Weyford Nursery and Primary Academy

Maths & Calculation Policy
January 2022

INTRODUCTION

This Maths and Calculation Policy has been produced in line with the 2014 National Curriculum for Mathematics to ensure consistency and progression in teaching throughout the school that is age appropriate. It aims to introduce children to the processes of calculation through practical, oral and mental activities.

As children begin to understand the underlying ideas, they develop ways of recording to support their thinking and calculation methods, use particular methods that apply to special cases and learn to interpret and use signs and symbols involved. This policy shows the natural progression that a child should make in their mathematical education.

Children should not progress onto the advanced stages of formal written methods until they have a secure conceptual understanding. By the end of Year 6, children should be able to choose the most appropriate approach to solve a problem: making a choice between using jottings (an extended written method), an efficient written method or a mental method.

Intent

We want all children to adopt the 'We can do maths!' attitude, so we teach the Mastery style of mathematics, where all children can: become fluent in the fundamentals of mathematics; reason mathematically and solve problems by applying their mathematical knowledge. We understand that for a secure and deep understanding of mathematical concepts there needs to be a variety of progressive tasks. Children have to believe that they can achieve in mathematics and challenge themselves. They need to be encouraged to show their workings using concrete apparatus, before establishing ways of pictorially and formally representing their understanding. They learn how to choose their methods and explain their thinking, thus developing mathematical reasoning skills. Resilience is encouraged when problem solving and the children understand that struggle is often a necessary step in learning.

Implementation

Mathematics is shaped around our core values, which enables the children to develop mathematically, realise their potential and aspire to become the very best mathematicians they can be, regardless of their background and ability.

Our curriculum in EYFS follows the Early Years Statutory Framework for the Early Years Foundation Stage, guided by Development Matters and Birth to 5 Matters. These documents specify the requirements for learning and development and provides the prime and specific areas of learning we must cover in our curriculum. We provide a learning environment that helps children achieve their potential and support those who need additional help in order to maximise their chances of achieving the Early Learning Goals and allowing a smooth transition into Key Stage 1.

Throughout the rest of the school, we teach the National Curriculum using the White Rose Scheme where the sequences have been designed to support the delivery of a carefully planned progression that ensures there is consistency across the school. The focus in maths lessons is fluency, not speed. Before each new topic, the children are assessed on what they have already learned in previous years, so that those who meet expectations can be given the appropriate tasks to allow progression and those who require more support are given scaffolded tasks and interventions. We 'live mark' during maths lessons in order to assist any child that needs it or to ensure that children are challenging themselves. Children who have a secure understanding of concepts need to consolidate their understanding and are challenged through rich and sophisticated problems before moving onto new contents.

Impact

By the end of EYFS and each key stage, we aim for children to be fluent in the fundamentals of mathematics with a conceptual understanding and the ability to recall and apply knowledge rapidly and with accuracy. The children should have the skills and resilience to solve problems by applying their mathematics to a variety of situations, including routine and non-routine contexts. Children will be able to reason mathematically by following a line of enquiry and by the end of key stage 2, they will confidently develop and present a justification, argument or proof using mathematical language.

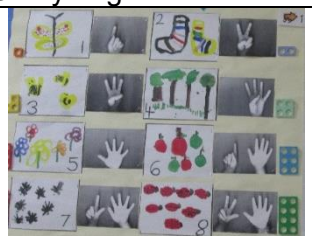
ADDITION

Nursery

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (22-36 months through to 40-60 months)

- Selects a small number of objects from a group when asked, for example, 'please give me one', 'please give me two'.
- Creates and experiments with symbols and marks representing ideas of number.
- Begins to make comparisons between quantities.
- Uses some language of quantities, such as 'more' and 'a lot'.
- Knows that a group of things changes in quantity when something is added or taken away.

Objective and strategy	Concrete	Pictorial	Abstract
Develop understanding of quantity/ amount	Comparing groups of objects while discussing their size.  "this tower is bigger" "this tower has more/less" "Can you get three blocks?"	Represent amounts through drawings/ pictures e.g. "How many ducklings are on this page of the book?" "the car in this picture has 4 wheels" "the train in this picture has 8wheels" "Who has more lollies in this picture?" "Draw three lolies", "I drew four circles"	Creates and experiments with symbols and marks representing ideas of number.  "Wow! You made three marks in the sand"
Develop understanding of what number symbols mean	 "These are three blocks" "Make a tower with three blocks"		Experiment with number symbols in practical ways, Sandpits, paint, water marking…  "Wow, you drew the number 3 in the sand!"
Knowing that quantities change when we add or take away objects	 "we can make the tower smaller . taking some blocks away"	Why don't we make my bag of sweets bigger?Let's draw some more sweets in it. 	At this stage children will explore this in practical ways

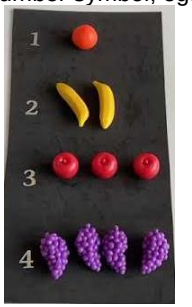
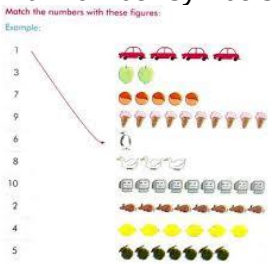
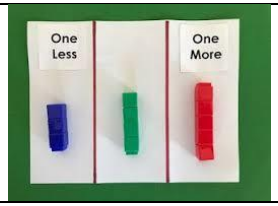
ADDITION

Reception

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (Early Learning Goal)

- Count reliably with numbers 1-20
- Place numbers 1-20 in order
- Say which number is one more or one less than a given number
- Using quantities and objects add and subtract two single digit numbers and count on or back to find the answer
- Solve problems including doubling, halving and sharing

Objective and strategy	Concrete	Pictorial	Abstract
Count from 1-20 and order numbers	Using fingers to show the numbers from 1-10  Matching groups of objects to their number symbol, eg: 	Matching pictures of amounts, with number symbols  Making representations of number lines	Place number cards in order 1-20. Count from 1-20 in order
Say which number is one more or one less		Use pictorial representations to find how much is one more, or one less 	Identify which number comes before/after 

ADDITION

Year 1

The Big Ideas

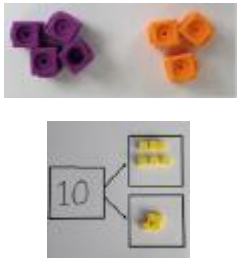
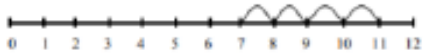
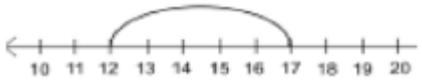
Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. For example, given 8 + 7, thinking of 7 as 2 + 5 and adding the 2 to 8 to make 10 and then the 5 to total 15.

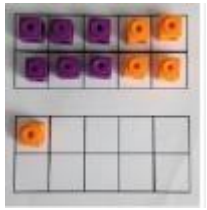
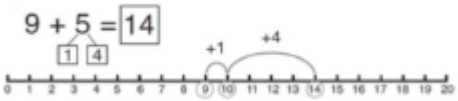
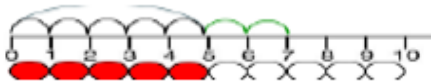
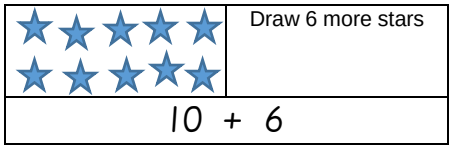
Thinking of part-whole relationships is helpful in linking addition and subtraction. For example, where the whole is 6, and 4 and 2 are parts. This means that 4+2 together form the whole(6) and 6 subtract 4 leaves the 2 or 6 subtract 2 leaves the 4.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- represent and use number bonds and related subtraction facts within 20
- add and subtract 1-digit and 2-digit numbers to 20, including 0

