides and two equal angles** • **right angled triangles have one right angle** • **scalene triangles have no equal sides and no equal angles** • **triangles cannot have more than one obtuse angle** • **squares have four equal sides and four right angles** • **rectangles have two pairs of equal and parallel sides and four right angles** • **parallelograms have two pairs of equal and parallel sides** • **rhombuses have four equal sides, two pairs of parallel sides**	*Recap 2D shape – names and properties of shapes (regular and irregular shapes) *Recognising angles (obtuse, acute and right angles) *Identifying angles in shapes *Investigating triangles, classifying and sorting *Investigating quadrilaterals, classifying and sorting *Investigating symmetrical patterns (one line of symmetry, 2 lines of symmetry, line of symmetry parallel to gridlines, line of symmetry at an angle to the gridlines)

		• **trapeziums have one pair of parallel sides** • **kites have two pairs of equal sides which are adjacent, two equal angles** • **Can recall the names of other polygons and their associated numbers of sides**	*Exploring symmetry in shapes *Using coordinates to position points and to read the position of points using the language of x and y axis *Can use knowledge of properties of shapes to plot a missing coordinate of a given polygon *Can use the language of coordinates and positional language to describe how a shape has been translated *Can translate a shape when given coordinates and positional language
Identify acute and obtuse angles and compare and order angles up to two right angles by size		• **Can identify acute angles on their own and within shapes** • **Can identify obtuse angles on their own and within shapes** • **Can compare two or more angles up to 180°**	
Identify lines of symmetry in 2-D shapes presented in different orientations	**G–3 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.**	• **Can recall and recognise in different shapes that:** • **A square has four lines of symmetry** • **A rectangle has two lines of symmetry** • **A rhombus has two lines of symmetry** • **A parallelogram has no lines of symmetry** • **A trapezium may or may not have a line of symmetry** • **A kite has one line of symmetry** • **An equilateral triangle has three lines of symmetry** • **An isosceles triangle has one line of symmetry** • **A regular polygon has the same of lines of symmetry as it has sides**	
Complete a simple symmetric figure with respect to a specific line of symmetry		**Can complete a pattern drawn on a square grid with:** • **one line of symmetry drawn parallel to the gridlines** • **one line of symmetry drawn at an angle to the gridlines** • **two lines of symmetry**	
Describe positions on a 2-D grid as coordinates in the first quadrant		• **Can distinguish between the x and y axis.** • **Can draw a pair of axes in one quadrant with equal scales and integer labels.**	
Describe movements between positions as translations of a given unit	G–1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant	• **Can describe position of a vertex of a 2D shape in the first quadrant using a pair of coordinates.** • Can translate a shape using left/right and up/down	

to the left/right and up/down			
Plot specified points and draw sides to complete a given polygon		• Can use properties of shape to complete the vertices of a simple shape.	

Block 7			
Statistics			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	**No specific Ready to Progress statements for statistics but use the opportunity to consolidate prior statements as appropriate e.g NPV–4 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**	• **Understands which is the best method of recording data *e.g. compare data presented in a bar chart and line graph and reason as to which is the most effective*** • **Can use an appropriate scale when representing data** • **Can answer questions from a range of different graphs *e.g. In which months was the temperature below 10˚C?***	*Make a class chart using cubes. Children to vote by selecting a colour cube that matches their choice and then make bar chart. Show how to draw on a bar chart / tally chart. Discuss how to read each axis. Link axis to reading a number line. *Children to practice reading discreet data charts (bar, tally. Pictogram) and answer questions around this data (ensure that charts have differing scales) *Children to investigate their own discreet data collection and choose how to represent this clearly with an appropriate scale *Introduce continuous data and discuss how this is different to discreet *Represent continuous data as a line graph (link to science/topic) *Read and interpret a range of line graphs and answer questions on the data *Collect continuous data and choose how to present this and with what scale
Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.		• **Can answer questions from a bar chart that involve comparison, sum and difference** • **Can answer questions from a pictogram that involve comparison, sum and difference** • **Can answer questions from a table that involve comparison, sum and difference** • **Can answer questions from a line graph that involve comparison, sum and difference**	

Block 8			
Measure – Time			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Convert between different units of measure [for example, kilometre to metre; hour to minute]		• **Knows and understands the relationships between familiar units of measurement** • **Can use multiplication and division to aid conversion** • **Can convert an hour into minutes and vice versa** • **Can suggest the most appropriate unit of measure**	*Discuss units of time - how long is a minute, a second, an hour, a day? etc *Suggest sensible estimates for things that you could do in a minute, a second, an hour *Suggest how long it would take to do certain tasks. Time these tasks to see how accurate your predictions were *Discuss conversions (how many seconds in a minute, minutes in an hour, etc) *Convert times given in seconds to minutes, minutes to hours, etc *Read analogue and digital clocks to the nearest minute. Convert digital to analogue time and analogue to digital time. *Look at the 24-hour clock and 12-hour clock with am and pm displayed. Convert between 12 and 24-hour times. *Solving real life problems involving reading and converting time
Read, write and convert time between analogue and digital 12- and 24-hour clocks		• **Can read and understand 24-hour time** • **Can relate 24 hr notation to am and pm** **Can covert 12 hr into 24 hour and vice versa**	
Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days		• **Can solve problems involving familiar conversions** **Can interpret the answer in more than one measure**	

