Reigate Park Primary Academy

Calculation Policy

September 2020

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Progression in Mental Addition Strategies

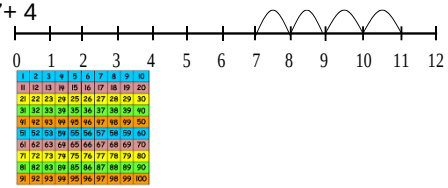
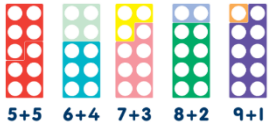
EYFS	Y1	Y2
• Count forwards and backwards • Recall number bonds to 10 • Understand the value of a number	• Know addition can be carried out in any order (commutative) • Add 1 and 2 digit numbers to 20, including 0 • Know number bonds to 20 • Know doubles of numbers to 1 and include double 10 • Add 10 to a 1-digit number • Identify 1 more than a given number	• Know addition is the inverse of subtraction • Add numbers mentally including: i. A 2-digit number and ones ii. A multiple of 10 to a 2-digit number iii. Two 2-digit numbers iv. Three 1-digit numbers • Use the knowledge of inverse to check calculations and solve missing number problems • Use the knowledge of number bonds to 10 to calculate number bonds to 100 • Count on in 10s from any given number e.g. 19,29, 39 etc.
Y3	**Y4**	**Y5**
• Add numbers mentally including i. A 3-digit number and a 1-digit number ii. A 3-digit number and multiples of 10 iii. A 3-digit number and multiples of 100 • Estimate the answer to a calculation and use inverse operations to check the answer • Know number pairs that total 1000 (multiples of 100) • Calculate 10 or 100 more/less than any given number	• Add numbers mentally including i.A 4-digit number to multiples of 1000 • Use knowledge of doubles to derive relate4d facts e.g. 15+16=31 because 15+15=30 and 30+1=31 • Know number pairs that total 1000 (multiples of 10) • Estimate the answer to a calculation and use inverse operations to check the answer	• Add numbers mentally with increasingly large numbers e.g. 10,162+2300= • Mentally add tenths e.g. 0.2+0.6 and 1-digit whole numbers and tenths e.g. 8+0.3 • Use number bonds to 100 knowledge to calculate complements to one using hundredths e.g. 0.83+? =1 • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
Y6		
• Add numbers mentally with increasingly large numbers e.g. 10,162+2300= • Add decimals mentally – up to 2d.p. • Use estimating to check answers to calculations and determine, in the context of a problem, levels of accuracy		

ADDITION

Year	Development Matters	Strategies	Calculation Layout
EYFS	**40- 60 months** Estimates how many objects they can see and checks by counting them. •Uses the language of 'more' and 'fewer' to compare two sets of objects. •Finds the total number of items in two groups by counting all of them. •Says the number that is one more than a given number. •Finds one more or one less from a group of up to five objects, then ten objects. • In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. •Records, using marks that they can interpret and explain. •Begins to identify own mathematical problems based on own interests and fascinations. **Early Learning Goal** Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.	  Use cubes/counters and bead strings to add two numbers together as a group. Start with the larger number on the bead string and then count on the smaller number 1 by 1 to find the answer.  Draw pictures to add two numbers together. Draw a circle and all pictures to group.	There are no expectations for children in EYFS to record addition formally.
VOCABULARY: More, less, fewer, altogether, add, largest, smallest, count on, make			

EYFS TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Addition by Combining Sets of Objects:	**Addition by Counting on from the Largest Number using Objects**		
LI: To be able to add using objects – count all Context: Adding single digit numbers To Be Successful Remember to: 1. Read the number sentence 2. Circle the largest number 3. Choose the right amount of objects for the largest number 4. Collect the right amount of objects for the smallest number 5. Put all the objects together 6. Count all the objects 7. Know that the number I finish with is the answer 8. Check the answer is bigger than the number I started with 9. Write the answer in a number sentence	LI: To add using objects – counting on from the largest number Context: Adding single digit numbers TBSRT: 1. Read the number sentence 2. Circle the largest number 3. Collect the right amount of objects for the smallest number 4. Put the biggest number in my head 5. Count on the smallest number in 1s 6. Know that the number I finish with is the answer 7. Check the answer is bigger than the number I started with 8. Write the answer in a number sentence		

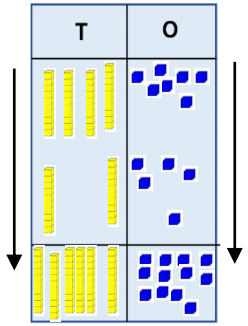
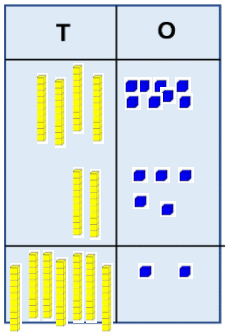
Year	National Curriculum	Strategies	Calculation Layout
Y1	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs Add one-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9 Vocabulary add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, digit	Counting and Combining sets of Objects. Combining two sets of objects (aggregation) which will progress onto adding on to a set (augmentation).  Understanding of counting on with a number line.  Understanding of counting on with a number line (supported by models and images). Counting on above the number line. 7+ 4  Understanding of counting on with a 100 square (supported by models and images) Numicon:  The use of other images is also valuable e.g. Numicon, bundles of straws, apparatus, multi-link cubes, bead strings, place value counters and hundred square.	Calculations should be written either side of the equality sign so that the sign is not just interpreted as 'the answer'. 2 = 1 + 1 2 + 3 = 4 + 1 Missing numbers need to be placed in all possible places. 3 + 4 = □ □ = 3 + 4 3 + □ = 7 7 = □ + 4

VOCABULARY: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, digit

Year 1 TBSRT

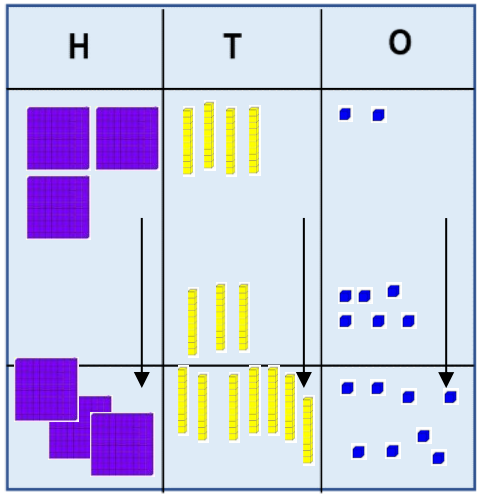
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Addition by Combining Sets of Objects:	**Addition by Counting on from the Largest Number using Objects**	**Addition by using a prepared Number line**	**Addition by using a 100 square**
LI: To be able to add using objects – count all Context: Adding single digit numbers To Be Successful Remember to: 1. Read the number sentence 2. Circle the largest number 3. Choose the right amount of objects for the largest number 4. Collect the right amount of objects for the smallest number 5. Put all the objects together 6. Count all the objects 7. Know that the number I finish with is the answer 8. Check the answer is bigger than the number I started with 9. Write the answer in a number sentence	LI: To add using objects – counting on from the largest number Context: Adding single digit numbers TBSRT: 1. Read the number sentence 2. Circle the largest number 3. Collect the right amount of objects for the smallest number 4. Put the biggest number in my head 5. Count on the smallest number in 1s 6. Know that the number I finish with is the answer 7. Check the answer is bigger than the number I started with 8. Write the answer in a number sentence	LI: To be able to add using a prepared number line Context: Numbers up to 20 TBSRT: 1. Read the number sentence 2. Circle the biggest number in the number sentence 3. Find the biggest number on the number line 4. Say how many 1s I need to add 5. Jump on the same amount of 1s – the first jump is important 6. Say which number I land on – this is my answer 7. Check to make sure my answer makes sense and is bigger than the number I started with 8. Write the answer in a number sentence	LI: To be able to add using a 100 square Context: Totals up to 100 TBSRT: 1. Read the number sentence 2. Circle the biggest number 3. Add on the 1s 4. Circle and say the number I land on – this is my answer 5. Check to make sure my answer makes sense and is bigger than the number I started with 6. Write the answer in a number sentence

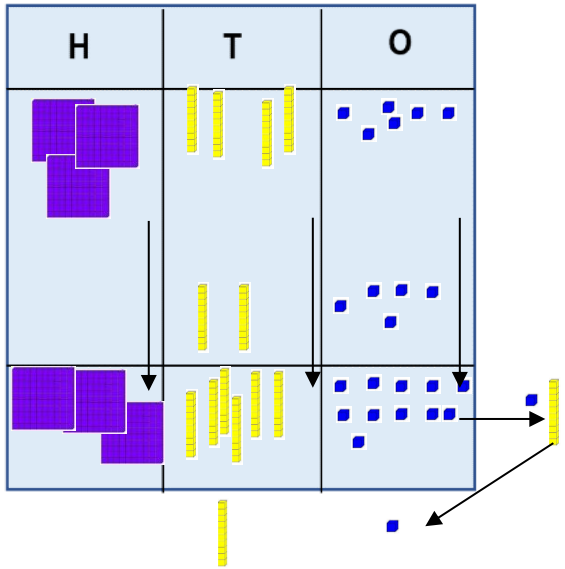
Year	National Curriculum	Strategies	Calculation Layout
Y2	Solve problems with addition using concrete objects and pictorial representations, including those involving numbers, quantities and measures Add numbers using concrete objects, pictorial representations, and mentally, including: - a 2-digit number and ones that lies within a tens boundary - a 2-digit number and ones that crosses a tens boundary - a 2-digit number and tens - two 2-digit numbers that lie within the tens boundary - two 2-digit numbers that crosses the tens boundary - two 2-digit numbers that crosses the hundreds boundary - three 1-digit numbers Show that addition of two numbers can be done in any order (commutative) Recording addition in columns supports place value and prepares for formal written methods with larger number	Continue to use number lines to develop understanding of: Continue to use number lines to develop understanding of: i) counting on in tens and ones ii) partitioning and bridging through 10 Continue to use 100 squares to develop understanding of i) counting on in tens and ones Towards a Written Method Use a place value grid to partition in different ways and recombine, this will include:	