Objective and strategy	Concrete	Pictorial	Abstract
Combining two parts to make a whole: part- whole model			3 + 2 = 5 8 + 1 = 9
	Bar Model	 	
Starting at the bigger number and counting on	Start with the larger number on the bead string and then count on 	7 + 4 = 11  In jumps of one 12 + 5 = 17  In one jump	5 + 12 = 17 Encourage children to use the commutative law, writing and calculating as: 12 + 5 = 17

Regrouping to make 10	 9 + 3 = 12 Use ten frames: 6 + 5 = 11 	 9 + 3 = 12   Children need to know how to partition in different ways so that they can regroup to 10	7 + 4 = 11 If I am at seven, how many more do I need to make 10? How many more do I add on now?
Represent and use number bonds and related subtraction facts within 20	 5 + 2  6 more than 10	 5 + 2 	*Emphasis should be on the language* 2 more than 5 is 7 6 more than 10 equals sixteen

ADDITION

Year 2

The Big Ideas

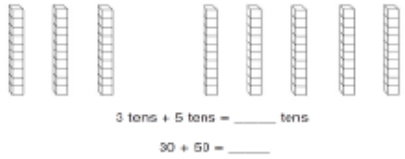
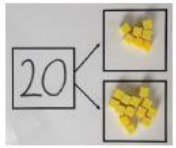
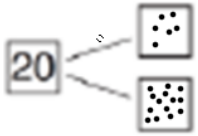
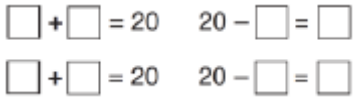
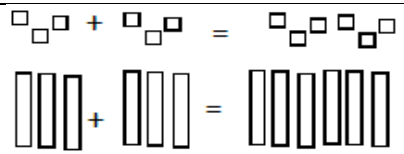
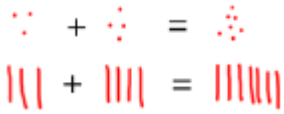
Understanding that addition of two or more numbers can be done in any order is important to support children's fluency. When adding two numbers it can be more efficient to put the larger number first. When adding three or more numbers it is helpful to look for pairs of numbers that are easy to add. For example, given 5 + 8 + 2 it is easier to add 8 + 2 first.

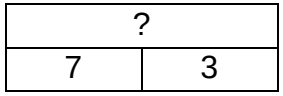
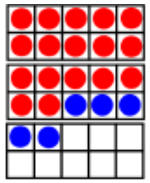
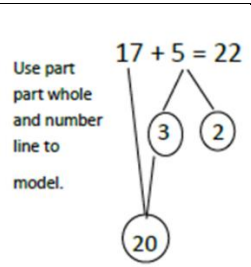
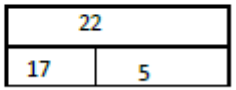
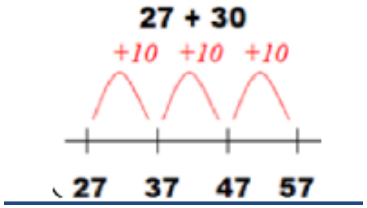
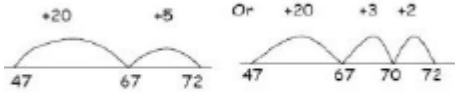
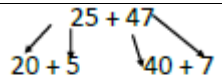
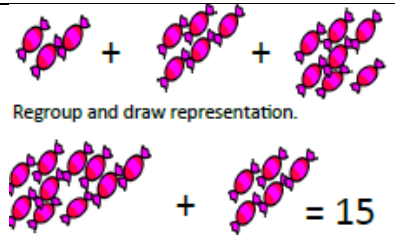
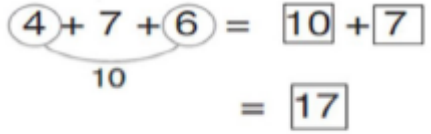
Understanding the importance of the equals sign meaning 'equivalent to' is crucial for later work in algebra. Empty box problems can support the development of this key idea. Correct use of the equals sign should be reinforced at all times. Altering where the equals sign is placed develops fluency and flexibility.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- solve problems with addition and subtraction:
  using concrete objects and pictorial representations, including those involving numbers, quantities and measures
  applying an increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  a 2-digit number and ones
  a 2-digit number and tens
  two 2-digit numbers
  adding three 1-digit numbers
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot

Objective and strategy	Concrete	Pictorial	Abstract
Adding multiples of ten	50=20+30 		20+30=50 50=30+20
Use known number facts (part-part whole)  Use numbers within 20			
Using known facts			3+3=6, so 30+30=60

Bar model	First  7 + 3 = 10	then 	
Add two digit numbers and ones	use ten frames to explore patterns 		Explore related facts 17 + 5 = 22 5 + 17 = 22 22—17 = 5 22—5 = 17 
Add a 2 digit number and tens	 25 + 10 = 35		27+10=37 27+30=57
Add two 2digit numbers	 Model using dienes , place value counters and numicon	 Use number line and bridge ten using part whole if necessary.	 20 + 40 = 60 5+ 7 =12 60 + 12 = 72
Add three 1digit numbers	 Combine to make 10 first if possible, or bridge 1o then add third digit		 Combine the two numbers that make/ bridge ten then add on the third.

ADDITION

Year 3

The Big Ideas

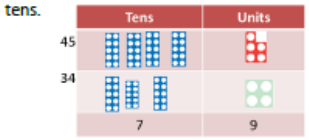
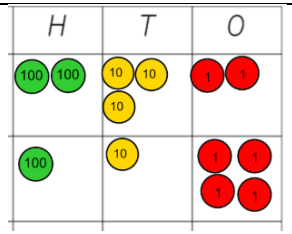
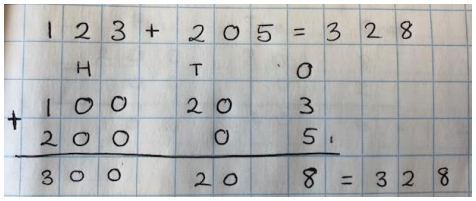
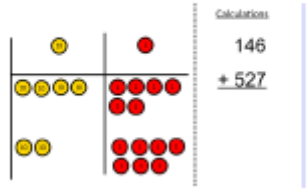
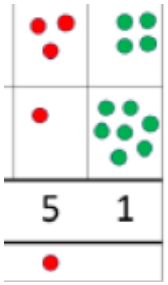
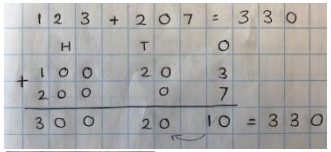
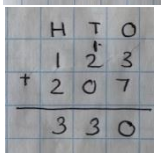
Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. For example, given 8 + 7, thinking of 7 as 2 + 5, and adding the 2 and 8 to make 10, then the 5 to 15. This should then be applied when calculating with larger numbers.