Block 9			
Measure – Length and Perimeter			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Convert between different units of measure [for example,		• **Knows and understands the relationships between familiar units of measurement** • **Can use multiplication and division to aid conversion.**	Consider links to PE/Sports Day, Olympics/Commonwealth Games **Length** *Explore tools for measuring length

kilometre to metre; hour to minute]	**No specific Ready to Progress statements for Length and Perimeter but use the opportunity to consolidate prior statements as appropriate e.g. NPV–3 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 rounding to the nearest of each.** **NPV–4 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** MD–1 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.	• **Can convert km into m and vice versa.** • **Can suggest the most appropriate unit of measure.**	*Explore vocab for measuring length *Model units of length *Read scales *Measure in metres *Measure in mm/cm *Discuss km *Explore how many cm in a m, m in a km *Convert measures in cm to m, m to km, km to m based on place value and decimal work *Work out equivalent lengths using conversions *Order and compare lengths using conversion *Addition and subtraction problems linked to length. *Multiplication and division problems linked to length. **Perimeter** *Measure perimeter *Find perimeters using addition and multiplication knowledge. *Work out the perimeter or irregular shapes by breaking them down into smaller rectilinear shapes **Area** ***Find the area of a rectangle by counting squares.**
Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.		• **Can measure sides of a rectangle to calculate the perimeter.** • **Can generalise about the perimeter of a rectangle using words and symbols.** • **Can use the formulae 2(L+W) to calculate perimeter of a rectangle.** **Can work out the perimeter of irregular shapes.**	
Find the area of rectilinear shapes by counting squares		• **Can relate area to arrays and multiplication.** • **Can find the area of a rectangle by counting squares.** **Can generalise about the area of a rectangle using words and symbols.**	
Estimate, compare and calculate different measures, including money in pounds and pence		• **Can use decimal place value knowledge to compare different measures.** • **Can calculate with measures**	

Block 10

Measure – Mass and Capacity

Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Convert between different units of measure [for example, kilometre to metre; hour to minute]		• **Knows and understands the relationships between familiar units of measurement** • **Can convert l into ml and vice versa.**	**Mass** *Explore tools for measuring mass *Explore vocab for measuring mass *Model units of mass

Estimate, compare and calculate different measures, including money in pounds and pence	**No specific Ready to Progress statements for Length and Perimeter but use the opportunity to consolidate prior statements as appropriate e.g. NPV–3 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 rounding to the nearest of each.** **NPV–4 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** MD–1 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.	• **Can use decimal place value knowledge to compare different measures.** • **Can calculate with measures**	*Read scales of varying increments (link back to number lines) *Measure in g/kg *Convert between g and kg and represent kg as a decimal *Work out equivalent weights using conversion *Order and compare measurements using conversion *Addition and subtraction problems linked to mass. *Multiplication and division problems linked to mass. **Capacity** *Explore tools for measuring capacity *Explore vocab for measuring capacity *Model units of capacity *Read scales *Measure in l/ml *Convert between l and ml and represent l as a decimal *Work out equivalent volumes using conversion *Order and compare measurements using conversion *Addition and subtraction problems linked to capacity. *Multiplication and division problems linked to capacity.

Year 5

Block 1			
Number and Place Value			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	NPV–2 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.	• **Can explain the place value in numbers up to 1 000 000** • **Can order a set of numbers to 1 000 000** • **Understands how a number can be partitioned into different amounts *e.g. 45000 is 45 thousands, 450 hundreds, 4500 tens or 45000 ones.***	* Reading, writing and making numbers to a million (place value charts, place value counters, digit cards) *Understanding the size and value of a million (How Big is a Million – Usborne) * Recognise the place value of each digit in a 7-digit number *Partition a number up to 1 million in a standard and non standard way * Look at partitioning a number into different amounts – to understand that 45,000 is 450 hundreds or 4500 tens * Look at the impact of adding powers of 10 to a number up to 1,000,000 (with and without crossing boundaries) * Position numbers up to 1 million on a number line with a range of start and ending points – blank and called number lines * Order and compare numbers (either by positioning o a number line first or by using place value) *Problem solving around ordering and comparing numbers (link to money and measure)
Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000		• **Can count forwards and backwards in 10s and 100s and explain how to find numbers 10 and 100 bigger or smaller than any number to 1 000 000.** • **Can count forwards and backwards in 1 000s and 10 000s and explain how to find numbers 1 000 and 10 000 bigger or smaller than any number to 1 000 000.**	
Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero		• **Understands how to bridge through zero when counting forwards and backwards with positive and negative numbers** • **Can solve problems linked to temperature involving negative numbers**	

Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	**NPV–3 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.**	• **Understands the rules for rounding numbers and round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000**	* Rounding numbers up to 1 million to the nearest 10, 100, 1000, 10,000 and 100,000 (position numbers on a number line, which power of 10 is it closest to? What is the determiner if we are rounding to each power of 10?) *Problem solving around rounding * Read and position negative numbers on a number line. * Calculate the difference between a positive and a negative number by bridging back through 0 * Problem solving involving negative numbers *Reading and writing Roman Numerals up to 1000
Solve number problems and practical problems that involve all of the above		• **Can solve problems involving place value, including word problems and problems linked to money and measure**	
Read Roman numerals to 1000 (m) and recognise years written in roman numerals.		• **Can use Roman numerals to 100 to begin to derive Roman numerals to 1000** • **Can recognise years written in Roman Numerals**	

Block 2			
Addition and Subtraction			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)		• Can solve THTU + THTU (bridging 10 and 100) • Can solve THTU - THTU (bridging 10 and 100) • Can use a formal written method to add money and measure using decimal notation to tenths • Use a formal written method to add money and measure using decimal notation to hundredths • Use a formal written method to add units of measure using decimal notation to hundredths	***Teach mental strategies first*** * Partitioning to add using place value * Calculate using known facts and scaling (3 + 5 = 8 becomes 3000 + 5000 = 8000 or 0.3 + 0.5 = 0.8) * Adding 2 numbers by bridging through 10 or a power of 10 * Subtracting numbers by bridging back through 10 or a power of 10 * Add and subtract numbers by bridging multiple times
Add and subtract numbers mentally with increasingly large numbers	NF–2 Apply place-value knowledge to known additive and	• Can add and subtract increasing large numbers using a variety of strategies	

	multiplicative number facts (scaling facts by 1 tenth or 1 hundredth)	• Doubling, Partitioning, Reordering, Bridging through a multiple of 10 • Can add and subtract simple decimals mentally *e.g. 0.25 + 0.5*	* Subtracting by finding the difference (applying bridging if necessary) *Reordering calculations to look for known facts * Using a bar model or number facts triangle to find fact families for calculations * Checking calculations using the inverse operation * Check calculations by using rounding to estimate the answer to a problem * Using compensating as a strategy to mentally add or subtract numbers * Using adjusting as a strategy to mentally add or subtract numbers * Formal written strategy for addition * Formal written strategy for subtraction * Children reflect on most efficient strategy to use for a range of calculations * Problem solving using a range of strategies (link to money and measure)
Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy		• Can estimate the answer up to 4 digits by rounding	
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why		• Can use addition and/or subtraction strategies to solve a complex problem • Use the inverse to check the answer • Solve problems including those with more than one step • Solve open-ended investigations using a variety of units of measure	