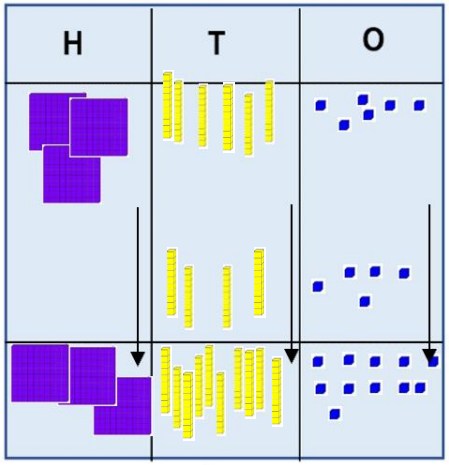
2	As for year 1, Calculations should be written either side of the equality sign and missing numbers need to be placed in all possible places. 47 + 25 = 72	<u>Towards a Written Method</u> Partitioning in different ways and recombine. 47+25   (This may be used as an interim step) The use of other images is also valuable e.g. Numicon, bundles of straws, apparatus, multi-link cubes, bead strings, place value counters, number line and hundred square.	Recorded As: 47 + 25 = T O 40 + 20 = 6 0 7 + 5 = 1 2 7 2
VOCABULARY: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, digit, sum, tens, units, partition, addition, column, tens boundary, exchange, inverse			

Year 2 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Addition by using a 100 square	**Addition by using a number line**	**Addition by Partitioning**	
LI: To be able to add using a 100 square Context: Totals up to 100 TBSRT: 1. Read the number sentence 2. Circle the biggest number 3. Add on the 10s by moving down a column 4. Add on the 1s by moving along a row 5. Circle and say the number I land on – this is my answer 6. Check to make sure my answer makes sense and is bigger than the number I started with 7. Write the answer in a number sentence	LI: To be able to add using a number line (printed or self drawn) Context: 1/2/3-digit number to a 1/2/3 digit number TBSRT: 1. Circle the largest number 2. Partition the smallest number 3. Draw a straight line using a ruler 4. Put the largest number on the left hand side 5. Jump along the line using the partitioned number 6. Record the size of the jump on the top 7. Circle the answer 8. Check my answer to make sure it is sensible	LI: to be able to add using partitioning Context: 2/3-digit number to a 2/3-digit number TBSRT: 1. Read the number sentence 2. Write the column headers 3. Partition the numbers 4. Add the tens – record under the column headers 5. Add the ones – record under the column headers 6. Add both together to find the total 7. Check my answer to make sure it is sensible	

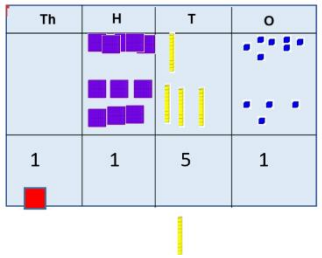
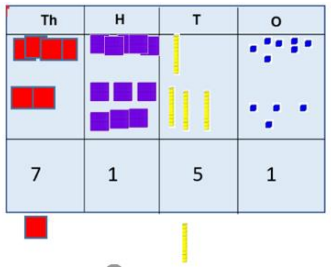
Year	National Curriculum	Strategies	Calculation Layout
3	Add and subtract numbers mentally, including: - A 3-digit and 1-digit number - A 3-digit number and multiples of 10 - A 3-digit number and multiples of 100 Know number pairs that total of 100 (multiples of 100) Calculate 10 or 100 more than a given number Add numbers with up to three digits using formal methods of columnar addition stages within this - A 3-digit number and 1s that lie within the tens boundary - A 3-digit number and TOs that lie within the tens boundary - A 3-digit number and TOs that cross the tens boundary - A 3-digit number and TOs that cross the hundreds boundary - A 3-digit number and TOs that cross the hundred and tens boundary 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	<u>Written methods</u> Introduce expanded column addition modelled with place value counters (Dienes could be used for those who need a less abstract representation). Addition not crossing 10s boundary 342 + 36  Repeat as above for addition not crossing 100s boundary	H T O 3 4 2 3 6 + 8 7 0 3 0 0 3 7 8 Progressing to H T O 3 4 2 3 6 + 3 7 8

		Develop children's understanding of the exchange between tens and ones. Introduced columnar method alongside the expanded method. Addition crossing the 10s boundary 346 + 25 = 371  Repeat as above for crossing the 100s boundary	H T O 3 4 6 2 5 + 1 1 6 0 3 0 0 3 7 1 Progressing to H T O 3 4 6 2 5 + 3 7 1 1

		Crossing the 10s and 100s boundary 366 + 45  Explicitly model: i) Exchange eleven 1s for one 10 and one 1 ii) Exchange eleven 10s for one 100 and one 10 Bar models can also be used to support the children's learning alongside other methods to complete calculations. The use of other images is also valuable: place value counters, place value grids, dienes, numicon, part-part whole model.	H T O 3 6 6 4 5 + 1 1 1 0 0 3 0 0 4 1 1 Progressing to: H T O 3 6 6 4 5 + 4 1 1 1 1
	VOCABULARY: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, digit, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds, hundreds boundary, increase, vertical, expanded, compact, columnar, exchange, inverse, thousands		

Year 3 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Addition by Partitioning	**Standard Written Method**		
LI: to be able to add using partitioning Context: 2/3-digit number to a 2/3-digit number TBSRT: 1. Read the number sentence 2. Write the column headers 3. Partition the numbers 4. Add the tens – record under the column headers 5. Add the ones – record under the column headers 6. Add both together to find the total 7. Check my answer to make sure it is sensible	LI: To be able to add using the standard written method Context: 2-digit to 2-digit, etc. TBSRT: 1. Read the number sentence 2. Write the column headers 3. Record the numbers in the columns 4. Add the ones – record under the column headers *5. Put carries under the next column* 6. Make sure to add the carries 7. Add the tens – record under the column headers *8. Put carries under the next column* 9. Make sure to add the carries 10. Check my answer to make sure it is reasonable		

Year	National Curriculum	Strategies	Calculation Layout
4	Add numbers with up to 4 digits using the formal written methods of columnar addition Estimate and use the inverse operations to check answers to a calculation Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why	Place value counters/Dienes should be used alongside columnar written methods to secure both conceptual understanding and procedural fluency. 17 + 634  Progress to numbers with 4 digits. 4517 + 2634  The use of other images is also valuable: place value counters, place value grids, dienes, numicon, part-part whole model, bar models.	T H T O 5 1 7 6 3 4 + 1 1 5 1 1 1 T H T O 4 5 1 7 2 6 3 4 + 7 1 5 1 1 1
VOCABULARY: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, digit, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds, hundreds boundary, increase, vertical, expanded, compact, columnar, exchange, inverse, thousands			

Year 4 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Standard Written Method			
LI: To be able to add using the standard written method Context: 2-digit to 2-digit, etc. TBSRT: 1. Read the number sentence 2. Write the column headers 3. Record the numbers in the columns 4. Add the ones – record under the column headers *5. Put carries under the next column* 6. Make sure to add the carries 7. Add the tens – record under the column headers *8. Put carries under the next column* 9. Make sure to add the carries 10. Check my answer to make sure it is reasonable			

Year	National Curriculum	Strategies	Calculation Layout
5	Children should be using rounding to estimate and inverse to check their answers. Add whole numbers with more than 4 digits, including using columnar addition Add decimals including a mix of whole numbers and decimals, and decimals with different numbers of decimal places Children should be using rounding to estimate and inverse to check their answers	Children will move on to the formal columnar method for larger whole numbers and decimal numbers. <u>Upper KS2</u> Begin to understand the order of operations – BODMAS. B = Brackets O = Orders (powers and square roots) DM = Division and Multiplication AS = Addition and Subtraction e.g. 50 + 15 ÷ 5 (÷ before +) 50 - 3 = 53	T 0 . t h 3 8 . 3 6 2 7 . 9 5 + 6 6 . 3 1 1 1 1
VOCABULARY: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, digit, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds, hundreds boundary, increase, vertical, expanded, compact, columnar, exchange, inverse, thousands, decimal places, decimal point, tenths, hundredths, thousandths			

Year 5 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Standard Written Method			
LI: To be able to add using the standard written method Context: 2-digit to 2-digit, etc. TBSRT: 1. Read the number sentence 2. Write the column headers 3. Record the numbers in the columns 4. Add the ones – record under the column headers *5. Put carries under the next column* 6. Make sure to add the carries 7. Add the tens – record under the column headers *8. Put carries under the next column* 9. Make sure to add the carries 10. Check my answer to make sure it is reasonable			

Year	National Curriculum	Strategies	Calculation Layout
6	Add whole numbers with more than 4 digits, including using columnar addition Children should be using rounding to estimate and inverse to check their answers. Children should be using rounding to estimate and inverse to check their answers	Practise formal columnar method. Teachers should ensure that pupils have the opportunity to apply their knowledge in a variety of contexts and problems (exploring cross curricular links) to deepen their understanding. <u>Upper KS2</u> Begin to understand the order of operations – BODMAS. B = Brackets O = Orders (powers and square roots) DM = Division and Multiplication AS = Addition and Subtraction e.g. 50 + 15 ÷ 5 (÷ before +) 50 - 3 = 53	T O . t h 3 8 . 3 6 2 7 . 9 5 + 6 6 . 3 1 1 1 1
VOCABULARY: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, digit, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds, hundreds boundary, increase, vertical, expanded, compact, columnar, exchange, inverse, thousands, decimal places, decimal point, tenths, hundredths, thousandths			

Year 6 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Standard Written Method			
LI: To be able to add using the standard written method Context: 2-digit to 2-digit, etc. TBSRT: 1. Read the number sentence 2. Write the column headers 3. Record the numbers in the columns 4. Add the ones – record under the column headers *5. Put carries under the next column* 6. Make sure to add the carries 7. Add the tens – record under the column headers *8. Put carries under the next column* 9. Make sure to add the carries 10 Check my answer to make sure it is reasonable			

Appendix – Addition

Key Stage 1

If children are struggling to grasp the concept of addition using place value counters look back at the policy for EYFS, including using pictorial representations and cubes if appropriate.

Check the children understand the value of each counter – How many 1's make a 10? Etc. Do not move onto crossing the tens boundary until children are secure with the value of each counter.

Key Stage 2

If children are struggling to grasp the concept of column addition using 3 digit numbers look back at policy for year 2,including pictorial representations of exchanging and place value counters. Ensure children understand the value of a hundred counter – How many 1's make a 100? How many 10's make a 100?

Check understanding before moving children onto 4 digit numbers – How many 1's make a 1000? How many 100's make a 1000?

UKS2 - When introducing adding decimals ensure children have an understanding of whole numbers and part of a number – begin with tenths, using place value counters to represent. How many tenths make 1? Then move onto hundredths. How many hundredths make 1? Which is bigger a tenth or a hundredth?

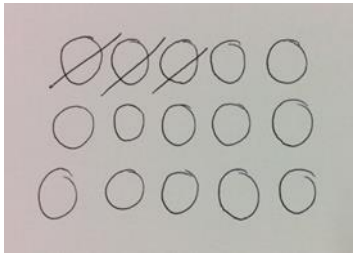
Use bar modelling to support children when answering word problems – What do I know? What do I need to know?