Subtraction bonds can be thought of in terms of addition: for example, in answering 15 – 8, thinking what needs to be added to 8 to make 15.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- add and subtract numbers mentally, including:
  - a 3-digit number and ones
  - a 3-digit number and tens
  - a 3-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

Objective and strategy	Concrete	Pictorial	Abstract
Column addition no regrouping	 Model using Dienes or numicon Add together the ones first, then the tens.   Move to using place value counters	 Children move to drawing the counters using a fame	 Moving towards the column method
Column addition with regrouping	Exchange ten ones for a ten. Model using numicon and pv counters. 	 Children can draw a representation of the grid to further support their understanding, carrying the ten underneath the line	First  Then 

ADDITION

Year 4

The Big Ideas

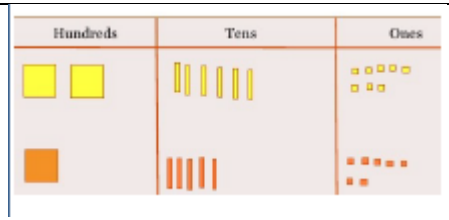
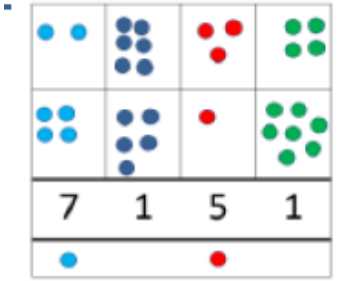
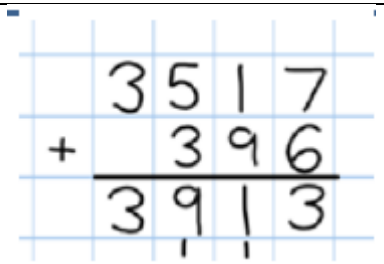
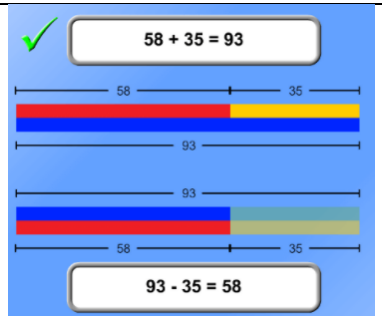
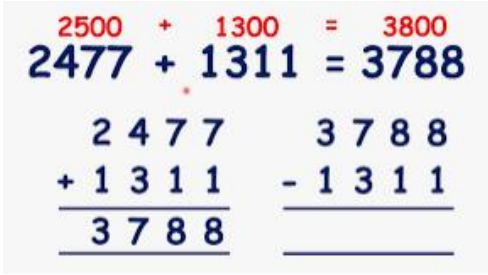
It helps to round numbers before carrying out a calculation to get a sense of the size of the answer. For example, 4786 – 2135 is close to 5000 – 2000, so the answer will be around 3000.

Looking at the numbers in a calculation and their relationship to each other can help make calculating easier. For example, 3012 – 2996. Noticing that the numbers are close to each other might mean this is more easily calculated by thinking about subtraction as difference.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- solve addition and subtraction two-step problems in context, deciding which operations and methods to use and why

Objective and strategy	Concrete	Pictorial	Abstract
Add numbers with up to 4 digits, using columnar methods	 (include addition of decimals though money)	 Use PV grids to support	 Continue from previous work to carry hundreds as well as tens. Relate to money and measures.
Estimate and use inverse operations to check answers to a calculation			

ADDITION

Year 5

The Big Ideas

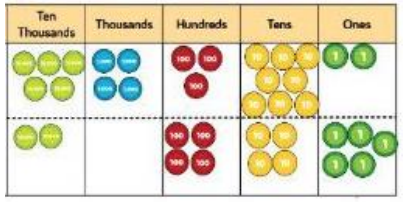
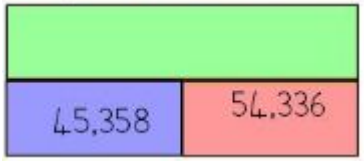
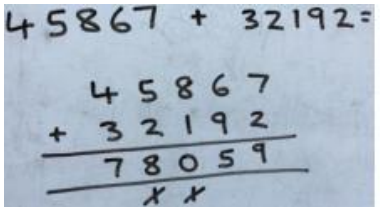
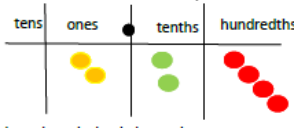
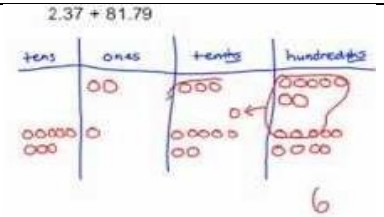
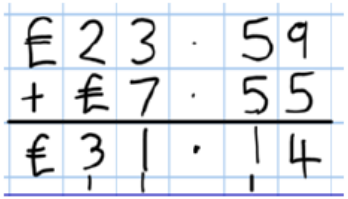
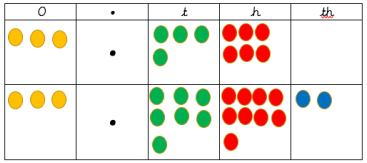
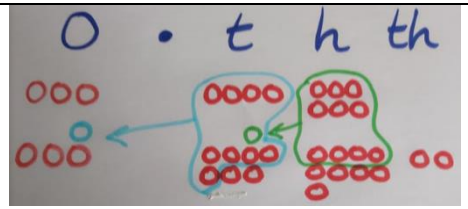
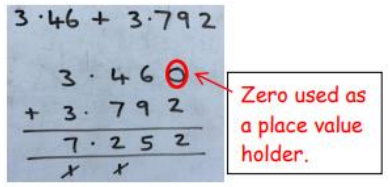
Before starting any calculation is it helpful to think about whether or not you are confident that you can do it mentally. For example, 3689 + 4998 may be done mentally, but 3689 + 4756 may require paper and pencil.

Carrying out an equivalent calculation might be easier than carrying out the given calculation. For example 3682 – 2996 is equivalent to 3686 – 3000 (constant difference).

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- add and subtract whole numbers with more than four digits, including using formal written methods (columnar addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers (e.g. 12 462 – 2300 = 10 162)
- solve problems involving numbers up to three decimal places *(Taken from Y5 Fractions, Decimals and Percentages)*

Objective and strategy	Concrete	Pictorial	Abstract
Add numbers with more than 4 digits.	What is the total? 	Complete the bar model 	
add decimal numbers with the same number of decimal places	Continue to practice using place value grids and counters. Revisit the idea that ten tenths make one whole. Regroup when necessary 		
add decimal numbers with a different number of decimal places	3.46 + 3.792 		

ADDITION

Year 6

The Big Ideas

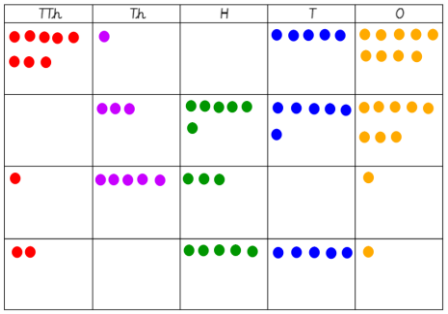
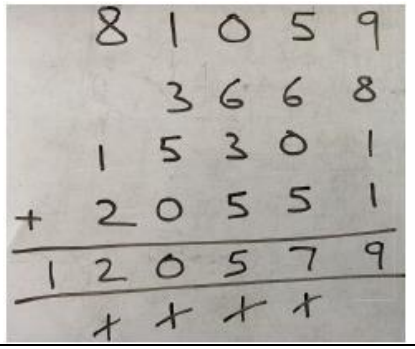
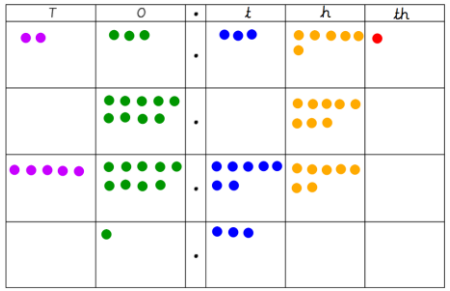
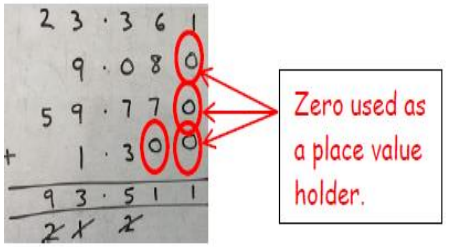
Deciding which calculation method to use is supported by being able to take apart and combine numbers in many ways. For example, calculating 8·78 + 5·26 might involve calculating 8·75 + 5·25 and then adjusting the answer.