Block 3			
Multiplication and Division			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	**MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.**	• **Can identify multiples of a number** • **Can systematically find all factor pairs of a 2 digit number** • **Can identify common factors in two 2 digit numbers** • **Can explain the relationship between a factor and a multiple**	***Recap and refresh times tables as starter activities throughout the unit*** * Revisit arrays, commutative and inverse from the previous curriculum. * Create fact families for known multiplication calculations *Missing box multiplication and division calculations *Multiplying a number by 10, 100 and 1000 using the concept that numbers get 10, 100 or 1000 times larger and how this looks on a place value chart
Know and use the vocabulary of prime numbers, prime		• **Understands the definition of prime number** • **Can break a number down into prime factors** • **Understands the definition of a composite number**	

factors and composite (non-prime) numbers			*Dividing a number by 10, 100 and 1000 *Use known facts and scaling to create related facts (3 x 4 = 12 so 30 x 4 = 120 and 30 x 40 = 1200 or 0.3 x 0.4) *Create fact families for scaled multiplication calculations * Reordering Calculations to make multiplying easier * Double and halve relationship in multiplication and division (for example 9 x 20 becomes 18 x 10 because we can halve one side of the calculation and double the other side) * Partitioning to multiply 234 x 3 becomes 200 x 3, 30 x 3, 4 x 3
Establish whether a number up to 100 is prime and recall prime numbers up to 19		• **Can identify prime numbers to 100** • **Can recall prime numbers to 19** • **Can explain why a number is prime**	
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	**MD–3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.**	• **Can use a formal written method to multiply ThHTU by U** • **Can use a formal written method to multiply TU by TU** • **Can use a formal written method to multiply HTU by TU** • **Can use a formal written method to multiply ThHTU by TU**	

Multiply and divide numbers mentally drawing upon known facts	**NF–1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice** **NF–2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth)** **MD–1 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.**	• **Quickly recall multiplication and division facts to 12 x 12** • **Use knowledge of times tables to multiply and divide by multiples of 10** • **Use knowledge of times tables to multiply and divide by multiples of 100** • **Use knowledge of times tables to multiply and divide by multiples of 1000** • **Can multiply multiples of 10 by multiples of 10** • **Can multiply multiples of 10 by multiples of 100** • **Can use rounding to estimate answers to larger multiplication or division calculations** • **Can use factors to calculate other multiplication facts *e.g. 17 x 6 = 17 x 3 x 2***	* Partitioning to divide by place value or by multiples (72 ÷ 6 becomes 60 ÷ 6 and 12 ÷ 6 = * Using arrays investigate factors * Develop a systematic way of finding all multiples of a number * Investigate common multiples using factors * Build arrays for square numbers and discuss that these have an odd number of factors * Build arrays for prime numbers and establish what makes these numbers prime * Substantial problem involving investigating factors, prime and square numbers such as nRich Abundant Numbers * Investigate square numbers using practical equipment and relating this to the abstract notation * Formal written strategy for multiplication TO x TO (in line with your school's calculation policy) * Formal written strategy for division HTO ÷ O (in line with your school's calculation policy) * Solving problems involving multiplication and division (using mental and written strategies, scaling and simple ratio)
Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	MD–4 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.	• **Can use a formal written method to divide TU by U** • **Can use a formal written method to divide HTU by U** • **Can use a formal written method to divide ThHTU by U** • **Can explain what a remainder is** • **Understands the meaning of a remainder in a context and interpret appropriately**	
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000		• Understand the effect of multiplying by 10, 100 and 1000 • Understand the effect of dividing by 10, 100 and 1000	

Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})		• **Understand how to square a number and the notation for squared** • **Can recognise square numbers** • **Can link knowledge of square numbers to area** • **Understands how to cube a number and the notation for cubed** • **Can recognise cube numbers** • **Can link knowledge of cube numbers to volume**	
Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes		• **Can solve problems that link children's understanding of prime numbers, composite numbers, factors and multiples *e.g. complete partial multiplication pyramid using knowledge of factors and multiples*** • **Can solve multiplication and division problems linked to measurement using children's knowledge of squared and cubed numbers**	
Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign		• **Can decide on which operations and methods are needed to solve a given problem** • **Can use appropriate strategies to solve a problem** • **Can recognise the equals sign as a balancing symbol *e.g. 3 x 8 = 5 + ?***	
Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple ratio.		• **Can solve problems that involve scaling *e.g. reducing a recipe for more/less people*** • **Can solve simple ratio problems e.*g. making paint to a given formula***	

Block 4			
Fractions			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**

Compare and order fractions whose denominators are all multiples of the same number		• Can convert fractions using multiples to have the same denominator. • Understands the effect of a denominator increasing in multiples. • Compare and order mixed and improper fractions	*Recap the language of fractions and representations of fractions * Use a fractions wall to establish some simple equivalences *Explore the relationships between fractions that are equivalent *Use multiplication to find a family of equivalent fractions when given a starting fraction Substantial problem -nRich linked chains * Order and compare fractions where the denominators are all multiples of each other – applying equivalent fractions understanding *Calculating non unit fraction of quantities * Explore mixed numbers and improper fractions by continuing a fraction count across 2 fraction walls or a number line that extends beyond 1 (so a count could be one third, two thirds, three thirds, four thirds, five thirds or one third, two thirds, one whole, one whole and one third, one whole and two thirds) *Position mixed numbers and improper fractions on a number line * Look at converting improper fractions to mixed numbers (using a part whole model initially) *Convert mixed numbers into improper fractions * Add and subtract fractions where denominators are multiples of the same number (applying equivalent fractions understanding) *Add and subtract fractions where one fraction is a mixed number, and one is an improper fraction *Multiply proper fractions by a whole number using models and images to support (bar modelling)
Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	F–2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system.	• Understands that numbers can have a different representation but have generally the same meaning.	
Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number		• Understands a fraction can be more than one • Understands that when the numerator is more than the denominator it is more than one whole. • Understands fractions can be represented as a mixed number and an improper fraction.	
Add and subtract fractions with the same denominator and denominators that are multiples of the same number		• Can use common multiples to convert fractions to have the same denominator. • Can add and subtract fractions • Can convert answers using mixed and improper fractions. • Can mentally add and subtract $\frac{1}{10}$s	
Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams		• Can multiply together fractions with common denominators • Can use a number line to represent multiplying a fraction as repeated addition. • Understands when multiplying by a fraction the answer is smaller.	