If children are still struggling to make progress please consult the Whole School Provision Map and apply strategies from Wave 1 and Wave 2, if the child is still not progressing please discuss your concerns with the SEN team.

Progression in Mental Subtraction Strategies

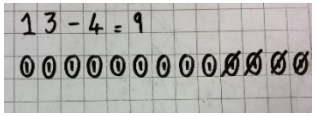
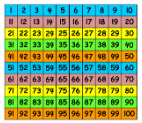
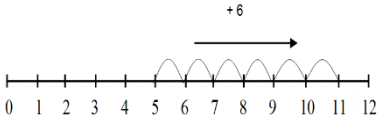
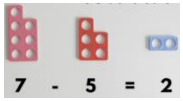
EYFS	Y1	Y2
• Count backwards using familiar number rhymes (e.g. 10 Green Bottles, 5 Fat Sausages) • Count backwards from different starting points • Develop a mental image of the number system	• Given a number, identify one less • Know number bonds to 10 and 20 and use to reason (e.g. 9+1=10 so 10-9=1 and 10-1=9) • Count back from any number • Know the biggest number must come first	• Know subtraction is the inverse of addition • Use knowledge of inverse to check calculation and solve missing number problems • Subtract numbers mentally including - Subtracting 1s from a 2-digit number - Subtracting a multiple of 10 from a 2-digit number - Subtracting a 2-digit number from another 2-digit number • Recall and use subtraction facts to 20 fluently • Use knowledge of number bonds to 100 (multiples of 10) to reason (e.g. 40+60=100 so 100-60=40 and 100-40=60)
Y3	**Y4**	**Y5**
• Subtract numbers mentally including: - Subtracting a single digit from a 3-digit number - Subtracting a multiple of 10 from a 3-digit number - Subtracting a multiple of 100 from a 3-digit number • Estimate the answer to a calculation and use inverse operations to check the answer	• Subtract numbers mentally including: - Subtracting a single digit from a 4-digit number - Subtracting a multiple of 10 from a 4-digit number - Subtracting a multiple of 100 from a 4-digit number - Subtracting a multiple of 1000 from a 4-digit number • Use number pairs that total 1000 (multiples of 100) to calculate subtraction (e.g. 1000-300=700) • Estimate the answer to a calculation and use inverse operations to check the answer	• Subtract increasingly large numbers mentally (e.g. 12,654-1,341 = 11,213) • Mentally subtract tenths from tenths • Mentally subtract tenths from 1-digit whole numbers • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
Y6		
• Subtract increasingly large numbers mentally (e.g. 12,654-1,341 = 11,213) • Subtract decimals mentally (up to 2d.p.) • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • Solve mental calculations with mixed operations		

SUBTRACTION

Year	Development Matters	Strategies	Calculation Layouts
EYFS	**40- 60 months** Estimates how many objects they can see and checks by counting them. •Uses the language of 'more' and 'fewer' to compare two sets of objects. •Finds the total number of items in two groups by counting all of them. •Says the number that is one more than a given number. •Finds one more or one less from a group of up to five objects, then ten objects. • In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. •Records, using marks that they can interpret and explain. •Begins to identify own mathematical problems based on own interests and fascinations. **Early Learning Goal** Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.	  Develop understanding of concept of subtraction as taking away by physically taking amounts away from a given amount and find how many are left. Any objects can be used especially ones that interest the child.  Cross out drawn objects to show what has been taken away.	There are no expectations for children in EYFS to record subtraction formally.
VOCABULARY: Fewer, how many left, take away, cross out			

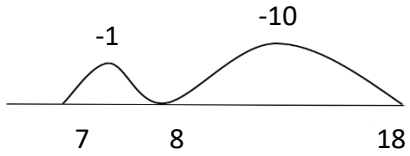
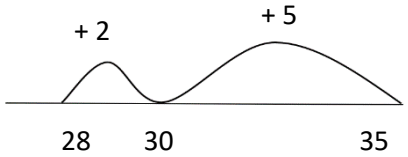
EYFS TBSRT

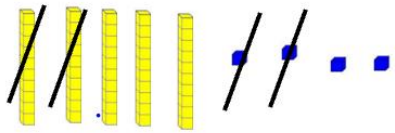
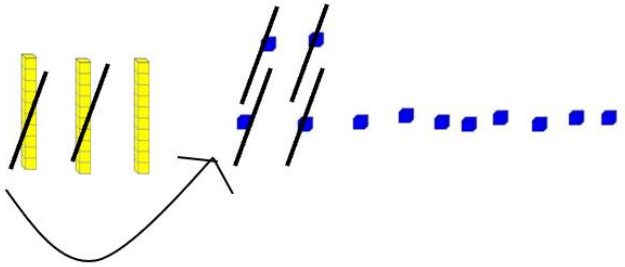
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Subtraction by Objects			
LI: To take one amount from another Context: Objects To Be Successful Remember to: 1. Read the number sentence 2. Choose the largest number 3. Choose the right number of objects for the largest number 4. Take away the number of objects for the smallest number 5. Count the number of objects which are left 6. Check the answer is smaller than the number I started with			

Year	National Curriculum	Strategies	Calculation Layouts
1	Read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs Represent and use number bonds and related subtraction facts within 20 Subtract one-digit and two-digit numbers to 20, including zero Solve one-step problems that involve and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9	Understand subtraction as take-away  Understanding of counting back with a number line (printed and self-drawn).   Use 100 square to support the understanding of subtraction by counting back  Understand subtraction as finding the difference (counting on): Numicon:  The use of other images is also valuable e.g. Numicon, bundles of straws, apparatus, multi-link cubes, bead strings, place value counters and hundred square.	Calculations should be written either side of the equality sign so that the sign is not just interpreted as 'the answer'. 15 – 7 = 8 8 = 15 - 7 Missing number problems e.g. 7 = ? - 9 20 - ? = 9 15 – 9 = ? ? - ? = 11 16 – 0 = ?
VOCABULARY: equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, count back, how many left, how much less is ? than ?, count on			

Y1 TBSRT

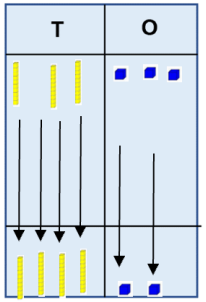
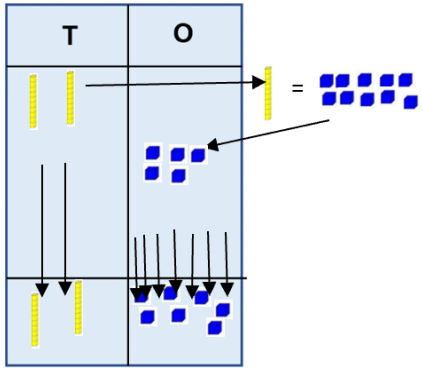
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Subtraction by Objects/Structured Apparatus	**Subtraction by number line – printed**	**Subtraction by number line – self drawn**	**Subtraction by 100 square**
LI: To take one amount from another Context: Objects To Be Successful Remember to: 1. Read the number sentence 2. Choose the largest number 3. Choose the right number of objects for the largest number 4. Take away the number of objects for the smallest number 5. Count the number of objects which are left 6. Check the answer is smaller than the number I started with	LI: To subtract/take away one amount from another Context: Prepared Number Line TBSRT: 1. Read the number sentence 2. Circle the biggest number in the number sentence 3. Find the biggest number on the number line 4. Say how many 1s I need to take away 5. Jump back the same amount of 1s – first jump is most important 6. Circle which number I land on – this is my answer 7. Check the answer is smaller than the number I started with 8. Write the answer in the number sentence	LI: To subtract/take away one amount from another Context: Number line (self drawn) TBSRT: 1. Read the number sentence 2. Circle the biggest number 3. Draw a straight line using a ruler 4. Put the largest number on the **right hand side** of the line 5. Start at the **right hand side** 6. Say how many 1s I need to take away 7. Jump back the same amount of 1s 8. Write the number I land on every time I jump 9. Write the size of the jump on top of the jump 10. Circle the answer 11. Check the answer is smaller than the number I started with 12. Write the answer in a number sentence	LI: To subtract/take away one amount from another Context: 100 square TBSRT: 1. Read the number sentence 2. Circle the biggest number 3. Cross out the 1s as I count back 4. Circle and say the number I land on – this is the answer 5. Check to make sure the answer makes sense and is smaller than the number I started with 6. Write the answer in a number sentence

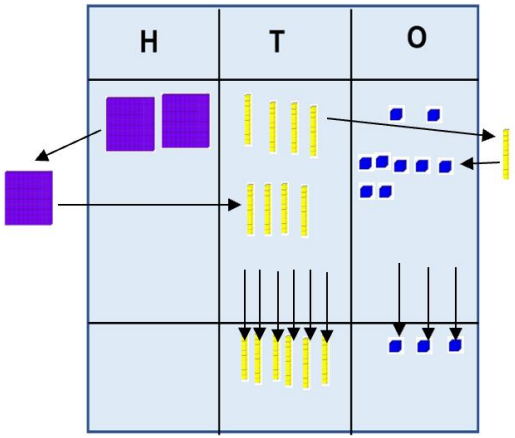
Year	National Curriculum	Strategies	Calculation Layouts
2	Solve problems with subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures Subtract numbers using concrete objects, pictorial representations and mentally including: - a 2-digit number and ones that lies within a tens boundary - a 2-digit number and ones that crosses a tens boundary - a 2-digit number and tens - two 2-digit numbers that lie within the tens boundary - two 2-digit numbers that crosses the tens boundary Show that subtraction of one number from another cannot 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	Continue to use number lines (printed or self-drawn) to solve TU-TU by counting back in 10s and then 1s e.g. 18 – 11 = 7  Or by counting on to find the difference  Use knowledge of difference to decide on most efficient strategy – either counting on or back  Use 100 squares more efficiently to subtract TU through partitioning (up rows along columns)	Recording subtraction in columns supports place value and prepares for formal written methods with larger numbers As for year 1, Calculations should be written either side of the equality sign and missing numbers need to be placed in all possible places.