The associative rule helps when adding three or more numbers: 367 + 275 + 525 is probably best thought of as 367 + (275 + 525) rather than (367 + 275) + 525.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Objective and strategy	Concrete	Pictorial	Abstract
Children will add several numbers of increasing complexity	81059+3668+15301+20551 		81059+3668+15301+20551 
Children will add several decimals numbers with a different number of decimal places	23.361+9.08+59.77+1.3 		23.361+9.08+59.77+1.3 

Subtraction

Nursery

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (22-36 months through to 40-60 months)

- Selects a small number of objects from a group when asked, for example, 'please give me one', 'please give me two'.
- Creates and experiments with symbols and marks representing ideas of number.
- Begins to make comparisons between quantities.
- Uses some language of quantities, such as 'more' and 'a lot'.
- Knows that a group of things changes in quantity when something is added or taken away.

Objective and strategy	Concrete	Pictorial	Abstract
Develop understanding of quantity/ amount	Comparing groups of objects while discussing their size.  "this tower is bigger" "this tower has more/less" "Can you get three blocks?"	Represent amounts through drawings/ pictures e.g. "How many ducklings are on this page of the book?" "the car in this picture has 4 wheels" "the train in this picture has 8wheels" "Who has more lollies in this picture?" "Draw three lolies", "I drew four circles"	Creates and experiments with symbols and marks representing ideas of number.  "Wow! You made three marks in the sand"
Develop understanding of what number symbols mean	 "These are three blocks" "Make a tower with three blocks"		Experiment with number symbols in practical ways, Sandpits, paint, water marking…  "Wow, you drew the number 3 in the sand!"
Knowing that quantities change when we add or take away objects	 "we can make the tower smaller . taking some blocks away"	Why don't we make my bag of sweets bigger?Let's draw some more sweets in it. 	At this stage children will explore this in practical ways

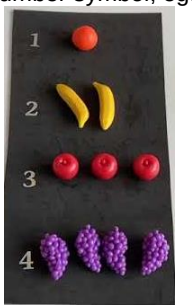
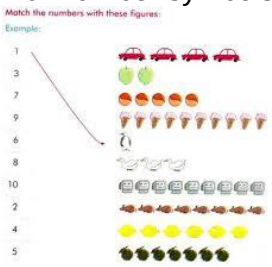
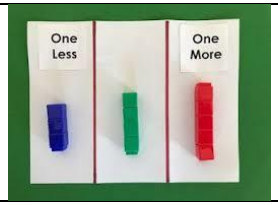
Subtraction

Reception

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (Early Learning Goal)

- Count reliably with numbers 1-20
- Place numbers 1-20 in order
- Say which number is one more or one less than a given number
- Using quantities and objects add and subtract two single digit numbers and count on or back to find the answer
- Solve problems including doubling, halving and sharing

Objective and strategy	Concrete	Pictorial	Abstract
Count from 1-20 and order numbers	Using fingers to show the numbers from 1-10  Matching groups of objects to their number symbol, eg: 	Matching pictures of amounts, with number symbols  Making representations of number lines	Place number cards in order 1-20. Count from 1-20 in order
Say which number is one more or one less		Use pictorial representations to find how much is one more, or one less 	Identify which number comes before/after 

Subtraction

Year 1

The Big Ideas

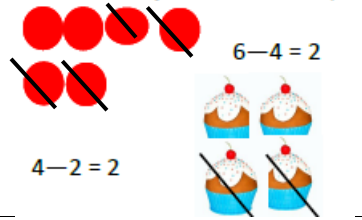
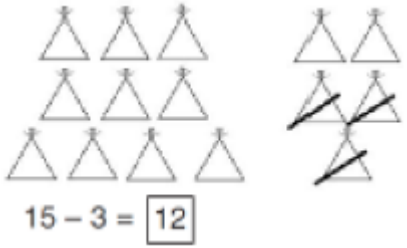
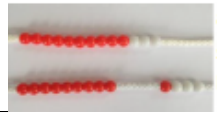
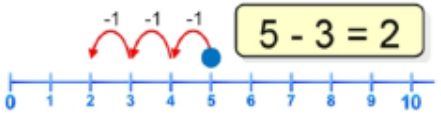
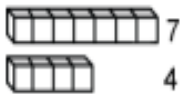
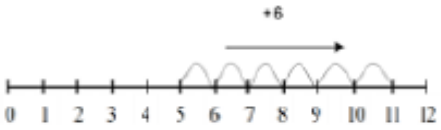
Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. For example, given 8 + 7, thinking of 7 as 2 + 5 and adding the 2 to 8 to make 10 and then the 5 to total 15.

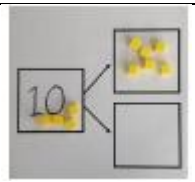
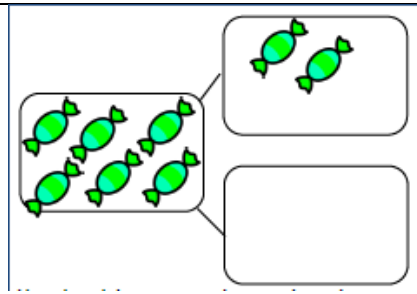
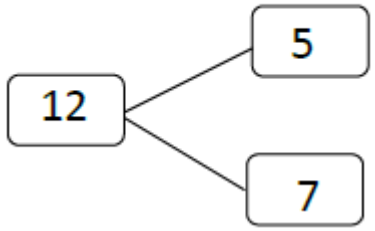
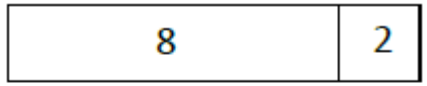
Thinking of part-whole relationships is helpful in linking addition and subtraction. For example, where the whole is 6, and 4 and 2 are parts. This means that 4+2 together form the whole(6) and 6 subtract 4 leaves the 2 or 6 subtract 2 leaves the 4.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- represent and use number bonds and related subtraction facts within 20
- add and subtract 1-digit and 2-digit numbers to 20, including 0

Objective and strategy	Concrete	Pictorial	Abstract
Taking away ones	Use physical objects, counters , cubes etc to show how objects can be taken away. 		15-3=12
Counting backwards	 Move objects away from the group, counting backwards.  Move the beads along the bead string as you count backwards.		Put 13 in your head, count back 4. What number are you at?
Find the difference	Compare objects and amounts  'Seven is 3 more than four'		Hannah has12 sweets and her sister has 5. How many more does Hannah have than her sister.?

Represent and use number bonds and related facts to 20 Part-part whole	 *If 10 is the whole and 6 is one of the parts, how much is the other part?*		Move to using numbers within the part whole model. 
Bar model	 5—2 = 3		 10 = 8 + 2 10 = 2 + 8 10—2 = 8 10—8 = 2

Subtraction

Year 2

The Big Ideas

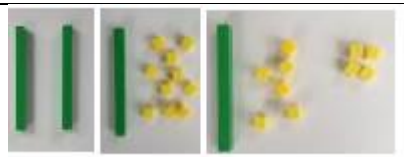
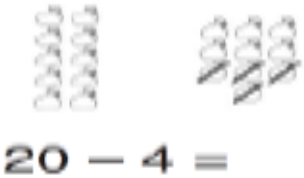
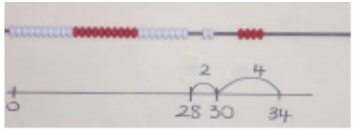
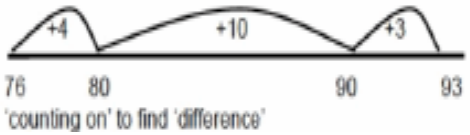
Understanding that addition of two or more numbers can be done in any order is important to support children's fluency. When adding two numbers it can be more efficient to put the larger number first. When adding three or more numbers it is helpful to look for pairs of numbers that are easy to add. For example, given 5 + 8 + 2 it is easier to add 8 + 2 first.