	5F–1 Find non-unit fractions of quantities		

Block 5			
Decimals and Percentages			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Read and write decimal numbers as fractions	F–3 Recall decimal fraction equivalents for $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$, and $\frac{1}{10}$ and for multiples of these proper fractions.	• Can convert decimals to fractions • Can explain the value of each part of a decimal and explain the fraction equivalence.	Recap year 4 decimals unit and look at counting in tenths, hundredths *Using base 10 or bead strings investigate tenths, hundredth and thousandths as a fraction and a decimal (1 out of 1000 beads is 1/1000 or 0.001 because we have 1 in the thousandths column *Looking at the powers of 10 with decimals (10 thousandths is 1 hundredth, 100 thousandths is 1 tenth, etc) *Reading, writing, composing, and decomposing numbers up to 3dp using standard and non-standard partitioning *Ordering and comparing numbers up to 3 dp using place value *Positioning decimals to 2dp on a number line *Rounding decimals with 2dp to the nearest whole number (application of number line work to aid in visualising which number to round to) * Knowing that 0.5 is 1 half, 0.25 is a quarter, 0.2 is a fifth and 0.1 is a tenth – using a bead string as a concrete resource (find me 0.1 on a bead string. What fraction of the bead sting do have you found?
Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	NPV–1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.	• Can identify and calculate 1/1000 as a decimal • Can identify the pattern when finding other thousandths • Can compare thousandths to tenths and hundredths.	
Round decimals with two decimal places to the nearest whole number and to one decimal place	NPV–3 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.	• Understands the rules of rounding up and down. • Can apply the rules of rounding to a whole number • Can apply the rules of rounding to 1dp. • Can identify which value is closer to a given number.	
Read, write, order and compare numbers with up to three decimal places	NPV–2 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.	• Understands how thousandths are represented as a decimal. • Can order numbers to 3dp.	

	NPV–4 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.		*Apply knowledge of known fraction/decimal facts to multiples of these decimals (what fraction is the same as 0.3? 0.8? *Problem solving using 4 operations with decimals to 3dp (link to measures) *Introduce the term percentage as 'parts per hundred' * Use a beadstring and ask children to show 1%, 5%, 67%, etc Relate percentage to decimals and fractions 'Show me 10%, what is this as a decimal and as a fraction – relate back to prior learning' *Recognise decimal equivalences for 25%, 10%, 50% 5% and 1% * Apply understanding of fractions, decimals and percentages to shade in sections of 100 square using set criteria *Using and applying known facts. If we know 25% of a number, how can we find 75%? If we know 10% then how can we find 30%
Solve problems involving number up to three decimal places		• Can solve problems involving measure	
Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal		• Understand 1% is 1 part out of 100 • Can write the decimal equivalent to 1% • Understand percentage as a number out of 100. • Can write percentages as a fraction with denominator 100 • Can use 1% to calculate 10%, 5%, 50% and 100%	
Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}$, and $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.		• Can use the pattern to calculate other multiples of known percentages. • Has a good recall of the percentage, fraction and decimal equivalence of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}$, and $\frac{4}{5}$ • Has a good recall of the percentage and decimal equivalence of fractions with a denominator of a multiple of 10 or 25.	

Block 6			
Geometry			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Identify 3-D shapes, including cubes and other cuboids, from 2-D representations		• **Can name 3D shapes from pictures** • **Can identify the 3D shapes represented by 2D nets** • **Can identify nets of open and closed cubes**	*Recap 2d shapes and names and 3d shapes and names *Look at the shadows of some 3d shapes -what could they be and why?

Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	**G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.**	**Can explain that angles are measured in degrees** • **Can identify acute, obtuse and reflex angles** • **Can estimate the size of acute, obtuse and reflex angles** • **Can compare and order a set of angles**	* Investigate the concept of a 3D shape having a 2D net. Model drawing around the faces of a cube to create a flat representation *Given a range of nets children investigate which will and will not make a complete cube *Investigate nets of cuboids *Children to investigate making nets of shapes using interlocking tiles ***Discuss angles and what angles are measured in** ***Define angles – acute (less than 90 degrees)** **Right angle (90 degrees)** **Obtuse (91 degrees – 180 degrees)** **Reflex (180 degrees to 360 degrees)** ***Children to estimate what type of angle an image is representing** ***Children to identify types of angles in shapes** ***Children learn how to measure angles accurately using a protractor** ***Children learn how to draw angles using a protractor** *** Recap previous learning of 90 degrees being a quarter turn, 180 degrees being a half turn and relate this to 360 degrees being a full turn and 270 being a turn of three quarters.** ***Children to practice turning in multiples of 90 degrees clockwise and anticlockwise** ***Relate turns to angles on a straight line and angles in a circle. Children to use their understanding that a straight line is 180 degrees, and a circle is 360 degrees to calculate missing angles** ***Nrich Problem solving – Olympic turns** * Teach the children the mathematical conventions of a rectangle - Opposite sides of a rectangle are the same length (congruent). The angles of a rectangle are all congruent (the same size and measure.)
Draw given angles, and measure them in degrees (°)	**G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.**	• **Can use a protractor to measure angles accurately in degrees both on their own and within shapes** • **Can draw given angles using a protractor**	
Identify: • angles at a point and one whole turn (total 360°) • angles at a point on a straight line and ½ a turn (total 180°) • other multiples of 90°		• **Can recognise that angles at a point make a whole turn and total 360°** • **Can recognise that angles on a straight line make half a turn and total 180°** • **Can recognise multiples of 90° within turns** • **Can calculate missing angles in a range of contexts**	
Use the properties of rectangles to deduce related facts and find missing lengths and angles		• **Can describe that a rectangle has two pairs of equal and parallel sides** • **Can describe that a rectangle has four right-angles** • **Can explain why a square is a type of rectangle** • **Can find missing lengths of rectangles** • **Can identify the diagonals of rectangles** • **Can make suggestions about the size of angles formed between the parallel sides of a rectangle and its diagonals** • **Can use the fact that the angle sum of a quadrilateral is 360° to make suggestions**	