		<u>Towards written methods</u> Recording subtraction in expanded columns can prepare for efficient written methods with larger numbers. The numbers may be represented with Dienes apparatus 54 – 22 = 32  **Subtraction with exchange:** 32 – 14 = 18  **Subtraction without exchange**	
VOCABULARY: equal to, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is ? than ?, count on, strategy, partition, tens, units, inverse			

Y2 TBSRT

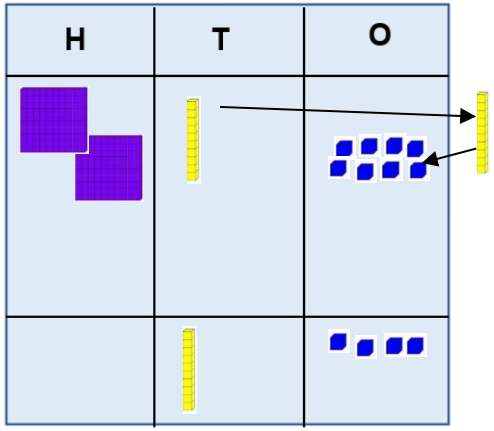
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Subtraction by number line – printed	**Subtraction by number line – self drawn**	**Subtraction by 100 square**	**Subtraction by partitioning**
LI: To subtract/take away one amount from another Context: Prepared Number Line TBSRT: 1. Read the number sentence 2. Circle the biggest number in the number sentence 3. Find the biggest number on the number line 4. Say how many 1s I need to take away 5. Jump back the same amount of 1s – first jump is most important 6. Circle the number I land on – this is my answer 7. Check the answer is smaller than the number I started with 8. Write the answer in the number sentence	LI: To subtract/take away one amount from another Context: Number line (self drawn) TBSRT: 1. Read the number sentence 2. Circle the biggest number 3. Draw a straight line using a ruler 4. Put the largest number on the **right hand side** of the line 5. Start at the **right hand side** 6. Say how many 1s I need to take away 7. Jump back the same amount of 1s 8. Write the number I land on every time I jump 9. Write the size of the jump on top of the jump 10. Circle the answer 11. Check the answer is smaller than the number I started with 12. Write the answer in a number sentence	LI: To subtract/take away one amount from another Context: 100 square TBSRT: 1. Read the number sentence 2. Circle the biggest number 3. Count back in 1s 4. Circle and say the number I land on – this is the answer 5. Check to make sure the answer makes sense and is smaller than the number I started with 6. Write the answer in a number sentence	LI: To subtract/take away one amount from another Context: Partitioning TBSRT: 1. Read the number sentence 2. Make the biggest number 3. Check to see if I need to exchange 4. Subtract the 1s 5. Subtract the 10s 6. Check to make sure the answer makes sense and is smaller than the number I started with 7. Write the answer in a number sentence

Year	National Curriculum	Strategies	Calculation Layouts
3	Subtract numbers with up to three digits using formal methods of columnar subtraction 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	TO – TO without exchange (repeat for HTO-TO no exchange) 75 – 42 =  TO-TO subtraction with exchange: 52 – 27 =  	Recorded As: 75 - 42 = 33 T O 70 5 - 40 2 30 3 Recorded As 52 – 27 = 25 T O 40 ~~5~~0 ~~2~~ 12 20 7 20 5

		HTO – TO with exchange (to 10s and 1s) 352 – 63  Begin to use a formal columnar algorithm, initially introduced alongside the expanded method. The formal method should be seen as a more streamlined version of the expanded method, not a new method Bar models can also be used to support the children's learning alongside other methods to complete calculations. For example: 124 – 38 = 86 or 124 - □ = 86 **NB – REMIND CHILDREN THAT SUBTRACTION IS FINDING WHAT IS LEFT BEHIND FOLLOWING SOMETHING TAKEN AWAY – IE THE ANSWER TO SUBTRACTIONS ARE AT THE TOP OF THE PLACE VALUE GRID**	Recorded as: H T O **200 140 12** ~~3~~00 ~~5~~0 ~~2~~ - 60 3 200 80 9 Leading to H T O 200 140 12 ~~3~~ ~~5~~ ~~2~~ - 6 3 2 8 9
VOCABULARY: equal to, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, ow many left, how much less is ? than ?, count on, strategy, partition, tens, ones, inverse, exchange, decrease, hundreds, value, digit			

Y3 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Subtraction by partitioning			
LI: To subtract/take away one amount from another Context: Partitioning TBSRT: 1. Read the number sentence 2. Make the biggest number 3. Check to see if I need to exchange 4. Subtract the 1s 5. Subtract the 10s 6. Check to make sure the answer makes sense and is smaller than the number I started with 7. Write the answer in a number sentence			

Year	National Curriculum	Strategies	Calculation Layouts
4	Subtract numbers with up to 4 digits using the formal written methods of columnar subtraction where appropriate Estimate and use inverse operations to check answers to a calculation Solve subtraction two-step problems in contexts, deciding which operations and methods to use and why	H T O 2 3 2 - 1 4 2 1 8  Place value counters/Dienes should be used to secure both conceptual understanding and procedural fluency with columnar method, including decomposition. Progress to numbers with 4 digits. The use of other images is also valuable: place value counters, place value grids, dienes, numicon, part-part whole model, bar models.	See year 3 for a representation of the column method. For year 4 remember to add in the Th column. H T O 2 1 2 ~~3~~ 2 - 1 4 2 1 8
VOCABULARY: equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer / less than, most, least, count back , how many left, how much less is_?, count on, strategy, partition, tens, units, inverse, exchange, decrease, hundreds, value, digit, thousands			

Y4 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Subtraction by partitioning	**Subtraction – Standard Written Method**		
LI: To subtract/take away one amount from another Context: Partitioning TBSRT: 1. Read the number sentence 2. Make the biggest number 3. Check to see if I need to exchange 4. Subtract the 1s 5. Subtract the 10s 6. Check to make sure the answer makes sense and is smaller than the number I started with 7. Write the answer in a number sentence	LI: To subtract/take away one amount from another Context: Standard Written Method TBSRT: 1. Write the column headers 2. Write the question under the headers 3. Start subtracting with the 1s 4. Check to see if I need to exchange 5. Subtract the 10s 6. Subtract the 100s 7. Check to make sure the answer makes sense and is smaller than the number I started with		

Year	National Curriculum	Strategies	Calculation Layouts
5	Subtract whole numbers with more than 4 digits, including using columnar subtraction Subtract decimals including a mix of whole numbers and decimals, and decimals with different numbers of decimal places Subtract numbers mentally with increasingly numbers Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy Solve addition and subtraction multi-step problems in context deciding which operations and methods to use and why	Children will move on to the formal columnar method for larger whole numbers and decimal numbers as an efficient written algorithm.	T O . t h 5 1 2 ~~6~~ . 3 4 1 3 . 5 0 - 1 2 . 8 4 26 . 34 ? | 13.50

VOCABULARY: equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer / less than, most, least, count back , how many left, how much less is_?, count on, strategy, partition, tens, units, inverse, exchange, decrease, hundreds, value, digit, thousands, tenths, hundredths, decimal point, decimal

Y5 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Subtraction – Standard Written Method			
LI: To subtract/take away one amount from another Context: Standard Written Method TBSRT: 1. Write the column headers 2. Write the question under the headers 3. Subtract each column – starting with 1s 4. Check to see if I need to exchange 5. Check to make sure the answer makes sense and is smaller than the number I started with			

Year	National Curriculum	Strategies	Calculation Layouts
6	Use knowledge of the order of operations to carry out calculations involving the four operations Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems involving subtraction Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	Practise formal columnar method. Teachers should ensure that pupils have the opportunity to apply their knowledge in a variety of contexts and problems (exploring cross curricular links) to deepen their understanding. <u>Upper Key Stage 2:</u> Begin to understand the order of operations – BODMAS. B = Brackets O = Orders (powers and square roots) DM = Division and Multiplication AS = Addition and Subtraction e.g. 50 + 15 ÷ 5 (÷ before +) = 50 - 3 = 53	T O . t h 5 1 2 6 . 3 4 - 1 3 . 5 0 1 2 . 8 4 26 . 34 ? | 13.50

VOCABULARY: equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer / less than, most, least, count back , how many left, how much less is_?, count on, strategy, partition, tens, units, inverse, exchange, decrease, hundreds, value, digit, thousands, tenths, hundredths, thousandths, decimal point, decimal

Y6 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Subtraction – Standard Written Method			
LI: To subtract/take away one amount from another Context: Standard Written Method TBSRT: 1. Write the column headers 2. Write the question under the headers 3. Subtract each column – starting with the 1s 4. Check to see if I need to exchange 5. Check to make sure the answer makes sense and is smaller than the number I started with			

Appendix – Subtraction

Key Stage 1

- If children are struggling to grasp the concept of subtraction using place value counters look back at the policy for EYFS, including using pictorial representations and cubes if appropriate.
- Check the children understand the value of each counter – How many 1's make a 10?
- Do not move onto part-part-whole model, including introducing the term 'inverse' until children are secure with the above.

Key Stage 2

- If children are struggling to grasp the concept of column subtraction using 3 digit numbers look back at policy for year 2, including pictorial representations of place value counters and physically using the place value counters. Ensure children understand the value of a hundred counter – How many 1's make a 100? How many 10's make a 100?
- Check the understanding of the term 'exchange' – can children exchange 100 for the correct number of 10's?
- Check understanding before moving children onto 4 digit numbers – How many 1's make a 1000? How many 100's make a 1000?
- **UKS2** - When introducing subtracting decimals ensure children have an understanding of whole numbers and part of a number – begin with tenths, using place value counters to represent. How many tenths make 1? Then move onto hundredths. How many hundredths make 1? Which is bigger a tenth or a hundredth?

Use bar modelling to support children when answering word problems – What do I know? What do I need to know?

Do not move children onto the next year group's strategies until secure with the one before.

If children are still struggling to make progress please consult the Whole School Provision Map and apply strategies from Wave 1 and Wave 2, if the child is still not progressing please discuss your concerns with the SEN team.