Understanding the importance of the equals sign meaning 'equivalent to' is crucial for later work in algebra. Empty box problems can support the development of this key idea. Correct use of the equals sign should be reinforced at all times. Altering where the equals sign is placed develops fluency and flexibility.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- solve problems with addition and subtraction:
  using concrete objects and pictorial representations, including those involving numbers, quantities and measures
  applying an increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  a 2-digit number and ones - a 2-digit number and tens - two 2-digit numbers -adding three 1-digit numbers
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot

Objective and strategy	Concrete	Pictorial	Abstract
Regroup a ten into ten ones	 Use a PV chart to change a ten into ten ones.	 20 − 4 =	20-4=16
Partitioning into tens and ones to subtract without regrouping (choose friendly numbers)	 34-13=21	 43—21 = 22	43-21=22
Make ten strategy	34-28=6  Start with the smaller number, count on until the next ten, and the the rest. How much did I have to add in total?	 'counting on' to find 'difference'	93-76= 17

Subtraction
Year 3

The Big Ideas

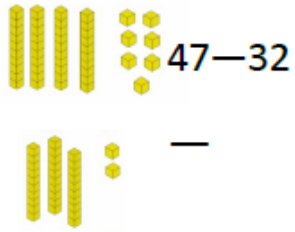
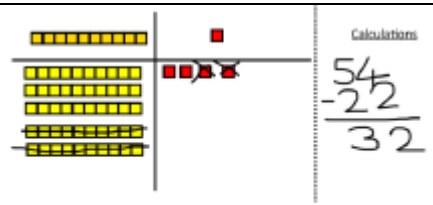
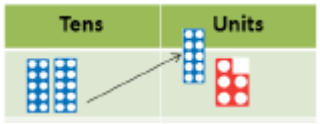
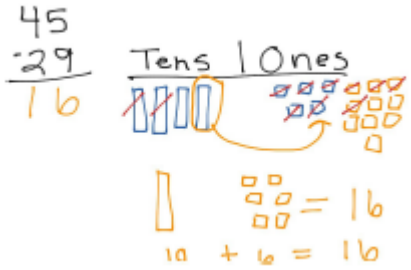
Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. For example, given 8 + 7, thinking of 7 as 2 + 5, and adding the 2 and 8 to make 10, then the 5 to 15. This should then be applied when calculating with larger numbers.

Subtraction bonds can be thought of in terms of addition: for example, in answering 15 – 8, thinking what needs to be added to 8 to make 15.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- add and subtract numbers mentally, including:
  - a 3-digit number and ones
  - a 3-digit number and tens
  - a 3-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

Objective and strategy	Concrete	Pictorial	Abstract
Column subtraction without exchanging first (friendly numbers)	 (Use three digit numbers)	 Darw representations to support under-standing	554-122=432
Column subtraction with exchanging	 Use concrete resources to model how you would change a ten for ten ones, in order to be able to take away. Then take away physically. What is left?	 Children draw and show the exchanging of one ten for ten ones. Then, they cross off what they are taking away.	545-29=516

Subtraction
Year 4

The Big Ideas

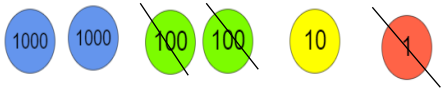
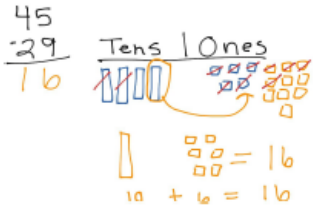
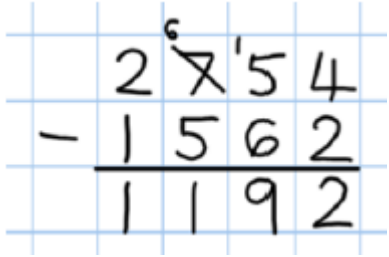
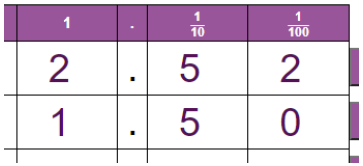
It helps to round numbers before carrying out a calculation to get a sense of the size of the answer. For example, 4786 – 2135 is close to 5000 – 2000, so the answer will be around 3000.

Looking at the numbers in a calculation and their relationship to each other can help make calculating easier. For example, 3012 – 2996. Noticing that the numbers are close to each other might mean this is more easily calculated by thinking about subtraction as difference.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- solve addition and subtraction two-step problems in context, deciding which operations and methods to use and why

Objective and strategy	Concrete	Pictorial	Abstract
Column subtraction including exchanging, using four digit numbers.	2211-201= 2010  Use place value charts and counters to make the initial number, then take away the amount needed. If there is a need to exchange, model how to change a ten for ten ones, or a hundred for ten tens , or a thousand for ten hundreds using concrete resources.	When there is a need to exchange, use pictorial representations to model how to change a ten for ten ones, or a hundred for ten tens , or a thousand for ten hundreds. 	1280-376= 904 
Introduce subtraction with decimals through the context of money	£2.52- £ 1.50= £1.02  Make the amount using coins and then take away. If it isn't possible to take away, you may need to swap coins. Eg. Swap a 50p for five 10p coins	£2.52- £1.50= £1.02  Use place value grids to model and represent. Children may wish to draw/ place coins in the grid.	£2.52-£1.50= £1.02

Subtraction
Year 5

The Big Ideas

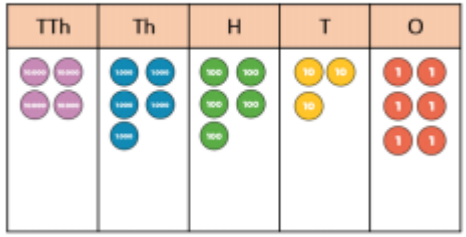
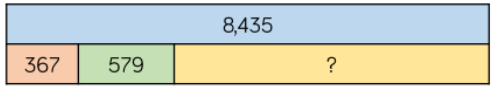
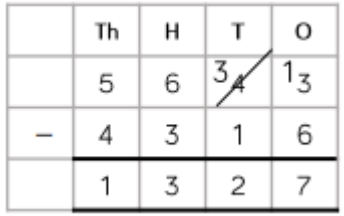
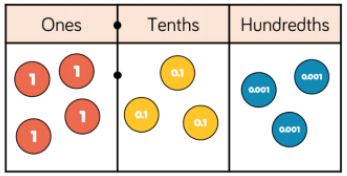
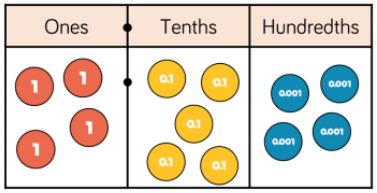
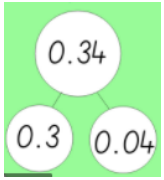
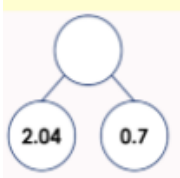
Before starting any calculation is it helpful to think about whether or not you are confident that you can do it mentally. For example, 3689 + 4998 may be done mentally, but 3689 + 4756 may require paper and pencil.

Carrying out an equivalent calculation might be easier than carrying out the given calculation. For example 3682 – 2996 is equivalent to 3686 – 3000 (constant difference).

