Curriculum Map for Year 3 2018-2019

WITH FLUENCY, REASONING, PROBLEM SOLVING

Autumn Term 14 weeks 6 + 8		Spring Term 12 weeks 6 + 6		Summer Term 12 weeks 5 + 7	
2 weeks	Number and place value	2 weeks	Number and place value	2 weeks	Number and place value
4 weeks	Additive thinking – mental methods secure Calculating + and -	2 weeks	Calculating + and -	2 weeks	Calculating + and -
		1 week	Calculating x and /	1 week	Geometry – Properties of shape
HALF TERM		HALF TERM		HALF TERM	
1 week	Geometry - Angles	1 week	Calculating x and /	1 week	Geometry – Properties of shape
				2 weeks	Calculating x and /
2 weeks	Fractions	2 weeks	Fractions	1 week	Measure
3 weeks	Calculating x and /	1 week	Statistics	2 weeks	Fractions
2 weeks	Measure – Measure and Time	2 weeks	Measure – Measure and Time	1 week	Statistics

AUTUMN TERM

Week	Objective	Additional information and guidance
Aut 1 **1** **2**	**Number and Place Value** ·count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number ·recognise the place value of each digit in a three-digit number (hundreds, tens, ones) ·compare and order numbers up to 1000 ·identify, represent and estimate numbers using different representations ·read and write numbers up to 1000 in numerals and in words ·solve number problems and practical problems involving these ideas. Halving (this supports number line work by estimating where half way is)	Y2 review: count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward Y2 review: recognise the place value of each digit in a two-digit number (tens, ones) ·recognise the place value of each digit in a three-digit number (hundreds, tens, ones) – the significance of the position of each digit to its value / size Partitioning is very important here! Partition in different ways and using varied and increasingly complex problems (for example, 146 = 100 + 40 and 6, 146 = 130 + 16). Revise teens numbers as ten and ones. Use Numicon, Dienes and then place value counters. How many ones in 80? How many tens in 800? ·compare and order numbers up to 1000 Placing on a number line and finding nearest multiples of 10, 100 etc. Beginning rounding and estimating. Explore the idea of = as equivalence and balance using empty box partitions. Use Numicon to support concepts – match activities in Numicon guide to objectives Lots of step counting and chanting Range of contexts Use Testbase for ideas for different formats Lots of games with dice, counters, number cards etc https://www.ncetm.org.uk/resources/42469

Year 3 Curriculum Map

| Aut 1
3
4
5 | **Addition and Subtraction**
- mental strategies for additive understanding

·add and subtract numbers mentally, including:
a three-digit number and ones
a three-digit number and tens
a three-digit number and hundreds
·add and subtract numbers with up to three digits
·estimate the answer to a calculation and use inverse operations to check answers
·solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Play games such as Shall I risk it? Totality and Don't roll a 6!
Find rules and missing numbers in additive sequences. | KS1 review: mental addition strategies without counting on! Calculate don't count:
-Quick adds e.g. 20 + 7 then 23 + 6 'because I know 3 + 6 = 9'
-Partitioning single digit numbers in different ways to bridge 10 e.g. 27 + 5 = 27 + 3 + 2
- Add multiples of 10 and nearly numbers like 19 by spider counting and adjusting.
-Adding strings of numbers by making bonds or finding doubles. Reinforce law of commutativity for + so we don't have to do it from left to right!
* see Camden Think Piece – Moving into KS2 Keeping All Children On Board*
Go through the Big Nine skills and make sure secure. Some children will need regular revision of these throughout the year – use starters and games

Chn should be aware of how to use column subtraction by end of year – addition and subtraction in each term so only columnar when ready – stick to number lines until then
Add and subtract numbers mentally (take away not find the difference), with and without bridging including:
a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds
Write calculations horizontally and tell children to assess whether mental methods will be quick and efficient.
Solve word problems that require mental addition and subtraction using strategies taught.
Use base 10, place value counters. Explore the different strategies. Calculate don't count.
Model explicitly!