Progression in Mental Multiplication Strategies

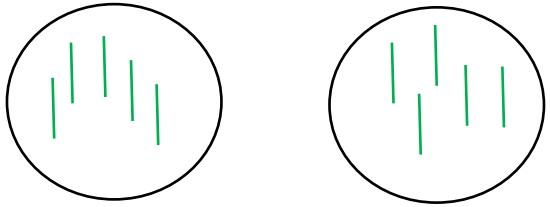
EYFS	Y1	Y2
• Count in 2s, 5s and 10s • Number patterns on a number line and on a hundred square • Develop a mental image of the number system • Understand the value of a number	• Count forwards and backwards in multiples of 2s, 5s and 10s • Recall doubles of numbers up to and including 10	• Count forwards and backwards in multiples of 3 • Know the 2,5 and 10 times tables (in and out of order) • Recognise odd and even numbers • Know doubles of all numbers to 20 and corresponding halves • Know doubles of multiples of 10 and corresponding halves • Know doubles of any multiple of 5 up to 50
Y3	**Y4**	**Y5**
• Count forwards and backwards in multiples of 4,8,50 and 100 • Know the 3,4 and 8 times tables (in and out of order) • Connect the 2,4 and 8 times tables through doubling • Use knowledge of place value to calculate multiplication e.g. 2x2=4 , 2x20=40, 2x200=400 • Know doubles of any multiple of 5 up to 100 • Halve any multiple of 10 up to 200 • Multiply 1-digit or 2-digit numbers by 10 or 100	• Know all times tables up to and including 12 x 12 (by the end of Y4) • Count in steps of 6, 7, 9, 25 and 1000 • Use place value knowledge to multiply whole numbers and decimals to 1 d.p. by 10,100 and 1000 • Recognise and use factor pairs (up to and including 10) • Recognise and use commutativity in mental calculations • Know doubles of numbers 1-100 and corresponding halves • Know that TOx5 is TOx10 then divide by 2 • Know that TOx9 is TOx10 then subtract TO • Use place value, known and derived facts to multiply by 0 and 1 • Multiply 3 numbers together	• Recognise and calculate factor pairs for any number • Multiply numbers mentally using known facts • Use times table knowledge to derive multiples of any number • Establish whether a number is a prime number (up to 100) or a composite number and recall prime numbers up to 19 • To know what a square number is and recall all square numbers up to and including 144 • To know what a cube number is and recall the first 5 cube numbers • Multiply using near multiples by rounding e.g. 32x29 becomes 32x30 - 32
Y6		
• Use scaling to solve decimal number problems as whole number problems using the rule: 'the number of decimal digits in the question is the same as the number of decimal digits in the answer • Identify common factors, common multiples and prime numbers • Use common factors to simplify fractions mentally • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy		

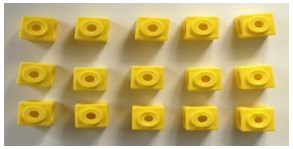
MULTIPLICATION

Year	Development Matters	Strategies	Calculation Layouts
EYFS	Children count groups of the same number of objects and add them together Children solve simple problems involving doubling Children learn about grouping in practical contexts and through pictorial representations	Count groups of 2 and then count all objects to add them together 	There are no expectations for children in EYFS to record addition formally.
Vocabulary group, lots of			

EYFS TBSRT

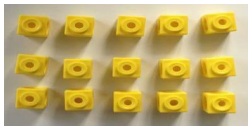
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Multiplication – using visual representation – objects/dots			
LI: To multiply amounts together Context: Objects/structured apparatus - arrays To Be Successful Remember to: 1. Read the number sentence 2. Know that the x means lots of e.g. 2x5 is the same as 2 lots of 5 3. Make the array using dots/objects 4. Count how many altogether in the array 5. Check my answer is reasonable 6. Write the answer in a number sentence			

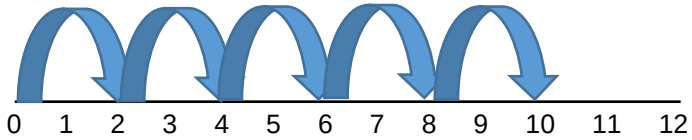
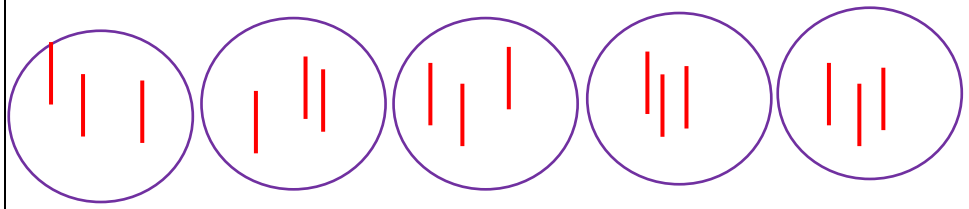
Year	National Curriculum	Strategies	Calculation Layouts
1	Understand multiplication is related to doubling and combing groups of the same size (repeated addition) Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Washing line, and other practical resources for counting. Concrete objects. Numicon; bundles of straws, bead strings, multilink, marbles.  2 + 2 + 2 + 2 + 2 = 10 2 × 5 = 10 2 multiplied by 5 5 pairs 5 hops of 2 Learn about grouping in practical contexts through pictorial representation Count groups of the same number of objects and add them together. Bead strings and counting sticks can be used to support counting in sequences of 2, 5 and 10 Use bead strings to recognise and complete patterns and sequences involving multiples of 2,5 and 10 Use Numicon to develop the vocabulary relating to 'times' e.g. Pick up five, 4 times. Count groups by drawing and then add together E.g. 2 x 5= 	

		Use arrays to understand multiplication can be done in any order (commutative). 5 x 3 = 15 3 x 5 = 15 	
VOCABULARY: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times, inverse			

Y1 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Multiplication – using visual representation – objects/dots	**Multiplication – using visual representation - drawing**		
LI: to multiply amounts together Context: Arrays 1. Read the number sentence using the words “lots of” 2. Make the array using objects/dots 3. Count how many objects/dots there are altogether in the array 4. Check my answer is reasonable 5. Write the answer in a number sentence	LI: to multiply amounts together Context: Drawing groups 1. Read the number sentence using the words “lots of” 2. Draw the number of groups 3. Draw the number of objects in each group 4. Count how many objects there are altogether 5. Check my answer is reasonable 6. Write the answer in a number sentence		

Year	National Curriculum	Strategies	Calculation Layouts
2	Recall and use multiplication facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) Solve problems involving multiplication, using materials, arrays, repeated addition, mental methods, and multiplication facts, including problems in contexts	Understand the operation of multiplication as repeated addition on a blank number line – use practical resources to support this Develop understanding of multiplication using arrays. Include multiplications not in the 2, 5 or 10 times tables. 3 x 5 = 15  5 x 3 = 15 Understand that multiplication is commutative Use understanding of the inverse and practical resources to solve missing number problems. 7 x 2 = ?, ? = 2 x 7, 7 x ? =14 Draw pictures to represent problems:  There are 3 plates. Each plate has 2 star biscuits on it. How many biscuits are there? 2 + 2 + 2 = 6 biscuits 3 groups of 2 3 x 2 = 6	Express multiplication as a number sentence using x

		Using a number line (blank or printed) 5 x 2 =  Count groups by drawing and then finding the total 5 x 3 = 	
VOCABULARY: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as, big as, once, twice, three times, inverse			

Y2 TBSRT

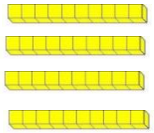
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Multiplication – using visual representation – objects/dots	**Multiplication – using a number line**	**Multiplication – using visual representation - drawing**	
LI: to multiply amounts together Context: Arrays 1. Read the number sentence using the words “lots of” 2. Make the array using objects/dots 3. Count how many objects/dots there are altogether in the array 4. Check my answer is reasonable 5. Write the answer in a number sentence	LI: To multiply numbers together Context: Number line 1. Draw an empty number line 2. Start at 0 at the left-hand end 3. Circle the number I am going to count up in 4. Count up in the number (record below the line) I am multiplying, write the number of jumps (record above the line) as I go 5. Say which number I land on – this is the answer 6. Check my answer is reasonable	LI: to multiply amounts together Context: Drawing groups 1. Read the number sentence using the words “lots of” 2. Draw the number of groups 3. Draw the number of objects in each group 4. Count how many objects there are altogether 5. Check my answer is reasonable Write the answer in a number sentence	

<table>
<tr><th>Year</th><th>National Curriculum</th><th>Strategies</th><th>Calculation Layouts</th></tr>
<tr>
<td>3</td>
<td>Recall and use multiplication facts for 3, 4 and 8 multiplication tables

Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times 1-digit numbers, using mental and progressing to formal written methods

Solve problems, including number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects</td>
<td>Grid Method - Continue to use an array to demonstrate partitioning into multiples of 10 and 1

13 x 4=

<table>
<tr><td></td><td>T</td><td>O</td></tr>
<tr><td>x</td><td>10</td><td>3</td></tr>
<tr><td>4</td><td>  </td><td>  </td></tr>
</table>
10 x 4 = 40 3 x 4 = 12

Once the concept of partitioning multiples is secure, children can move from using equipment to writing numbers

<table>
<tr><td></td><td>T</td><td>O</td></tr>
<tr><td>x</td><td>10</td><td>3</td></tr>
<tr><td>4</td><td>40</td><td>12</td></tr>
</table>
</td>
<td>13 x 4
10 3

10 x 4 = 40
3 x 4 = 12
40 + 12 = 52 or
T O
4 0
1 2 +
5 2

10 x 4 = 40

3 x 4 = 12
40 + 12 = 52 or
T O
4 0
1 2 +
5 2</td>
</tr>
</table>

		Progressing to expanded formal method making the link to the grid method. T O 1 3 x 4 1 2 (4 x 3) 4 0 (4 x 10) 5 2 **NB ensure the language of place value is used as the methods are modelled** **e.g. first multiply 4 by 3 = 12** **Next multiply 20 by 4 = 80** **Finally add the partial products up** The use of other images is also valuable: place value counters, place value grids, dienes, bar models, multilink, numicon, marbles.	T O 1 3 x 4 1 2 (4 x 3) 4 0 (4 x 10) 5 2
VOCABULARY: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times, inverse, partition, grid method, multiple, product, tens, units, value			

Y3 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Multiplication – using the grid method	**Multiplication – using the expanded written method**		
LI: to multiply numbers together Context: grid method for 2-digit x 1-digit 1. Read the question 2. Draw a grid 3. Partition the number 4. Write the numbers and x in the right box on the grid 5. Multiply the 10s – write the answer 6. Multiply the 1s - write the answer 7. Add the two partial products together using column addition 8. Check the answer is reasonable	LI: to multiply numbers together Context: expanded column method 1. Read the question 2. Write the column headers 3. Multiply the 1s – write the answer 4. Record the calculation at the side 5. Multiply the 10s – write the answer 6. Record the calculation at the side 7. (Multiply the 100s – write the answer) 8. (Record the calculation at the side) 9. Add the partial products together 10. Check the answer is reasonable		

Year	National Curriculum	Strategies	Calculation Layouts
4	Recall multiplication facts for multiplication tables up to 12 x 12 Multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers. Multiply two-digit and three-digit numbers by a one-digit number using formal written method of short multiplication Solve problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by 1-digit, integer scaling problems and harder correspondence proems such as n objects are connected to m objects	Ensure the children understand: The distributive law, e.g. 39 x 7 = 30 x 7 + 9 x 7. The associative law, e.g. (2 x 3) x 4 = 2 x (3 x 4) How to multiply larger numbers by using related facts, e.g. 3 x 2 = 6 so 3 x 200 = 600 Grid method – further develop the grid method for 2-digit by 1-digit, moving on to 3-digit by 1-digit 37 x 4 Expanded column method – further develop the grid method for 2-digit by 1-digit, moving on to 3-digit by 1-digit 37 x 4	<table><tr><td></td><td>T</td><td>O</td></tr><tr><td>x</td><td>30</td><td>7</td></tr><tr><td>4</td><td>120</td><td>28</td></tr></table> H T O 1 2 0 + 2 8 1 4 8 T O 3 7 X 4 2 8 (4x7) 1 2 0 (4x30) 1 4 8