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- add and subtract whole numbers with more than four digits, including using formal written methods (columnar addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers (e.g. 12 462 – 2300 = 10 162)
- solve problems involving numbers up to three decimal places *(Taken from Y5 Fractions, Decimals and Percentages)*

Objective and strategy	Concrete	Pictorial	Abstract
subtract whole numbers with more than four digits, including using formal written methods (columnar subtraction)	45,536 – 8,426 	A shop has 8,435 magazines. 367 are sold in the morning and 579 are sold in the afternoon. How many magazines are left?  There are ___ magazines left.	5643-4316 = 
subtraction involving numbers up to three decimal places Same number of decimal places	Use the place value chart to find the to answer 4.33 – 2.14  4 . 3 3 – 2 . 1 4 _____ _____		Use the column method to answer these questions. 6 . 4 – 3 . 8 = _____ 5 . 0 5 – 2 . 1 5 = _____
Subtraction with decimals – different number of decimal places	Use the place value grid to help subtract 1.4 from 4.54  4 . 5 4 – 1 . 4 _____ _____	Children need to be confident in their use of place value  	4 . 5 4 – 1 . 4 _____ _____

Subtraction
Year 6

The Big Ideas

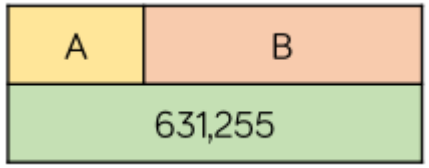
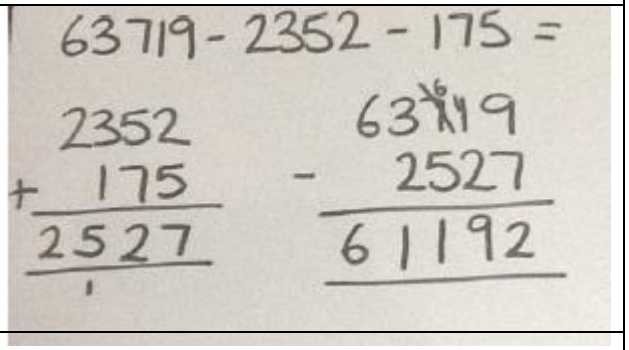
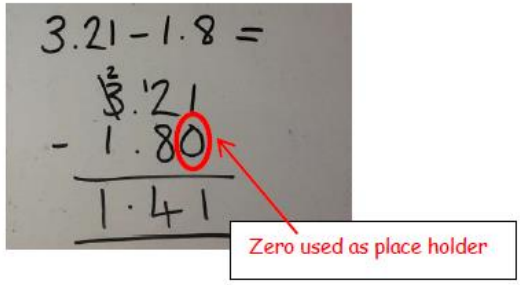
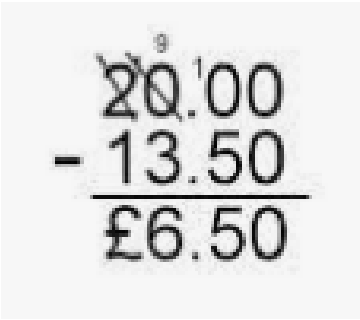
Deciding which calculation method to use is supported by being able to take apart and combine numbers in many ways. For example, calculating 8·78 + 5·26 might involve calculating 8·75 + 5·25 and then adjusting the answer.

The associative rule helps when adding three or more numbers: 367 + 275 + 525 is probably best thought of as 367 + (275 + 525) rather than (367 + 275) + 525.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Objective and strategy	Concrete	Pictorial	Abstract
Subtracting integers	Use the same examples that are used in Year 5 to scaffold	Children to use what they know for problem solving and reasoning  Give children clues or ask them to find possible answers	
Subtracting decimals			

Multiplication

Nursery

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (22-36 months through to 40-60 months)

- Selects a small number of objects from a group when asked, for example, 'please give me one', 'please give me two'.
- Creates and experiments with symbols and marks representing ideas of number.
- Begins to make comparisons between quantities.
- Uses some language of quantities, such as 'more' and 'a lot'.
- Knows that a group of things changes in quantity when something is added or taken away.

Objective and strategy	Concrete	Pictorial	Abstract
Develop understanding of quantity/ amount	Comparing groups of objects while discussing their size.  "this tower is bigger" "this tower has more/less" "Can you get three blocks?"	Represent amounts through drawings/ pictures e.g. "How many ducklings are on this page of the book?" "the car in this picture has 4 wheels" "the train in this picture has 8wheels" "Who has more lollies in this picture?" "Draw three lolies", "I drew four circles"	Creates and experiments with symbols and marks representing ideas of number.  "Wow! You made three marks in the sand"
Develop understanding of what number symbols mean	 "These are three blocks" "Make a tower with three blocks"		Experiment with number symbols in practical ways, Sandpits, paint, water marking…  "Wow, you drew the number 3 in the sand!"
Knowing that quantities change when we add or take away objects	 "we can make the tower smaller . taking some blocks away"	Why don't we make my bag of sweets bigger?Let's draw some more sweets in it. 	At this stage children will explore this in practical ways

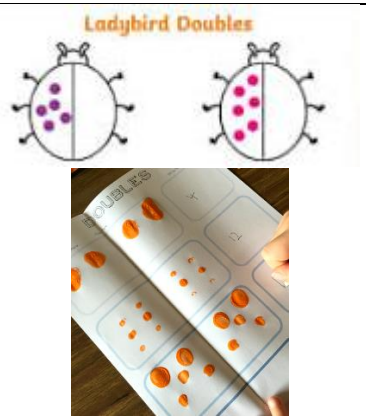
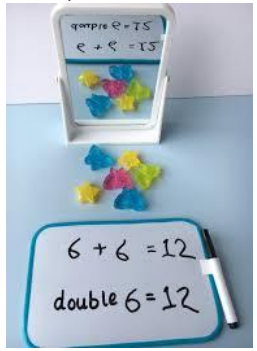
Multiplication

Reception

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (Early Learning Goal)

- Count reliably with numbers 1-20
- Place numbers 1-20 in order
- Say which number is one more or one less than a given number
- Using quantities and objects add and subtract two single digit numbers and count on or back to find the answer
- **Solve problems including doubling**, halving and sharing

Objective and strategy	Concrete	Pictorial	Abstract
Solve problems including doubling			Under the representation , write the numbers, and their double 

Multiplication

Year 1

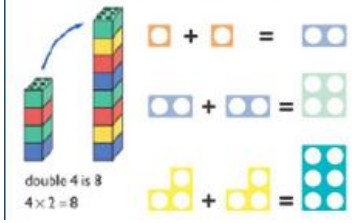
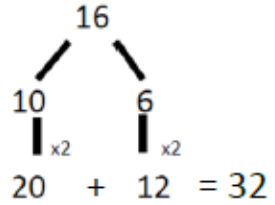
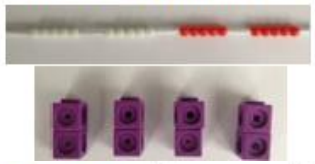
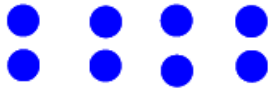
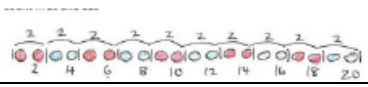
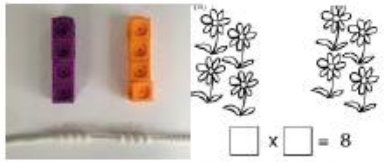
The Big Ideas

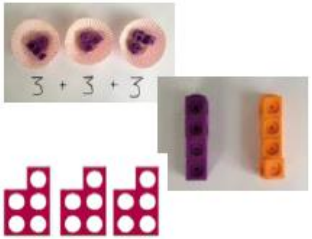
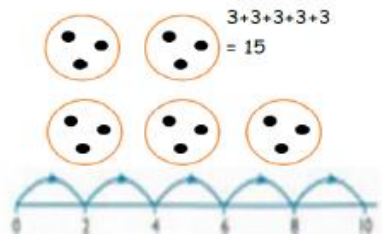
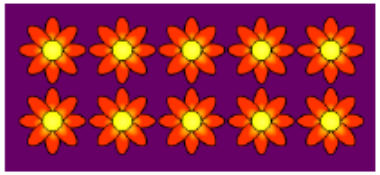
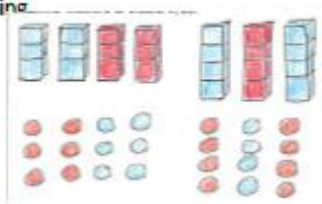
Counting in steps of equal sizes is based on the big idea of 'unitising' ; treating a group of, say, five objects as one unit of five.
Working with arrays helps pupils to become aware of the commutative property of multiplication, that 2 × 5 is equivalent to 5 × 2.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

Objective and strategy	Concrete	Pictorial	Abstract
doubling	Use practical activities using manip-ultives including cubes and Numicon to demonstrate doubling 	Double 4 is 8 	Partition a number and then double each part before recombining it back together. 
Counting in multiples	Count the groups as children are skip counting, children may use their fin-gers as they are skip counting. 	 Children make representations to show counting in multiples. 	2, 4, 6, 8, 10 5, 10, 15, 20, 25 , 30
Making equal groups and counting the total	 Use manipulatives to create equal groups.	2x 3=6 	2 x 4 = 8

Repeated addition	 Use different objects to add equal groups	Use pictorial including number lines to solve prob There are 3 sweets in one bag. How many sweets are in 5 bags altogether? 	5x2= 2+2+2+2+2=10
Understanding arrays	Use objects laid out in arrays to find the answers to 2 lots 5, 3 lots of 2 etc. 	Draw representations of arrays to show understanding 	5x2=10 3x5=15

Multiplication

Year 2

The Big Ideas

It is important that pupils both commit multiplication facts to memory and also develop an understanding of conceptual relationships. This will aid them in using known facts to work out unknown facts and in solving problems.