		about the size of the angles formed between the sides of quadrilaterals	*Using given information and generalisations about rectangles children state missing lengths or angles on a diagram * Identify the difference between regular and irregular shapes Regular shapes have sides that are all equal and interior (inside) angles that are all equal. Irregular shapes have sides and angles of any length and size. *Sort regular and irregular polygons * Discuss reflection and what a shape will look like after it has been reflected *** Can describe the position of a shape after it has been reflected on a grid in a line that is parallel to an axis.** *Discuss translation as being when a shape is moved from one position to another in a vertical or a horizontal direction on a grid *Children translate shapes on a grid and state the finishing coordinates of the shape after it has been translated
Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.		• **Can recognise that a regular polygon has n equal sides and n equal angles** • **Can identify regular and irregular polygons from a set of shapes and explain why** • **Can identify a square as the only regular quadrilateral.**	
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.		• **Can describe the position of a shape after it has been reflected in a line that is parallel to an axis.** • **Can describe the position of a shape after it has been translated across and up.** • **Understand the difference between a congruent and similar shape.**	

Block 7			
Statistics			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Solve comparison, sum and difference problems using information presented in a line graph	No specific Ready to Progress statements for Money but use the opportunity to consolidate prior statements as appropriate e.g NPV–4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines	• **Can answer questions that involve comparing the values between two points on a line graph e.g. When does the temperature rise the quickest?** • **Can answer questions that involve finding the difference between two points on a line graph e.g. By how much does**	*Recap different types of data and graphs from the previous curriculum (recap continuous and discreet data) *Discuss the data represented on a line graph – continuous data and children can suggest types of line graphs that we could see *Give children a range of line graphs to read with a range of scales *Children to discuss and interpret data from the line graphs

	marked in units of 1 with 2, 4, 5 and 10 equal parts.	**the temperature rise between 1 and 2pm** • **Can answer questions that involve finding the sum of values on a line graph e.g. How far did the lorry driver travel in total?**	*** Answer questions that involve comparing the values between two points on a line graph e.g. When does the temperature rise the quickest?** **Answer questions that involve finding the difference between two points on a line graph e.g. By how much does the temperature rise between 1 and 2pm** *Answer questions that involve finding the sum of values on a line graph e.g. How far did the lorry driver travel in total? *Look at a selection of tables including timetables *Children to answer questions based on timetables such as the local bus or train timetable
Complete, read and interpret information in tables, including timetables		• **Can answer questions that involve timetables e.g. How long does the journey from Chester to Northwich take on the bus?** • **Can answer questions linked to information presented in tables**	

Block 8			
Measure – Time			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Solve problems involving converting between units of time	**NPV–5 Convert between units of measure, including using common decimals and fractions.**	• Can use all four operations in problems involving time, including conversions	*Discuss units of time and conversions • **Years to months/weeks** • **Weeks to days** • **Days to hours** • **Hours to minutes** • **Minutes to seconds** *Children to solve questions around converting units of time using effienct calculation strategies

Block 9			
Measure – Perimeter and Area			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres		• **Can divide a composite shape into rectangles and calculate the perimeter of each shape.** • **Can recombine shapes and calculate the perimeter of shapes.** • **Can find missing lengths of a shape if given a perimeter.**	*Recap perimeter and look at the perimeter of some regular shapes *Discuss finding the perimeter of regular shapes where some information is missing * Look at finding the perimeter of a composite rectilinear shape by breaking it down into smaller shapes * Find missing lengths of a shape if given the total perimeter * Recap area and counting the squares in a shape to find its area *Understand why we use the notation cm squared when recording the area of a shape *Use the formula LxW to calculate the area of a shape using cm^2 ^use a scaled drawing to calculate the area of a shape *If given the area of a shape children can suggest what the shape might look like
Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes	G–2 Compare areas and calculate the area of rectangles (including squares) using standard units.	• **Can use the formula, L x W to calculate area.** • **Understands why the answer is the unit squared.** • **Can find shapes that have a set area.** • **Can calculate area from scaled drawings**	

Block 10			
Measure – Length, Mass and Capacity			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**

<table>
<tr>
<td>Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</td>
<td>NPV–5 Convert between units of measure, including using common decimals and fractions.</td>
<td>Can use their knowledge of place value and multiplication and division by 10, 100 and 1000 to convert between standard units
Can decide on the appropriate measure to record their answer
Can understand the decimal notation of units of measure.</td>
<td rowspan="4">*Recap what is known about metric measures – how many g in a kg, ml in a l, cm in a m, etc
*Practice reading a range of scales for length, capacity and weight
* Use their understanding of the powers of 10 to take about this using the language of fractions and decimals – a ml is 1/1000 the size of a litre, a g is 0.001 the size of a kg
* Apply their understanding of multiplying and dividing by 10, 100 and 1000 to convert between standard measures
* To be able to record measures as decimals
*Use all 4 operations to calculate measures problems including 2 step problems where conversations are needed to make both values into a common measure.
*To convert from metric measures to imperial units when given the conversions.
1 litre is approximately 2 pints (more accurately, 1 ¾ pints)
4.5 litres is approximately 1 gallon or 8 pints
1 kilogram is approximately 2 lb (more accurately, 2.2 lb)
30 grams is approximately 1 oz
8 kilometres is approximately 5 miles
‘If I know 8km is approximately 5 miles then how many km is 15 miles?’
*Children to solve problems around comparing the weight, length or capacity of 2 objects by converting units to the same system of measurement.
* Recap capacity as being the amount of liquid a container can hold but now introduce volume as being the amount of space that something can take up. We record capacity as ml, l, pints, gallons, etc but we record capacity as cm^3
*Understand why we use cm^3 as a measure of volume
*Using cubes build shapes that have a volume of 12. Discuss how to record what they have made using multiplication so 2cm x 3cm x 2cm = a volume of $12cm^3$
*Children to investigate the volume of regular and irregular shapes and record the volume using cm^3</td>
</tr>
<tr>
<td>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</td>
<td></td>
<td>Can convert between familiar imperial units of measure and metric measure
1 litre is approximately 2 pints (more accurately, 1 ¾ pints)
4.5 litres is approximately 1 gallon or 8 pints
1 kilogram is approximately 2 lb (more accurately, 2.2 lb)
30 grams is approximately 1 oz
8 kilometres is approximately 5 miles
Can compare imperial units to metric units of measure by converting units into the same unit of measure.</td>
</tr>
<tr>
<td>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</td>
<td></td>
<td>Can solve problems involving a variety of measures.
Can convert appropriately between measures to help solve the problem</td>
</tr>
<tr>
<td>Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]</td>
<td></td>
<td>Can find volumes of regular and irregular 3D shapes using cubes.
Can identify shapes /containers with a similar volume.
Can record volume using cm^3</td>
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Year 6