		Moving on to short multiplication. Ensure that earlier steps/understanding of place value are securely embedded 37 x 4 **NB continue to reinforce the understanding of place value by ensuring the children recognize that the 3 is worth 30 and the 12 is worth 120** 3-digit by 1 digit 246 x 4	T O 3 7 X 4 1 4 8 2 **Grid Method** | | H | T | O | | x | 200 | 40 | 6 | | 4 | 800 | 160 | 24 | H T O 8 0 0 1 6 0 + 2 4 9 8 4 **Expanded Method** H T O 2 4 6 X 4 2 4 (4x6) 1 6 0 (4x60) 8 0 0 (4x200) 9 8 4 **Short Multiplication** H T O 2 4 6 X 4 9 8 4 1 2
VOCABULARY: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times, inverse, partition, grid method, multiple, product, tens, units, value, expanded method			

Y4 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Multiplication – using the grid method	**Multiplication – using the grid method**	**Multiplication – using the expanded written method**	**Multiplication – use the formal written method of short multiplication**
LI: to multiply numbers together Context: grid method for 2-digit x 1-digit 1. Read the question 2. Draw a grid 3. Partition the numbers 4. Write the numbers and x in the right box on the grid 5. Multiply the 10s – write the answer 6. Multiply the 1s - write the answer 7. Add the two partial products together 8. Check the answer is reasonable	LI: to multiply numbers together Context: grid method for 3-digit x 1-digit 1. Read the question 2. Draw a grid 3. Partition the numbers 4. Write the numbers and x in the right box on the grid 5. Multiply the 100s – write the answer 6. Multiply the 10s – write the answer 7. Multiply the 1s - write the answer 8. Add the three partial products together 9. Check the answer is reasonable	LI: to multiply numbers together Context: expanded column method 1. Read the question 2. Write the column headers 3. Record the calculation at the side 4. Multiply the 1s – write the answer 5. Record the calculation at the side 6. Multiply the 10s – write the answer 7. (Record the calculation at the side) 8. (Multiply the 100s – write the answer) 9. Add the partial products together 10. Check the answer is reasonable	LI: to multiply numbers together Context: long multiplication 1. Read the question 2. Write the column headers 3. Multiply the 1s, 10s, 100s and 1000s by the ones 4. Record each product and any carries Check the answer is reasonable

Year	National Curriculum	Strategies	Calculation Layouts
5	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 Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers Know and use the vocab of prime numbers, prime factors and composite (non-prime) numbers Establish whether a number up to 100 is prime and recall prime numbers up to 19 Multiply numbers mentally, drawing upon known facts Multiply whole numbers and those involving decimals by 10, 100 and 1000 Recognise and use square numbers and cube numbers Solve problems involving multiplication	Build on the work in Y4 with the formal method of short multiplication (3-digit x 1-digit number) Move on to multiplication by 2-digit by 2-digit: - Grid method (if necessary) - Expanded method (if necessary) - Short multiplication 24 x 16 T O 2 4 X 1 6 2 4 (6x4) 1 2 0 (6x20) 4 0 (10x4) 2 0 0 (10x20) 3 8 4 Children will practise the formal method of short multiplication for larger whole numbers (see previous year group) ThHTOxO 1423x6 = 8538 Th H T O 1 4 2 3 X 6 8 5 3 8 2 1 1	Th H T O 1 4 2 3 X 6 8 5 3 8 2 1 1

		Leading to long multiplication TOxTO, HTOxTO, ThHTOxTO T O 2 4 X 1 6 2 1 4 4 2 4 0 3 8 4 **NB Use the language of place value as the method is demonstrated** **First multiply 4 by 6 to give 24** **Next multiply 20 by 6 to give 120** **Now multiply 4 by 10 to give 40** **Finally multiply 20 by 10 to give 200** **Add the partial products together**	324 x 26 H T O 3 2 4 X 2 6 1 2 1 9 4 4 6 4 8 0 8 4 2 4 1 1
VOCABULARY: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times, inverse, partition, grid method, multiple, product, tens, units, value			

Y5 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Multiplication – using the expanded written method	**Multiplication – using the formal written method of long multiplication by 1-digit**	**Multiplication – using the formal written method of long multiplication by 2-digit**	**Multiplication – use the formal written method of short multiplication**
LI: to multiply numbers together Context: expanded column method 1. Read the question 2. Write the column headers 3. Record the calculation at the side 4. Multiply the 1s – write the answer 5. Record the calculation at the side 6. Multiply the 10s – write the answer 7. (Record the calculation at the side) 8. (Multiply the 100s – write the answer) 9. Add the partial products together Check the answer is reasonable	LI: to multiply numbers together Context: long multiplication 1. Read the question 2. Write the column headers 3. Multiply the 1s – write the answer (record any carries) 4. Multiply the 10s – write the answer (record any carries) 5. Multiply the 100s – write the answer (record any carries) 6. Add the partial products 7. Check the answer is reasonable	LI: to multiply numbers together Context: long multiplication 1. Read the question 2. Write the column headers 3. Multiply the 1s, 10s 100s by the ones 4. Record the product and any carries 5. Multiply the 1s, 10s and 100s by the tens 6. Record the product and any carries 7. Add the partial products 8. Check the answer is reasonable	LI: to multiply numbers together Context: long multiplication 5. Read the question 6. Write the column headers 7. Multiply the 1s, 10s, 100s and 1000s by the ones 8. Record each product and any carries 9. Check the answer is reasonable

Year	National Curriculum	Strategies	Calculation Layouts
6	Multiplication for larger numbers, using the formal written methods of short and long multiplication Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Multiply numbers with up to two decimal places by whole numbers with one or two digits Use knowledge of the order of operations to carry out calculations involving the four operation Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	**By the end of Y6 children use mental methods (with jottings) when appropriate, but for calculations they cannot do mentally, they use an efficient, formal written method accurately and with confidence.** Practise the formal methods of short and long multiplication for larger whole numbers. Use the expanded and short multiplication method for multiplying by decimals. 53.2 x 24 Provide opportunity to apply their knowledge in a variety of contexts and problems (exploring cross curricular links) to deepen their understanding. Provide a range of contexts including the use of scaling, units of measure and large whole numbers, as well as decimals to apply the skills. Include problem solving which includes more than one operation	T O . t 5 3 . 2 X 2 4 . 0 1 2 1 2 . 8 1 0 6 4 . 0 1 2 7 6 . 8
VOCABULARY: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times, inverse, partition, grid method, multiple, product, tens, units, value, decimal, decimal point, tenths, hundredths			

Y6 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Multiplication – using the expanded written method	**Multiplication – using the formal written method of long multiplication by 1-digit**	**Multiplication – using the formal written method of long multiplication by 2-digit**	**Multiplication – use the formal written method of short multiplication**
LI: to multiply numbers together Context: expanded column method 1. Read the question 2. Write the column headers 3. Record the calculation at the side 4. Multiply the 1s – write the answer 5. Record the calculation at the side 6. Multiply the 10s – write the answer 7. (Record the calculation at the side) 8. (Multiply the 100s – write the answer) 9. Add the partial products together 10. Check the answer is reasonable	LI: to multiply numbers together Context: long multiplication 1. Read the question 2. Write the column headers 3. Multiply the 1s – write the answer (record any carries) 4. Multiply the 10s – write the answer (record any carries) 5. Multiply the 100s – write the answer (record any carries) 6. Add the partial products 7. Check the answer is reasonable	LI: to multiply numbers together Context: long multiplication 1. Read the question 2. Write the column headers 3. Multiply the 1s, 10s 100s by the ones 4. Record the product and any carries 5. Multiply the 1s, 10s and 100s by the tens 6. Record the product and any carries 7. Add the partial products 8. Check the answer is reasonable	LI: to multiply numbers together Context: long multiplication 1. Read the question 2. Write the column headers 3. Multiply the 1s, 10s, 100s and 1000s by the tenths 4. Multiply the 1s, 10s, 100s and 1000s by the ones 5. Multiply the 1s, 10s, 100s and 1000s by the tens 6. Record each product and any carries 7. Check the answer is reasonable

Appendix – Multiplication

Key Stage 1

If children are not grasping any written methods for multiplication then go back to the guidance in Year 1 and use practical resources to secure understanding of doubling, combining groups of equal amounts as repeated addition then arrays. Do not move on to any written methods until this is secure.

Key Stage 2

If children are struggling to grasp the concept then repeat guidance from Year 2 of using arrays and scaling. Ensure children understand place value of

numbers H T O.

Check understanding of place value TTh Th H T O before moving children onto 4 digit numbers by 1 and 2 digit numbers. Use manipulatives alongside calculations until the child feels secure.

UKS2 - When introducing adding decimals ensure children have an understanding of whole numbers and part of a number – begin with tenths, using place value counters to represent. How many tenths make 1? Then move onto hundredths. How many hundredths make 1? Which is bigger a tenth or a hundredth?

Use bar modelling to support children when answering word problems – What do I know? What do I need to know?

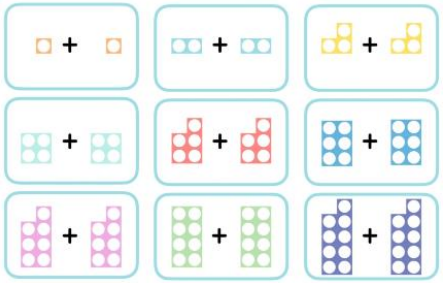
Do not move children onto the next year group's strategies until secure with the one before.

If children are still struggling to make progress please consult the Whole School Provision Map and apply strategies from Wave 1 and Wave 2, if the child is still not progressing please discuss your concerns with the SEN team.