Add three digit numbers using expanded then compact columnar addition
Use base 10, then place value counters and show expanded and compact next to each other to see links.
Solve word problems that require written addition.
Estimate answers first using rounding and check with the inverse.

Subtract using informal mental methods – finding the difference
Subtraction –counting on number line:
First jump to next multiple of 10, then jumps in multiples of 10, then from multiple of 10 to units.
Begin slowly with the concept of difference. E.g. which numbers have a difference of 1, 2, 5 or 10?
Use Numicon to show 'difference'
Find the difference on a number line by counting up. NB numbers should not be far apart or lend themselves better to 'take away'
Solve word problems that require 'find the difference'.
Estimate answers first using rounding and check with the inverse.

Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
Write calculations in different ways e.g. 23 = ? + 12 ; 43 + 25 = ? – 8; and 12 + 15 < ? – 2
Use bar models to show whole part-part inverse relationships.

https://www.ncetm.org.uk/resources/42536 |

Year 3 Curriculum Map

Aut 1 6	**Geometry - Angles** ·recognise angles as a property of shape or a description of a turn ·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	Ensure chn are using and applying their knowledge – use Testbase for ideas for question formats and Nrich for investigations / activities that extend thinking. Backtrack as necessary for knowledge and understanding of properties of 2D and 3D shapes https://www.ncetm.org.uk/resources/42835
	HALF TERM	
Aut 2 1 2	**Fractions** Review from Year 2: Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line. count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 ·recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators ·recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators ·recognise and show, using diagrams, equivalent fractions with small denominators ·add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] ·compare and order unit fractions with the same denominator ·solve problems that involve all of the above .	Year 2 review: Finding equal pieces and recognising what is ½ what is ¼ etc. Explore equal and unequal pieces. Find fractions of shapes linking to equivalence e.g. If you have 3/6 shaded on a shape, this is the same as ½ Explore the idea that fractional pieces must have the same area but don't need to be congruent. Compare and order unit fractions, and fractions with the same denominators Review from Year 2: Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line. Work on understanding what the denominator is…. Equal parts of a whole. Work in the ½ ¼ 1/8 family. Consider 1/8 and how it is smaller than ¼. Try paper folding and building a fraction wall for this family. Work on understanding what the numerator is. Look at equivalence. Add and subtract fractions in the same family. Use fraction cards. https://www.ncetm.org.uk/resources/43609 Solve pictorial problems and very simple word problems involving fractions.

Year 3 Curriculum Map

| Aut 2 3 4 5 | **Multiplication and Division** X2, x4, x5, x8, x10

Recall and use multiplication and division facts for the 4x table and 8x table

Multiply two-digit numbers by one-digit numbers, using mental and progressing to formal written methods

Step counting in multiples of 4 and 8
Chanting 2s, 5s and 10s.

Find rules and missing numbers in sequences. | KS1 review: doubling and halving by partitioning
Connect 2, 4 and 8 times tables by doubling
Recall and use multiplication and division facts for the 4x table
Through doubling, they connect the 2 and 4 multiplication tables.
Make links with doubling and doubling again. Make links with properties of even numbers.
Investigate patterns with multiples of 4,
Create arrays for multiples of 4… show inverse relationship and write X and division facts. Use bar models to show the same relationships. Use Cuisenaire rods to show 'how many 4s make 24'.
Show counting in groups of 4 on a number line.
Solve word problems that relate to multiplying by 4 (additive and scaling problems)
Recall and use multiplication and division facts for the 8x table.
Make links with doubling and doubling again. Make links with properties of even numbers.
Investigate patterns with multiples of 8,
Create arrays for multiples of 8… show inverse relationship and write X and division facts. Use bar models to show the same relationships. Use Cuisenaire rods to show 'how many 8s make 24' and show alongside counting in groups of 8 on a number line.
Investigate remainders using arrays or number lines. E.g. 33 ÷ 8…
Solve word problems that relate to multiplying by 8(additive and scaling problems)

Multiply two-digit numbers by one-digit numbers, using mental and progressing to formal written methods
For example, calculate 14 X 4 by…
•   Doubling 14 and doubling again
•   14 X 4 = (10 X 4) + (4 X 4)
•   Showing as an array and then an open array (no dots!) as a stepping stone to grid method.