Block 1			
Number and Place Value			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit	**NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).** NPV–2 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.	• **Can explain the place value in numbers up to 10 000 000** • **Can order a set of numbers to 10 000 000** • **Understands how a number can be partitioned into different amounts** • **Can multiply and divide numbers by 10 and 1000 and explain the effect on the size of the digits in the number**	*Numbers to ten million *Understanding and counting in *Powers of 10 *Partitioning in standard and non-standard ways *Compare and order numbers *Ordering on a number line *Round numbers *Negative Numbers *Calculate intervals between negative and positive numbers *Solve problems using Place Value *Additional Challenge Investigating how the number system works *Application to SATs questions embedded
Round any whole number to a required degree of accuracy	**NPV–3 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.** **NPV–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.**	• **Can round numbers to the nearest 1 000 000** • **Can estimate the answers to calculations by rounding and comparing answers**	
Use negative numbers in context, and calculate intervals across zero		• **Can solve problems involving negative numbers linked to temperature, money and measures *e.g. find the difference between two temperatures when one is negative.***	

Solve number and practical problems that involve all of the above.		• **Can solve problems involving place value, including word problems and problems linked to population of countries, money and measure**	into each unit of work at the appropriate stage of an objective

Block 2			
Addition and Subtraction			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Perform mental calculations, including with mixed operations and large numbers	6AS/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). 6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	• Can mentally add and subtract numbers including decimals using a variety of strategies	*Assess mental and written strategies that children have retained throughout KS2 *Recap/consolidate mental strategies for addition and subtraction *BODMAS *Recap on *Recap/consolidate written strategies for addition and subtraction *Two Step Problems *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Use their knowledge of the order of operations to carry out calculations involving the four operations		• Can understand and use brackets • Can understand the order of operations, BODMAS	
Solve addition and subtraction multi-step problems in contexts,		• Can use addition and/or subtraction strategies to solve a complex problem. • Solve problems including those with more than one step	

deciding which operations and methods to use and why			
Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy		• Can use rounding to estimate the answer • Can use estimating to consider whether their answer is appropriate • Can use the inverse to check the answer	

Block 3			
Multiplication and Division			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Perform mental calculations, including with mixed operations and large numbers	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) 6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	• **Can decide when to use a mental method, informal jottings or a written method for calculations with all four operations** • **Can identify an appropriate strategy to solve a mental *calculation e.g. calculate 24 × 15, they multiply 24 × 10 and then halve this to get 24 × 5, adding these two results together.*** • **Can approximate effectively using rounding** • **Can derive facts involving decimals** • **Can use knowledge of square numbers to derive square of multiples of 10 *e.g. 60 x 60***	*Assess mental and written strategies that children have retained throughout KS2 *Recap/consolidate mental methods for multiplication and division *Multiples, Common multiples and Factors *Prime Numbers *Square and Cube numbers *Recap/consolidate written methods for multiplication *Recap/consolidate written methods for division by a 1-digit number
Identify common factors, common multiples and prime numbers		• **Can identify common factors of 2 digit numbers** • **Can identify common multiples of 2 digit numbers** • Can identify prime numbers to 100 and begin to recall these	

Use their knowledge of the order of operations to carry out calculations involving the four operations		• Can understand the order of BODMAS and use this to solve calculations	*Long division *BODMAS/ BIDMAS *Solve multi step problems using multiplication and division *Solve multi step problems using 4 operations *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication		• **Can use mental strategies to approximate answers to multiplication and division calculations** • Can use an appropriate formal written method to multiply numbers up to ThHTU by TU	
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		• **Can use an expanded written method to divide ThHTU by TU** • **Can use a standard written method of long division to divide ThHTU by TU** • **Can interpret remainders accurately**	
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		• **Can use a standard written method of short division to divide ThHTU by U** • **Can use a standard written method of short division to divide ThHTU by TU** • **Can interpret remainders accurately**	
Solve problems involving addition, subtraction, multiplication and division		• Can use addition and/or subtraction strategies to solve a complex problem. • Solve problems including those with more than one step	
Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.		• Can use rounding to estimate the answer • Can use estimating to consider whether their answer is appropriate • Can use the inverse to check the answer	

Block 4			
Fractions			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Use common factors to simplify fractions; use common multiples to express fractions in the same denomination	F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions.	• Understand equivalent fractions have common multiples • Using diagrams can see fractions are the same when simplified. • Can simplify fractions by dividing the numerator and denominator by a common factor.	*Compare and order fractions *Equivalent fractions *Mixed and Improper fractions *Compare and order fractions denominators are multiples of the same number *Add fractions *Subtract fractions *Multiply fractions by whole numbers *Multiplying pairs of proper fractions *Dividing fractions *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Compare and order fractions, including fractions > 1	F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value. F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy	• Can convert fractions into common denominators • Can use decimal equivalence to order and compare fractions.	
Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions		• Can use knowledge of equivalent fractions to add fractions • Can convert mixed numbers into improper fractions.	
Multiply simple pairs of proper fractions, writing the answer in its simplest form		• Understand when multiplying by a fraction the answer will be smaller. • Using diagrams can understand when multiplying fractions by a fraction the answer will be smaller. • Can follow a standard method to multiply fractions.	
Divide proper fractions by whole numbers		• Can divide a proper fraction by a whole number • Can explain how to divide a proper fraction, using diagrams if necessary to show understanding	