Progression in Mental Division Strategies

EYFS	Y1	Y2
• Develop mental image of the number system • Understand the value of a number	• Count forwards and backwards in 2s, 5s and 10s	• Know that the division is the inverse of multiplication • Recall division facts for the 2,5 and 10 times tables • Recall halves of even number up to and including 40, investigate halving an odd number • Begin to know halves of multiples of 10 up to 100 • Making links to fractions ½, 1/3, ¼ - explicitly teach links between fractions and division
Y3	**Y4**	**Y5**
• Know the division facts for the 3,4 and 8 times tables • Use knowledge of place value to calculate divisions e.g. 14÷2=7 so 140÷2=70 1400÷2=700 • Divide multiples of 10 by 1-digit numbers e.g. 240÷8=30 because we know 24÷8=3 • Know division is not commutative • Relate division to multiplication • Find unit fractions of numbers and quantities – involving halves, thirds, quarters, fifths and tenths	• Know all related division facts for all times tables up to 12 times table (by the end of Y4) • Divide multiples of 100 by 1-digit numbers e.g. 2400÷8=300 because we know 24÷8=3	• Multiply and divide numbers mentally drawing upon known facts • Associate fractions with division
Y6		
• Use division facts from times tables to divide decimal numbers by 1-digit numbers • Divide whole numbers by 10, 100, 1000 and 10,000 to give whole number answers or answers up to 3 dp • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • Calculate a fraction of an amount • Know and use equivalence between simple fractions, decimals and percentages including in different contexts		

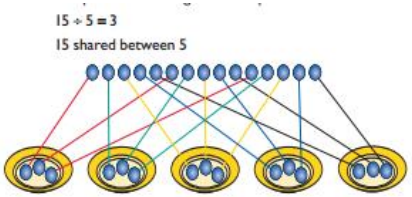
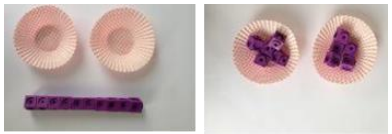
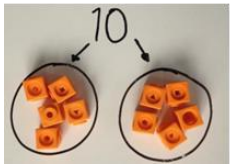
Division

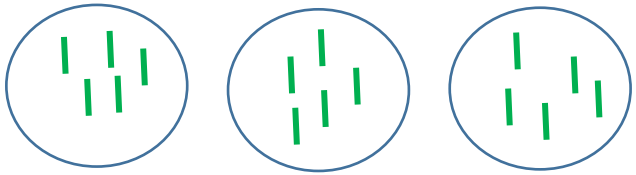
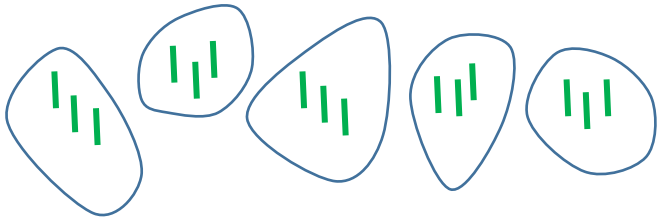
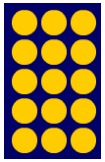
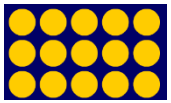
Year	Development Matters	Strategies	Calculation Layouts
EYFS	They solve problems, including doubling, halving and sharing.	All learning is done practically as part of continuous provision or teacher/child led activities   	There are no expectations for children in EYFS to record addition formally.

Vocabulary group, lots of, sharing, doubling, halving

EYFS TBSRT

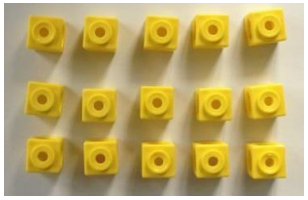
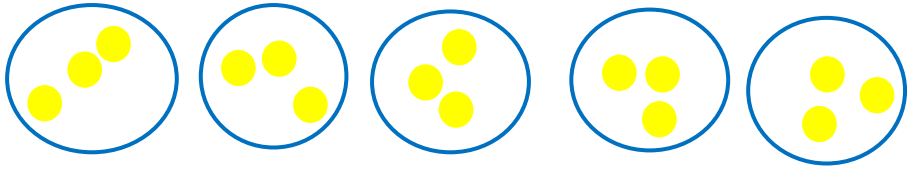
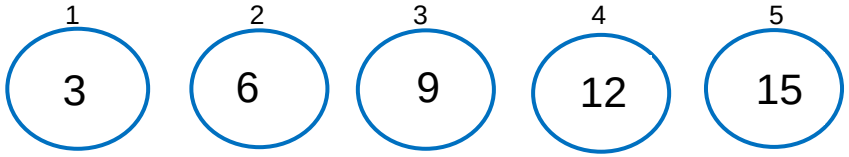
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Division – Division by Sharing			
LI: To divide an amount by a number Context: objects/structured apparatus 1. Read the question 2. Identify the second number and know this is how many I am sharing by 3. Share out the first amount between the number I am sharing by: • Draw circles for the number I am sharing by • Use dots, objects, apparatus to help 4. Count the number in each circle – this is the answer 5. Check the answer is reasonable			

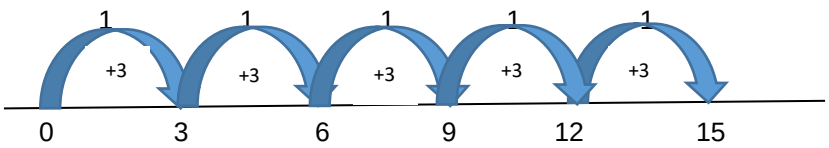
Year	National Curriculum	Strategies	Calculation Layouts
1	Solve one-step problems involving division by calculation the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Understand division is into equal groups Recognise and write the division symbol in mathematical statements ÷ **Group AND share small quantities- ensure there is a deep understanding of the difference between the two concepts.** ***Sharing*** Develops importance of one-to-one correspondence.  Children should be taught to share using concrete apparatus. ***Grouping*** Children should apply their counting skills to develop some understanding of grouping.  	If there are 10 cakes, how many people can have 2 cakes each? 10 ÷ 2 = 5 people

		Children move onto drawing their own images/pictures to reinforce grouping/sharing Sharing Share 15 sweets between 3 children  Grouping 15 ÷ 3 =  Use of arrays as a pictorial representation for division. 15 ÷ 3 = 5 There are 5 groups of 3.  15 ÷ 5 = 3 There are 3 groups of 5.  Find half of even numbers up to 12 using concrete apparatus – explore when halving odd number	
VOCABULARY:	share, share equally, one each, two each…, equal group, equal groups of, array, divide, divided by		

Y1 TBSRT

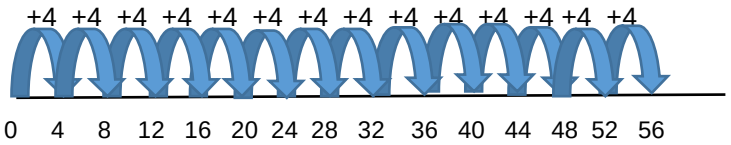
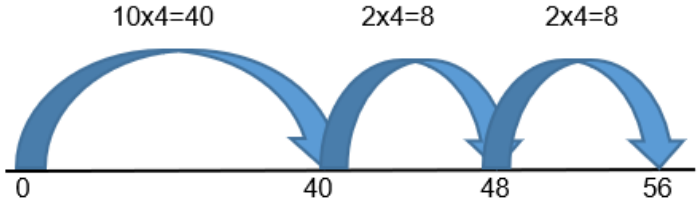
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Division – Division by Sharing	**Division – Division by Grouping**		
LI: To divide an amount by a number Context: objects/structured apparatus/drawing 1. Read the question 2. Identify the second number and know this is how many I am sharing by 3. Share out the first amount between the number I am sharing by : • Draw circles for the number I am sharing by • Use dots, objects, apparatus to help 4. Count the number in each circle – this is the answer 5. Check the answer is reasonable	LI: To divide an amount by a number Context objects/structured apparatus/drawing 1. Read the question 2. Identify how many in each group (divisor) 3. Divide the first number into the group sizes by: • Group the objects/drawn objects into the right number • Draw a circle around each group 4. Count the number of groups – this is the answer 5. Check the answer is reasonable		

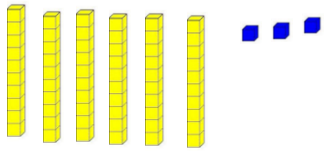
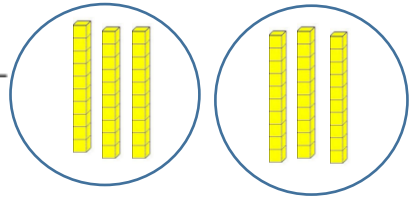
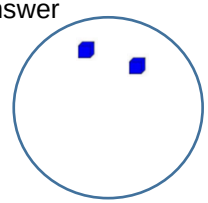
Year	National Curriculum	Strategies	Calculation Layouts
2	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs Show that division of one number by another is not commutative i.e. cannot be done in any order Solve problems involving division, using materials, arrays, repeated addition, mental methods and division facts, including problems, in contexts.	Know and understand sharing and grouping- reinforcing the ÷ sign. Children should continue to use grouping and sharing for division using practical apparatus, arrays and pictorial representations. E.g. 15 ÷ 3 = 5 5 x 3 = 15 15 ÷ 5 = 3 3 x 5 = 15  At this point, discuss whether division is commutative. Could we have 3 divided by 15? Is it possible to share 3 between 15 people?  Leading to:  	15÷3=5 15÷3=5

		Count forwards using different strategies e.g. counting stick – 30÷5=6, use known facts to support – i.e. we know this because we know that 5x6=30 Counting forward on a number line  Use understanding of the inverse and practical resources to solve missing number problems 6 ÷ 2 = ? ? ÷ 6 = 2 6 ÷ ? = 3	15÷3=5
VOCABULARY:	share, share equally, one each, two each…, group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, inverse		

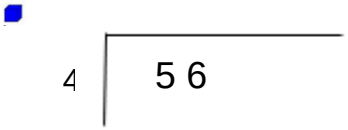
Y2 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Division – by Sharing	**Division – Division by Grouping**	**Division – using a Number Line**	
LI: To divide an amount by a number Context: objects/structured apparatus 1. Read the question 2. Identify the second number and know this is how many I am sharing by 3. Share out the first amount between the number I am sharing by: • Draw circles for the number I am sharing by • Use dots, objects, apparatus to help 4. Count the number in each circle – this is the answer 5. Check the answer is reasonable	LI: To divide an amount by a number Context objects/structured apparatus/drawing 1. Read the question 2. Identify how many in each group (divisor) 3. Divide the first number into the group sizes by: • Group the objects/drawn objects into the right number • Draw a circle around each group 4. Count the number of groups – this is the answer 5. Check the answer is reasonable	LI: to divide one number by another Context: Number line 1. Draw an empty number line 2. Start at 0 3. Circle the number I am going to count in – the divisor 4. Jump along the line in the divisor – write the jumps and number I land on 5. Count how many jumps I have made to find the answer 6. Check the answer is reasonable	