Include scaling contexts, (for example, four times as high, eight times as long etc.)
Include correspondence problems in which m objects are connected to n objects (for example, 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children).

https://www.ncetm.org.uk/resources/42591 |

Year 3 Curriculum Map

| Aut 2 6 | **Measures** ·measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) ·measure the perimeter of simple 2-D shapes **Time** ·tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks ·estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight ·know the number of seconds in a minute and the number of days in each month, year and leap year ·compare durations of events [for example to calculate the time taken by particular events or tasks].

·add and subtract amounts of money to give change, using both £ and p in practical contexts (can be covered in problem solving then revisited in measure again)

Doubling

Multiplying by 10 (beginning of conversions) | *will not cover all measure units – maybe one week on measures and one week on time, then both to be repeated in the Spring Term* Pupils continue to become fluent in recognising the value of coins, by adding and subtracting amounts, including mixed units, and giving change using manageable amounts. They record £ and p separately. The decimal recording of money is introduced formally in year 4. Some practical work initially. Chn really need to know how different units of measure work together e.g. cm and m. Combining calculating and number skills with knowledge about measure – problems in the context of measure. https://www.ncetm.org.uk/resources/42725

Pupils use both analogue and digital 12-hour clocks and record their times. In this way they become fluent in and prepared for using digital 24-hour clocks in year 4. Some practical work initially.

https://www.ncetm.org.uk/resources/42725

GARDEN |

SPRING TERM

Week	Objective	
Spr 1 1 2	**Number and Place Value** ·count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number ·recognise the place value of each digit in a three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 ·identify, represent and estimate numbers using different representations ·read and write numbers up to 1000 in numerals and in words ·solve number problems and practical problems involving these ideas. Halving (this supports number line work by estimating where half way is)	Y2 review: count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward Y2 review: recognise the place value of each digit in a two-digit number (tens, ones) ·recognise the place value of each digit in a three-digit number (hundreds, tens, ones) – the significance of the position of each digit to its value / size Partitioning is very important here! Partition in different ways and using varied and increasingly complex problems (for example, 146 = 100 + 40 and 6, 146 = 130 + 16). Revise teens numbers as ten and ones. Use Numicon, Dienes and then place value counters. How many ones in 80? How many tens in 800? ·compare and order numbers up to 1000 Placing on a number line and finding nearest multiples of 10, 100 etc. Beginning rounding and estimating. Explore the idea of = as equivalence and balance using empty box partitions. Use Numicon to support concepts – match activities in Numicon guide to objectives Lots of step counting and chanting Range of contexts Use Testbase for ideas for different formats Lots of games with dice, counters, number cards etc https://www.ncetm.org.uk/resources/42469

Year 3 Curriculum Map

| Spr 1 3 4 | **Calculating Addition and Subtraction**
·add and subtract numbers mentally, including:
a three-digit number and ones
a three-digit number and tens
a three-digit number and hundreds
·add and subtract numbers with up to three digits
·estimate the answer to a calculation and use inverse operations to check answers
·solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100

Making and comparing numbers using digits cards

Find rules and missing numbers in additive sequences. (Not always horizontally… show sequences with circles and arrows between, for example.) | Add three digit numbers using expanded then compact columnar addition
Use base 10, then place value counters and show expanded and compact next to each other to see links.
Solve addition word problems. Estimate answers first using rounding.

Subtract three digit numbers using expanded then compact columnar subtraction
Partition use base 10 and then place value counters. Partition numbers in different ways as a precursor to columnar subtraction.
e.g. 124 = 100 + 20 + 4 or 100 + 10 + 14 etc. Explore these types of patterns.
Design calculations so they can't be done quickly mentally and use intelligent practice e.g. one exchange from tens to ones, then multiple exchanges, then what happens when there's a zero!
Use base 10 and then place value counters.
Solve subtraction word problems. Estimate answers first using rounding and check with the inverse.

Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. Write calculations in different ways e.g. 23 = ? + 12 ; 43 + 25 = ? − 8; and 12 + 15 < ? − 2
Use bar models to show whole part-part inverse relationships.

https://www.ncetm.org.uk/resources/42536 |
| Spr 1 5 | **Calculating Multiplication and Division**
X2 x3 x4 x5 x8 x10
·recall and use multiplication and division facts for the 2, 3, 4 and 8 multiplication tables
· multiply two-digit numbers by one-digit numbers, using mental and progressing to formal written methods | Revise use of 2 and 4 and 8 multiplication tables from Autumn.
Recall and use multiplication and division facts for the 3x table
Make links with doubling and doubling again. Make links with properties of even numbers.
Investigate patterns with multiples of 3,
Create arrays for multiples of 3… show inverse relationship and write X and division facts. Use bar models to show the same relationships. Use Cuisenaire rods to show 'how many 3s make 24'.
Show counting in groups of 3 on a number line.
Solve word problems that relate to multiplying and dividing by 3 (additive, scaling and grouping problems) |

	·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. Chanting 3 X table. Find rules and missing numbers in multiplicative/doubling or halving sequences. (Not always horizontally… show sequences with circles and arrows between, for example.)	Multiply two-digit numbers by one-digit numbers, using mental and progressing to formal written methods 14 X 3… • 14 X 3 = (10 X 3) + (4 X 3) • Show as an array and then an open array (no dots!) as a stepping stone to grid method. ***Divide mentally (progressing to formal written method)*** Use a number line to solve problems such as 123 ÷ 3 by jumping forward in groups of 10 X 3 to 120 (or using 40 X 3) then showing one more group of 3 so the answer is 41. Solve word problems which can be solved using ÷. Include scaling contexts, (for example, four times as high, eight times as long etc.) Include correspondence problems in which m objects are connected to n objects (for example, 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children). https://www.ncetm.org.uk/resources/42591
		HALF TERM
Spr 2 1	**Calculating Multiplication and Division** X2 x3 x4 x5 x8 x10 ·recall and use multiplication and division facts for the 2, 3, 4 and 8 multiplication tables · multiply two-digit numbers by one-digit numbers, using mental and progressing to formal written methods ·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. Chanting 3 X table. Find rules and missing numbers in multiplicative/doubling or halving sequences. (Not always horizontally… show sequences with circles and arrows between, for example.)	Revise use of 2 and 4 and 8 multiplication tables from Autumn. Recall and use multiplication and division facts for the 3x table Make links with doubling and doubling again. Make links with properties of even numbers. Investigate patterns with multiples of 3, Create arrays for multiples of 3… show inverse relationship and write X and division facts. Use bar models to show the same relationships. Use Cuisenaire rods to show 'how many 3s make 24'. Show counting in groups of 3 on a number line. Solve word problems that relate to multiplying and dividing by 3 (additive, scaling and grouping problems) Multiply two-digit numbers by one-digit numbers, using mental and progressing to formal written methods 14 X 3… • 14 X 3 = (10 X 3) + (4 X 3) • Show as an array and then an open array (no dots!) as a stepping stone to grid method. ***Divide mentally (progressing to formal written method)*** Use a number line to solve problems such as 123 ÷ 3 by jumping forward in groups of 10 X 3 to 120 (or using 40 X 3) then showing one more group of 3 so the answer is 41. Solve word problems which can be solved using ÷. Include scaling contexts, (for example, four times as high, eight times as long etc.)

		Include correspondence problems in which m objects are connected to n objects (for example, 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children). https://www.ncetm.org.uk/resources/42591
Spr 2 **2** **3**	**Fractions** ·count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 ·recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators ·recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators ·recognise and show, using diagrams, equivalent fractions with small denominators ·add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] ·compare and order unit fractions with the same denominator ·solve problems that involve all of the above	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Find 1/10 and then 2/10 etc. of numbers by dividing by 10. Link back to work on 3 x table and 6 x table… find 1/3 or 2/3 of amounts etc. Be sure to find unit fractions first and show pictorially with bar models. Don't just teach a trick of dividing by the denominator and multiplying by the numerator! Relate to real life contexts in word problems.