Pupils should look for and recognise patterns within tables and connections between them (e.g. 5× is half of 10×).

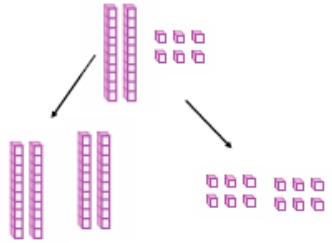
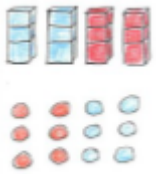
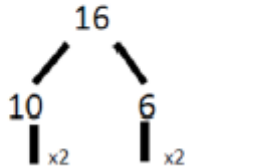
Pupils should recognise multiplication and division as inverse operations and use this knowledge to solve problems. They should also recognise division as both grouping and sharing.

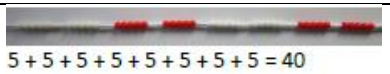
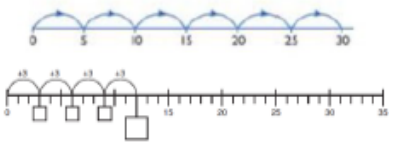
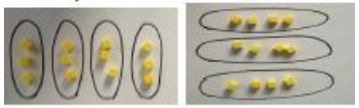
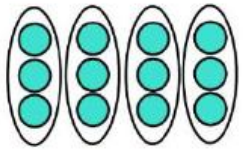
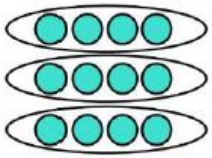
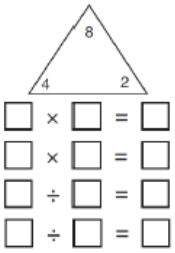
The recognition of pattern in multiplication helps pupils commit facts to memory, for example doubling twice is the same as multiplying by four, or halving a multiple of ten gives you the related multiple of five.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- 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 multiplication and division 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) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

Objective and strategy	Concrete	Pictorial	Abstract
Doubling	Use diennes to support understanding. First, double the tens and the the ones For example: Double of 26 is the same as double of 20 plus double of 6:  40 + 12 = 52	Draw representations 	Partition a number and then double each part before recombining it back together.  20 + 12 = 32

Counting in multiples of 2, 3, 4, 5, 10 from 0 (repeated addition)	 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40  		Write sequences with multiples of numbers. 0, 2, 4, 6, 8, 10 0, 3, 6, 9, 12, 15 0, 5, 10, 15, 20, 25 , 30 $4 \times 3 = \square$
Multiplication is commutative	Create arrays using counters and cubes and Numicon.    Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer. 	Use representations of arrays to show different calculations and explore commutativity.  	$12 = 3 \times 4$ $12 = 4 \times 3$
Using the inverse	 Use the same array to solve multiplication and division, to show how they work alomgnside each other.	 Explore fact families	2 x 4 = 8 4 x 2 = 8 8 ÷ 2 = 4 8 ÷ 4 = 2 8 = 2 x 4 8 = 4 x 2 2 = 8 ÷ 4 4 = 8÷ 2 Explore the use of the equal sign at different places in the number sentence.

Multiplication

Year 3

The Big Ideas

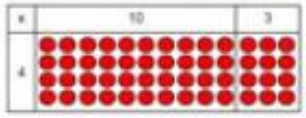
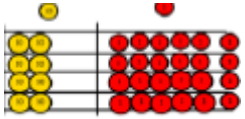
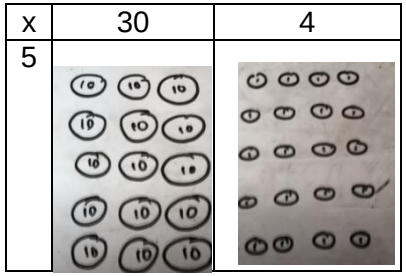
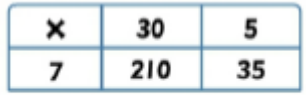
It is important for children not just to be able to chant their multiplication tables but also to understand what the facts in them mean, to be able to use these facts to figure out others and to use in problems. It is also important for children to be able to link facts within the tables (e.g. 5× is half of 10×).

They understand what multiplication means, see division as both grouping and sharing, and see division as the inverse of multiplication.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which *n* objects are connected to *m* objects

Objective and strategy	Concrete	Pictorial	Abstract
Move towards the grid method	Make a link between the previous learning with arrays moving towards the grid method: 13x4  Move on to place value counters showing tens and ones: 26x4= 	Children represent tens and ones in a grid.  34x5=170	 210 + 35 = 245

Multiplication

Year 4

The Big Ideas

It is important for children not just to be able to chant their multiplication tables but to understand what the facts in them mean, to be able to use these facts to figure out others and to use them in problems.
It is also important for children to be able to link facts within the tables (e.g. 5× is half of 10×).
They understand what multiplication means and see division as both grouping and sharing, and to see division as the inverse of multiplication.
The distributive law can be used to partition numbers in different ways to create equivalent calculations. For example, 4 × 27 = 4 × (25 + 2) = (4 × 25) + (4 × 2) = 108.
Looking for equivalent calculations can make calculating easier. For example, 98 × 5 is equivalent to 98 × 10 ÷ 2 or to (100 × 5) – (2 × 5). The array model can help show equivalences.

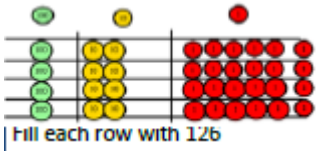
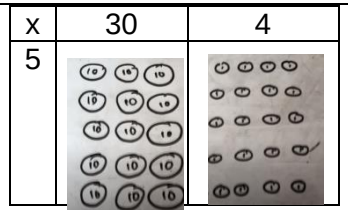
Selected National Curriculum Programme of Study Statements

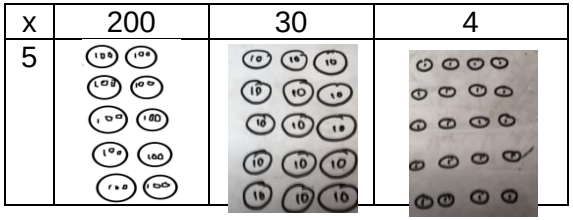
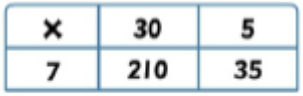
Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to 12 × 12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout
- 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 problems such as *n* objects are connected to *m* objects

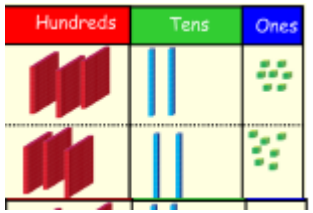
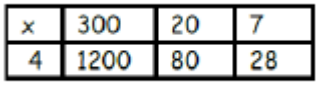
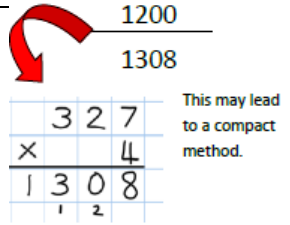
<table>
<tr><th>Objective and strategy</th><th>Concrete</th><th>Pictorial</th><th>Abstract</th></tr>
<tr>
<td>Grid method recap