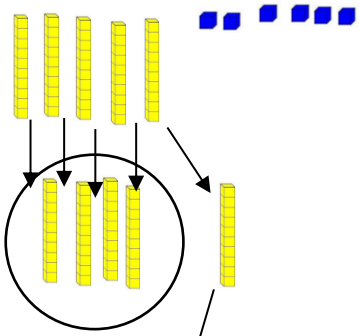
Year	National Curriculum	Strategies	Calculation Layouts
3	Recall and use division facts for the 3, 4 and 8 multiplication tables Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times 1-digit numbers, using mental and progressing to formal written methods (short division with no remainders) Solve problems, involving missing number problems, involving division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	Use a number line to count in single multiples 56÷4 =  Move on to using chunking with the number line 56÷4= 14  	

		Use practical resources (Dienes or place value counters) to support the short division method and will be encouraged to use multiples of the divisor to assist (TO÷O) 63÷3= 3 ⟌ 6 3  Group the 10s according to the divisor – record the answer 2 3 ⟌ 6 3  Group the 1s according to the divisor – record the answer 2 1 3 ⟌ 6 3  Progress to HTO÷O	2 1 3 ⟌ 6 3

Dividing with Exchange

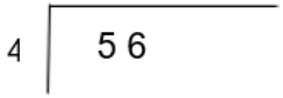


Divide the 5 10s into groups of 4



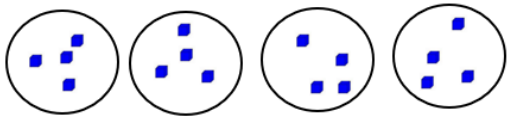
Record the number of groups made

1



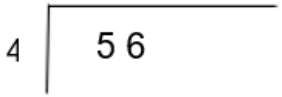
Exchange the remaining 10 for ten 1s and combine

Divide the 1s into groups of 4



Record the number of groups made

1 4



VOCABULARY: share, share equally, one each, two each…, group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, remainder, divisible by, dividend, quotient

Y3 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Division – using a Number Line	**Division using a Number Line - Chunking**	**Division – using the bus stop method**	**Division – using bus stop method (exchange)**
LI: to divide one number by another Context: Number line 1. Draw an empty number line 2. Start at 0 3. Circle the number I am going to count in – the divisor 4. Jump along the line in the divisor – write the jumps and number I land on 5. Count how many jumps I have made to find the answer 6. Check the answer is reasonable	LI: to divide one number by another Context: Number line 1. Draw an empty number line 2. Start at 0 3. Circle the number I am going to count in – the divisor 4. Jump along the line in chunks of the divisor – write the jumps and number I land on 5. Count how many jumps I have made to find the answer 6. Check the answer is reasonable	LI: To divide one number by another Context: Division using formal recording 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Make the dividend using place value resources 4. Group the (100s, 10s, 1s) according to the divisor. 5. Write the number of groups made above the line in the (100s, 10s, 1s column) 6. Check the answer is reasonable	LI: To divide one number by another Context: Division using formal recording 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Make the dividend using place value resources 4. Group the 100s,10s, 1s according to the divisor 5. Write the number of groups made above the line in the 100s, 10s, 1s column 6. If there are 100s left – exchange for 10s and divide ALL 10s by the divisor 7. If there are 10s left – exchange for 1s and divide ALL 1s by the divisor 8. Check the answer is reasonable

Year	National Curriculum	Strategies	Calculation Layouts
4	Recall division facts for up to 12 x 12 Divide mentally: including dividing by 1 Divide two-digit and three-digit numbers by a one-digit number using formal written layout (short division – exact answers: no remainders)	Recap strategies from previous year TO÷O and HTO÷O with no exchange TO÷O and HTO÷O with exchange Progress to subtracting 'chunks' of the divisor with less reliance on concrete resources where appropriate. 98÷7 = 1 4 7 ⟌ 9 8 70 -70 (10x7) — 28 28 - 28 (4x7) — 0	14 7 ⟌ 9 8 70 -70 (10x7) — 28 28 - 28 (4x7) — 0

		Progress to short division **NB use the language of place value throughout and make the link to partitioning**: 98÷7 = 7 ⟌ 9 8 **First partition the 98 into 90 and 8** **Then – how many 7s are in 90 – record the answer in the 10s column** **How many 10s were left – carry them to the 1s – we now have 28** **Next – how many 7s are in 28 – record the answer in the 1s column** **How many 7s are in 98?** Children write the times-table of the divisor at the side as a support	1 4 7 ⟌ 2 9 8
VOCABULARY: share, share equally, one each, two each…, group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, remainder, multiple, divisible by, factor, dividend, divisor, quotient			

Y4 TBSRT

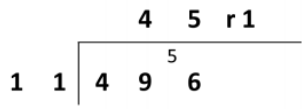
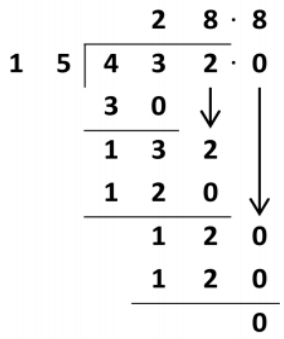
To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Division – using formal written method	**Division – using formal written method (exchange)**	**Division – using formal written method – chunking**	**Division – using formal written method**
LI: To divide one number by another Context: Division using formal recording 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Make the dividend using place value resources 4. Group the (100s, 10s, 1s) according to the divisor. 5. Write the number of groups made above the line in the (100s, 10s, 1s column) 6. Check the answer is reasonable	LI: To divide one number by another Context: Division using formal recording 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Make the dividend using place value resources 4. Group the 100s,10s, 1s according to the divisor 5. Write the number of groups made above the line in the 100s, 10s, 1s column 6. If there are 100s left – exchange for 10s and divide ALL 10s by the divisor 7. If there are 10s left – exchange for 1s and divide ALL 1s by the divisor 8. Check the answer is reasonable	LI: To divide one number by another Context: Division through repeated subtraction 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Partition the dividend into 100s, 10s 1s 4. Choose the most efficient multiple of the divisor to subtract from the dividend 5. Record this at the side and carry out the subtraction 6. Continue until the dividend is at 0 7. Count the number of multiples subtracted 8. Record the answer on the bus stop 9. Check the answer is reasonable	LI: To divide one number by another Context: division using formal recording 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Partition the dividend into 100s, 10s, 1s 4. Divide the 100s by the dividend – record the answer 5. Carry any remaining 100s 6. Divide the 10s by the dividend – record the answer 7. Carry any remaining 10s 8. Divide the 1s by the dividend – record the answer 9. Check the answer is reasonable

Year	National Curriculum	Strategies	Calculation Layouts
5	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	Children will practise the formal method of short division for larger whole numbers. 184÷8 = 23 2 3 8 ⟌ 1 8 4 2 Continue to use the language of place value to ensure understanding Introduce remainder e.g. 432÷5= 86 r2 8 6 r2 5 ⟌ 4 3 2 3 Children should also be able to express remainder as a decimal or fraction – whatever is appropriate for the context. Ensure practical understanding allows children to work through this (e.g. what could I do with this remaining 1? How could I share this between 6 as well?).	8 6 r2 5 ⟌ 4 3 2 3
VOCABULARY: share, share equally, one each, two each…, group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, remainder, multiple, divisible by, factor, dividend, quotient, divisor, decimal, fraction			

Y5 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Division – using formal written method – chunking	**Division – using formal written method**		
LI: To divide one number by another Context: Division through repeated subtraction 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Partition the dividend into 100s, 10s 1s 4. Choose the most efficient multiple of the divisor to subtract from the dividend 5. Record this at the side and carry out the subtraction 6. Continue until the dividend is at 0 7. Count the number of multiples subtracted 8. Record the answer on the bus stop 9. Check the answer is reasonable	LI: To divide one number by another Context: division using formal recording 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Partition the dividend into 100s, 10s, 1s 4. Divide the 100s by the dividend – record the answer 5. Carry any remaining 100s 6. Divide the 10s by the dividend – record the answer 7. Carry any remaining 10s 8. Divide the 1s by the dividend – record the answer 9. Record any remainder clearly with an r 10. Check the answer is reasonable		

Year	National Curriculum	Strategies	Calculation Layouts
6	Pupils practice division for larger numbers, using the formal written methods short and long division 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 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 Divide numbers with up to two decimal places by whole numbers with one or two digits	Children will practise the formal methods of short and long division for larger whole numbers. Children should also be able to express reminder as a decimal or fraction – whatever is appropriate for the context. Divide numbers with up to two decimal places by whole numbers with one or two digits. Teachers should ensure that pupils have the opportunity to apply their knowledge in a variety of contexts and problems (exploring cross curricular links) to deepen their understanding. 432 ÷ 5 becomes 8 6 r 2 5 | 4 3 2 3 Answer: 86 remainder 2	

		496 ÷ 11 becomes  Answer: $45\frac{1}{11}$ 432 ÷ 15 becomes  Answer: 28·8	

VOCABULARY: share, share equally, one each, two each…, group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, remainder, multiple, divisible by, factor, dividend, quotient, divisor, decimal, fraction, decimal, decimal point, tenths, hundredths

Y6 TBSRT

To Be Successful Remember To (these are to be explicitly modelled by the teacher and used by the children)			
Division – using formal written method			
LI: To divide one number by another Context: division using formal recording 1. Draw bus stop with a ruler 2. Write the dividend and divisor in the correct places 3. Partition the dividend into 100s, 10s, 1s 4. Divide the 100s by the dividend – record the answer 5. Carry any remaining 100s 6. Divide the 10s by the dividend – record the answer 7. Carry any remaining 10s 8. Divide the 1s by the dividend – record the answer 9. Record any remainder clearly with an r 10. Check the answer is reasonable			

Appendix – Division

Key Stage 1

If children are struggling to grasp the concept of division look back at the policy for EYFS and use lots of practical activities to reinforce the concept.
Keep using concrete materials alongside abstract until the child feels confident.
Ensure mastery of multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.

Key Stage 2

If children are struggling to grasp the concept of division then refer back to Key Stage 1 policy and set work appropriately during analysis group sessions.
Enable children to use concrete resources alongside written methods until they feel secure.

UKS2 - When introducing adding decimals ensure children have an understanding of whole numbers and part of a number – begin with tenths, using place value counters to represent. How many tenths make 1? Then move onto hundredths. How many hundredths make 1? Which is bigger a tenth or a hundredth?

Use bar modelling to support children when answering word problems – What do I know? What do I need to know?

Do not move children onto the next year group's strategies until secure with the one before. Please use analysis group time to address this.

If children are still struggling to make progress please consult the Whole School Provision Map and apply strategies from Wave 1 and Wave 2, if the child is still not progressing please discuss your concerns with the SEN team.