Associate a fraction with division and calculate decimal fraction equivalents		• Understand how to calculate a decimal from a fraction by dividing the numerator by the denominator. • Can explore recurring equivalence of decimals and fractions. • Can recall common fraction and decimal equivalents	
Block 5			
Decimals and Percentages			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places	**NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).** **NPV–2 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.** **NPV–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.**	• Understands the effect of multiplying a decimal by 10, 100 and 100 • Understands the effect of dividing a decimal by 10, 100 and 100	*Understanding thousandths *x 10, 100 *Ordering a range of decimals *Rounding decimals *Link Decimals to fractions *Link decimals to calculation *Link decimals to measure *Solve problems linked to measure *Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts *Exploring percentages *Link finding percentages to measure *Solve a range of multi-step word problems using decimals *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Multiply one-digit numbers with up to two decimal places by whole numbers		• **Can use an appropriate formal written method to multiply numbers up to U.th by U** • **Can use mental strategies to approximate answers to multiplication calculations** • **Can say why an answer to a multiplication involving 2 decimal places cannot be correct *e.g. Sam says the answer to 2.34 x 4 is 93.6 Explain why he cannot be correct.***	

Use written division methods in cases where the answer has up to two decimal places		• **Can use an appropriate formal method to divide a number with U.th by a single digit *e.g. in the context of money £4.35 ÷ 3*** • **Can use an appropriate formal method to divide a whole number with a remainder by a single digit, extending their working into decimal places e.g. £178 ÷ *8*** • **Can interpret decimal answers in context e.g. What does 5.6 represent if it is in the context of money? mass? length?**	
Solve problems which require answers to be rounded to specified degrees of accuracy	**NPV–3 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.**	• Can choose and use appropriate methods of calculation using all four operations. • Can decide whether to round an answer to the nearest tenth, whole number or higher value place, in context *e.g. Approximately how many metres of fabric should I buy if I need to make 3 dresses which each use 1.34m?.* • Can use rounding to estimate the answer • Can consider whether their answer is appropriate	
Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	NPV–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.	• Can recognise simple fraction, decimal and percentage equivalences in context including ½ = 0.5, ¼ = 0.25, ¾ = 0.75, 1/10 = 0.1, 1/5 = 0.2 • Can recognise other equivalent fractions, decimals and percentages with the same denominator e.g. If 1/10 = 0.1, 3/10 = ? • Can explain why 6/10 is more than 50%	

Block 6			
Ratio and Proportion			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts	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/MD–3 Solve problems involving ratio relationships.	• Understands ratio as a comparison of one part or amount with another • Can confidently use the language of 'for every' when describing a ratio. • Can use ratio to show the relative size of two quantities	*Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts *Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison *Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples *Solve problems involving similar shapes where the scale factor is known or can be found *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison		• Understands proportion as a fraction of the whole amount • Can use percentages equivalents to describe a proportion	
Solve problems involving similar shapes where the scale factor is known or can be found		• Understands direct proportion by scaling quantities up and down • Understands ratio as additive change or a multiplicative change • Can scale up/down recipes for a given number.	
Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.		• Can investigate possible answers to a question where one fraction has an impact on the other.	

<table>
<tr><th colspan="4">Block 7</th></tr>
<tr><th colspan="4">Geometry - Shape and Position and Direction</th></tr>
<tr><th>Substantive Knowledge

National Curriculum</th><th>Ready to Progress</th><th>Key Performance Indicators</th><th>Sequence of learning Detailed in Planning Overview</th></tr>
<tr><td>Draw 2-D shapes using given dimensions and angles</td><td>G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.</td><td>• Can identify, visualise and describe properties of rectangles, triangles and regular polygons
• Can use knowledge of properties to draw 2-D shapes
• Can use a ruler to measure accurately within 1mm
• Can use a ruler to draw lines accurately within 2mm
• Can use a protractor to measure angles accurately within 1 degree
• Can use a protractor to draw angles accurately within 2 degrees
• Can construct a triangle given two sides and the included angle</td><td rowspan="5">*Compare and classify geometric shapes based on their properties and sizes
*Draw 2-D shapes using given dimensions and angles
*Find unknown angles in any triangles, quadrilaterals and regular polygons
*Recognise, describe and build simple 3-D shapes, including making nets
*Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
*Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
*Describe vertices of a shape on a full coordinates grid.
*Translate a shape and describe the new position on the coordinates grid.
*Reflect a shape and describe the new position on the coordinates grid.
*Application to SATs questions embedded into</td></tr>
<tr><td>Recognise, describe and build simple 3-D shapes, including making nets</td><td></td><td>• Identify, visualise and describe properties of 3-D solids
• Identify 3D shapes from their nets and explain why, including open and closed cubes
• Draw nets of 3-D shapes with given dimensions</td></tr>
<tr><td>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</td><td></td><td>• Can recognise the properties of isosceles, right angled, equilateral and scalene triangles
• Can recognise the properties of squares, rectangles, rhombuses, parallelograms, trapeziums and kites
• Can explain why a polygon is regular or irregular
• Can identify whether a triangle is isosceles from known angles and sides
• Can find unknown angles in all triangles, given one angle</td></tr>
<tr><td>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</td><td></td><td>• Can recognise that the circumference is the distance around a circle
• Can explain that the radius is the distance from the centre to the circumference
• Can explain that the diameter is 2x the radius
• Can use the formula $C=\pi d$ to work out the circumference of a circle</td></tr>
<tr><td>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</td><td></td><td>• Can estimate angles
• Can use a protractor to measure and draw angles on their own and in shapes
Can explain that:
• the angle sum of a triangle is 180°
• the angles on a straight line add to 180°</td></tr>
</table>