Spr 2 4	**Statistics** ·interpret and present data using bar charts, 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. Counting in 10s 5s 20s 25s Chant 4 and 8 X tables.	Be able to interpret data from tables, pictograms and bar charts. Use range of scales eg 2s, 5s, 10s Use calculating and problem solving skills to interpret data. Bars on a bar graph are like a vertical number line – finding the difference, how many more. https://www.ncetm.org.uk/resources/42956 *GARDEN*
Spr 2 5 6	**Measures – Measures and Time** ·tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks ·estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight ·know the number of seconds in a minute and the number of days in each month, year and leap year ·compare durations of events [for example to calculate the time taken by particular events or tasks]. ·measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) ·measure the perimeter of simple 2-D shapes ·add and subtract amounts of money to give change, using both £ and p in practical contexts Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	Pupils use both analogue and digital 12-hour clocks and record their times. In this way they become fluent in and prepared for using digital 24-hour clocks in year 4. Some practical work initially. https://www.ncetm.org.uk/resources/42725 Pupils continue to become fluent in recognising the value of coins, by adding and subtracting amounts, including mixed units, and giving change using manageable amounts. They record £ and p separately. The decimal recording of money is introduced formally in year 4. Some practical work initially. Chn really need to know how different units of measure work together e.g. cm and m. Combining calculating and number skills with knowledge about measure – problems in the context of measure. https://www.ncetm.org.uk/resources/42725

Year 3 Curriculum Map

	Count in 5s and 15s	

Summer Term

Week	Objective	Non statutory Guidance	Additional information
Sum 1 **1** **2**	**Number and Place Value** ·count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number ·recognise the place value of each digit in a three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 ·identify, represent and estimate numbers using different representations ·read and write numbers up to 1000 in numerals and in words ·solve number problems and practical problems involving these ideas. Halving (this supports number line work by estimating where half way is)	Y2 review: count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward Y2 review: recognise the place value of each digit in a two-digit number (tens, ones) ·recognise the place value of each digit in a three-digit number (hundreds, tens, ones) – the significance of the position of each digit to its value / size Partitioning is very important here! Partition in different ways and using varied and increasingly complex problems (for example, 146 = 100 + 40 and 6, 146 = 130 + 16). Revise teens numbers as ten and ones. Use Numicon, Dienes and then place value counters. How many ones in 80? How many tens in 800? ·compare and order numbers up to 1000 Placing on a number line and finding nearest multiples of 10, 100 etc. Beginning rounding and estimating. Explore the idea of = as equivalence and balance using empty box partitions. Use Numicon to support concepts – match activities in Numicon guide to objectives Lots of step counting and chanting Range of contexts Use Testbase for ideas for different formats Lots of games with dice, counters, number cards etc https://www.ncetm.org.uk/resources/42469	

Sum 1 4 5	**Calculating Addition and Subtraction** ·add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds ·add and subtract numbers with up to three digits ·estimate the answer to a calculation and use inverse operations to check answers ·solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Refer to Calculations Policy to see progression Use Numicon to relate facts and concepts to visual images. Ensure all chn secure in - Adding 10 to a number, adding multiples of 10 to a number - Adding units to a multiple of 10 without counting - Using number bonds to get from e.g. 36 to 40 without counting Subtraction –counting on number line: First jump to next multiple of 10, then jumps in multiples of 10, then from multiple of 10 to units. Addition – start with partitioning and/or number line, moving towards column Link with mental strategies. Link addition to subtraction by showing inverse and highlighting use of inverse to check. Don't limit to just 'word problems' or context problems: use Testbase for a wider range of formats, such as missing number problems, puzzles etc. https://www.ncetm.org.uk/resources/42536 Chn should be aware of how to use column subtraction by end of year. Add and subtract three digit numbers using expanded then compact columnar addition Use word problems and different contexts to solve problems. Link with mass and capacity: Measure, compare, add and subtract mass (kg/g); Be sure to use calculations which wouldn't be solved more efficiently mentally. Estimate answers first using rounding and check with the inverse. Add and subtract amounts of money to give change, using both £ and p in practical contexts. Find the change from £1, £5 etc. where columnar would not be as efficient. Ensure word problems and real life contexts are used to explore addition and subtraction of money.
Sum 1 5 Sum 2 1	**Geometry – Properties of Shape** ·draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them ·recognise angles as a property of shape or a description of a turn ·identify right angles, recognise that two right angles make a half-turn, three make three	Extend to symmetrical and non-symmetrical polygons and polyhedra. Ensure chn are using and applying their knowledge – use Testbase for ideas for question formats and Nrich for investigations / activities that extend thinking. Backtrack as necessary for knowledge and understanding of properties of 2D and 3D shapes https://www.ncetm.org.uk/resources/42835

	quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle ·identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	
	HALF TERM	
Sum 2 1	**Geometry – Properties of Shape** ·draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them ·recognise angles as a property of shape or a description of a turn ·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 ·identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	Extend to symmetrical and non-symmetrical polygons and polyhedra. Ensure chn are using and applying their knowledge – use Testbase for ideas for question formats and Nrich for investigations / activities that extend thinking. Backtrack as necessary for knowledge and understanding of properties of 2D and 3D shapes https://www.ncetm.org.uk/resources/42835
Sum 2 2 3	**Multiplication and Division** X2 x3 x4 x5 x8 x10 ·recall and use multiplication and division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables ·write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods ·solve problems, including missing number problems, involving multiplication and division, including positive integer scaling	*Solve problems, including missing number problems, involving multiplication and division* Use known times table facts but keep ensuring understanding is there, referring to arrays or bar models to show inverse relationships. Use times table facts to find divisions and remainders. Find fractions of numbers using division facts Use word problems relating to mental multiplication and division. *Solve scaling problems (include word problems)* What is twice as long as 17cm? What is 3 times as long? If we know 3 X 6 = 18, what is 30 X 6 (use procedural variation to explore patterns) *Transition to more formal methods of multiplication* The big idea here is partitioning and recombining which we use when doubling or when doing more complex HTU X TU etc. Show TU X U using 3 as multiplier because X4 could be done by doubling and doubling! Some children may be able to do HTU X U using grid method. *Divide mentally (progressing to formal written method)*

	problems and correspondence problems in which n objects are connected to m objects.	Use a number line to solve problems such as 123 ÷ 3 by jumping forward in groups of 10 X 3 to 120 (or using 40 X 3) then showing one more group of 3 so the answer is 41. Solve word problems which can be solved using ÷.
Sum 2 4	**Measures** ·measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) ·measure the perimeter of simple 2-D shapes	Some practical work initially. Chn really need to know how different units of measure work together e.g. cm and m. Combining calculating and number skills with knowledge about measure – problems in the context of measure. https://www.ncetm.org.uk/resources/42725 *GARDEN*
Sum 2 5 6	**Fractions** ·count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 ·recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators ·recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators ·recognise and show, using diagrams, equivalent fractions with small denominators ·add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] ·compare and order unit fractions with the same denominator ·solve problems that involve all of the above	Counting up and down in tenths, link to number line, fractions as numbers. Recognise that tenths arise from dividing an object into 10 equal parts. Use fraction cards representing the tenth family i.e. fifths, tenths and twentieths. Recognise and show, using diagrams, equivalent fractions with small denominators Add and subtract fractions with the same denominator within one whole Use fraction cards to add and subtract fractions within one 'family' of fractions… perhaps revisit the tenth family. Some children will be able to add fractions with different denominators within the same family.

Sum 2	Statistics	Be able to interpret data from tables, pictograms and bar charts.
7	·interpret and present data using bar charts, 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.	Use variety of scales 1s, 2s, 5s, 10s Use calculating and problem solving skills to interpret data. Bars on a bar graph are like a vertical number line – finding the difference, how many more. https://www.ncetm.org.uk/resources/42956 *GARDEN*