		• **the sum of angles around a point is 360°** • **Can recognise vertically opposite angles and know that they are equal** • **Can find missing angles in a variety of contexts**	each unit of work at the appropriate stage of an objective
Describe positions on the full coordinate grid (all four quadrants)		• **Can draw an axis for the four quadrants with equal spacing and negative numbers.** • **Can describe the vertices of a shape in all four quadrants** • **Can use the properties of a shape to complete the vertices of the shape.**	
Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.		• **Can draw a shape after a reflection of a simple shape in two mirror lines.** • **Can draw a shape after a shape has been translated across the four quadrants.**	

Block 8			
Measure			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	**NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).** NPV–2 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.	• Can recall approximate conversions and is able to tell if an answer is sensible. • Can use decimal notation in a variety of formats to solve a problem.	*Establish common conversions of measure e.g. 1000ml = litre *Examine the relationship between a whole litre and a tenth of a litre. Continue to 3d.p. *Represent the conversions of measure on a numberline showing the relationship between a whole litre/ km/kg and the tenths/hundredths and thousandths of a measure. *Solve problems involving conversion of measure from larger to smaller and smaller to larger. *Consider the conversion of time. *Recap on perimeters of a shape. *Find perimeters of regular and irregular shapes. Including conversion of measure in the perimeters. *Find missing values of a perimeter of a shape.

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		• Can explain the relationship between conversions
		• Can make estimates based on approximate conversions.
		  ○ **1 litre is approximately 2 pints (more accurately, 1 ¾ pints)**
		  ○ **4.5 litres is approximately 1**	

unit, and vice versa, using decimal notation to up to three decimal places	**NPV–3 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.** **NPV–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.**	**gallon or 8 pints** ○ **1 kilogram is approximately 2 lb (more accurately, 2.2 lb)** ○ **30 grams is approximately 1 oz** ○ **8 kilometres is approximately 5 miles**	*Recap on how to find the area of a shape. *Find areas of rectangles and compound shapes. Including conversion of measure. *Find missing lengths of a shape if given the area. *Calculate the area of parallelograms *Calculate the area of triangles *Find missing lengths of a shape if given the area. *Recap on how to find the volume of a shape. *Find volumes of regular shapes. *Find volumes of irregular shapes. Including conversion of measure. *Find missing values of a shape if given the volume. *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Convert between miles and kilometres		• Can use the conversion of miles to Km to apply to other facts.	
Recognise that shapes with the same areas can have different perimeters and vice versa		• Can measure and calculate the perimeter and area of composite rectilinear shapes • Can calculate the perimeters of compound shapes that can be split into rectangles. • Can identify shapes that have the same area but have different perimeters	
Recognise when it is possible to use formulae for area and volume of shapes		• Understands when to use a formula to find the area of a shape. • Understands when to use the formula to find the volume of a shape.	
Calculate the area of parallelograms and triangles		• Can calculate the area of right-angled triangles using their knowledge of a square • Can generalise how to find the area of a triangle • Can calculate the area of a parallelogram using their knowledge of squares and triangles.	

Block 9			
Statistics			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning** **Detailed in Planning Overview**
Interpret and construct pie charts and line graphs and use these to solve problems	**NPV–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.**	• **Can use knowledge of fractions and percentages to interpret pie charts** • **Can construct a simple pie chart using common fractions** • **Can interpret a line graph when the answer lies between two given intervals** • **Can interpret a line graph that represents a conversion e.g. miles/kilometres**	Assess children's knowledge of Bar chart, line graphs and tables. Construct line graphs that represent a relationship between the two axis Complete line graphs based on given information. Interpret line graphs where the answer is on a given point Interpret line graphs where the answer lies between given points. Construct simple pie charts using common fractions Use knowledge of common fractions and percentages to construct pie charts Interpret pie charts using common fractions and percentages Calculate the mean of a set of numbers Consider when it is appropriate to calculate the mean of a set of numbers. *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Calculate and interpret the mean as an average.		• **Can calculate the mean of a set of numbers** • **Understands that the mean is an average and understands when it is appropriate to find the mean of a set of data**	

Block 10			
Algebra			
Substantive Knowledge **National Curriculum**	**Ready to Progress**	**Key Performance Indicators**	**Sequence of learning Detailed in Planning Overview**
Use simple formulae	AS/MD–1 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	• Understands that a value can be replaced by a number or a symbol • Can solve missing box calculations by using inverse. • Can use formulae for other areas of learning e.g. perimeter and measure • Can substitute values into a formula to find an answer. • Can show a good understanding of the equals sign as a balancing symbol	*Use simple formulae *Express missing number problems algebraically *Generate and describe linear number sequences *Find pairs of numbers that satisfy an equation with two unknowns *Enumerate possibilities of combinations of two variables *Application to SATs questions embedded into each unit of work at the appropriate stage of an objective
Generate and describe linear number sequences		• Can create a number sequence given a rule to follow. • Understands a linear equation can be recursive, i.e. one number in the sequence is generated from the preceding number *e.g. by adding 3 to the preceding number* • Understands a linear equation can be ordinal, i.e. the position of the number in the sequence generates the number *e.g. by multiplying the position by 3, and then subtracting 2*	
Express missing number problems algebraically		• Can use symbols to express missing number problems • Can find values that satisfy the equation and make it a true statement. • Understands the associative law and can apply it to missing number problems • Understands the distributive law and can apply it to missing number problems	
Find pairs of numbers that satisfy an equation with two unknowns	**AS/MD–4 Solve problems with 2 unknowns.**	• Can substitute numbers into unknowns to find a given value where there are limited answers.	
Enumerate possibilities of combinations of two variables		• Can identify different variables and consider the impact on one when one changes *e.g. list all the combinations of boys and girls in a class where there are twice as many*	

		boys as girls and between 25 & 35 children in the class altogether.	

Block 11
Number, Geometry and Substantial Problem Solving Following on from National Assessments in May, teachers will assess children's understanding against all Ready to Progress statements and plan to cover any areas that need further consolidation. Additional projects will be explored to allow the children to explore the purpose of mathematics through open-ended investigations. Theme Park Maths, Can the Commonwealth Games/Olympics/World Championships/FIFA World Cup/Rugby World Cup happen without Mathematics?. Children will tackle open-ended problem solving and further develop their understanding at Greater Depth as appropriate using activities from the First4Maths Digging Deeper books and nRich.