Move from multiplying 2Dx1D, to 3Dx1D</td>
<td>Use place value counters to layout as a grid

126x4 =
 
</td>
<td>First: 2Dx1D
 

Then: 3Dx1D
 
</td>
<td> 

210 + 35 = 245

327
x 4
28
80
1200
1308</td>
</tr>
<tr>
<td>Moving towards column multiplication</td>
<td>326x2= 652
 
</td>
<td> 
</td>
<td> 
</td>
</tr>
</table>

Multiplication

Year 5

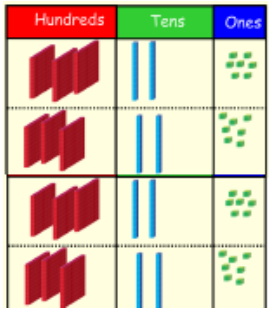
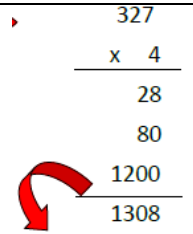
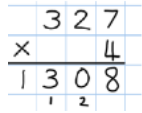
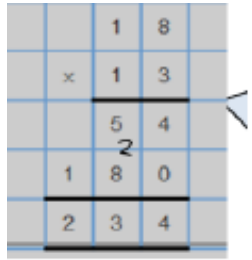
The Big Ideas

Pupils have a firm understanding of what multiplication and division mean and have a range of strategies for dealing with large numbers, including both mental and standard written methods. They see the idea of factors, multiples and prime numbers as connected and not separate ideas to learn.
They recognise how to use their skills of multiplying and dividing in new problem solving situations.
Factors and multiples are connected ideas: 48 is a multiple of 6 and 6 is a factor of 48.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- multiply numbers up to four digits by a 1 or 2-digit number using a formal written method, including long multiplication for 2-digit numbers
- multiply and divide numbers mentally drawing upon known facts
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

Objective and strategy	Concrete	Pictorial	Abstract
Column multiplication for 3 and 4 digits x 1 digit, And 4 digits x 2 digits	327x4=1308  It is important at this stage that they always multiply the ones first.	**First 3 or 4Dx 1D** 327x4=1308 x | 300 | 20 | 7 4 | 1200 | 80 | 28 **Then 2, 3 or 4Dx2D** 18x13=  	 327 x 4 28 80 1200 1308  This will lead to a compact method. Then:  18 x 3 on the first row (8 x 3 =24, carrying the 2 for 20, then 1 x 3) 18 x 10 on the 2nd row.

Multiplication

Year 6

The Big Ideas

Standard written algorithms use the conceptual structures of the mathematics to produce efficient methods of calculation.

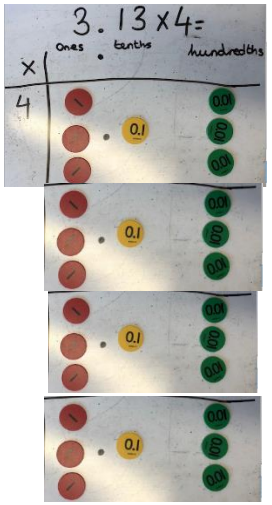
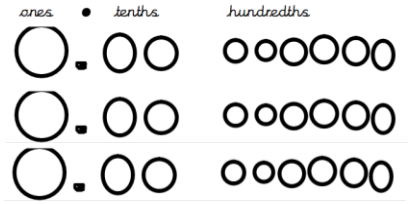
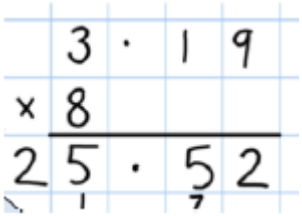
Standard written multiplication method involves a number of partial products. For example, 36 × 24 is made up of four partial products 30 × 20, 30 × 4, 6 × 20, 6 × 4.

There are connections between factors, multiples and prime numbers and between fractions, division and ratios.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- multiply up to four digit numbers by a 2-digit whole number using the formal written method of long multiplication
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve problems involving addition, subtraction, multiplication and division
- multiply 1-digit numbers with up to two decimal places by whole numbers *(taken from Fractions including Decimals and Percentages)*

Objective and strategy	Concrete	Pictorial	Abstract
Continuing with the methods from year 5 for whole numbers. Then, multiplying decimals up to 2 decimal places by a single digit.	Use place value counters to show ones, tenths and hundredths  You can also use Dienes, having a thousand cube to represent one whole, a hundred to represent a tenth, etc.	Use pictorial representations to show ones, tenths and hundredths 1.26x3= 	Emphasise the importance of lining up the decimal points in the layout and in the answer. 

Division

Nursery

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (22-36 months through to 40-60 months)

- Selects a small number of objects from a group when asked, for example, 'please give me one', 'please give me two'.
- Creates and experiments with symbols and marks representing ideas of number.
- Begins to make comparisons between quantities.
- Uses some language of quantities, such as 'more' and 'a lot'.
- Knows that a group of things changes in quantity when something is added or taken away.

Objective and strategy	Concrete	Pictorial	Abstract
Develop understanding of quantity/ amount	Comparing groups of objects while discussing their size.  "this tower is bigger" "this tower has more/less" "Can you get three blocks?"	Represent amounts through drawings/ pictures e.g. "How many ducklings are on this page of the book?" "the car in this picture has 4 wheels" "the train in this picture has 8wheels" "Who has more lollies in this picture?" "Draw three lolies", "I drew four circles"	Creates and experiments with symbols and marks representing ideas of number.  "Wow! You made three marks in the sand"
Develop understanding of what number symbols mean	 "These are three blocks" "Make a tower with three blocks"		Experiment with number symbols in practical ways, Sandpits, paint, water marking…  "Wow, you drew the number 3 in the sand!"
Knowing that quantities change when we add or take away objects	 "we can make the tower smaller . taking some blocks away"	Why don't we make my bag of sweets bigger?Let's draw some more sweets in it. 	At this stage children will explore this in practical ways

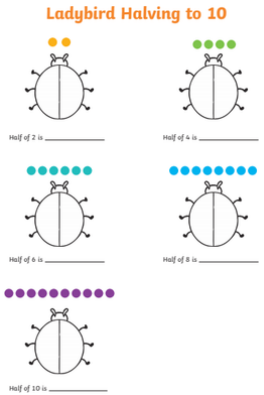
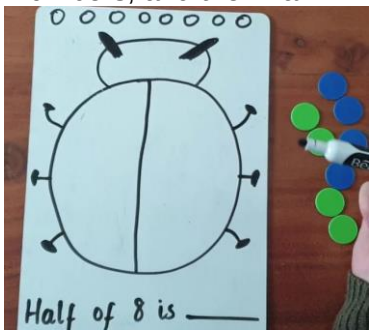
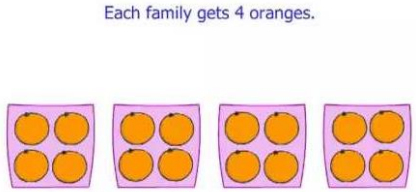
Division

Reception

Selected National Curriculum Programme of Study Statements (from Development Matters)

Pupils should be taught to: (Early Learning Goal)

- Count reliably with numbers 1-20
- Place numbers 1-20 in order
- Say which number is one more or one less than a given number
- Using quantities and objects add and subtract two single digit numbers and count on or back to find the answer
- **Solve problems including doubling, halving and sharing**

Objective and strategy	Concrete	Pictorial	Abstract
Solve problems including halving	Physically sharing objects into two equal groups 		Under the representation , write the numbers, and their half 
Solve problems sharing	Practise sharing objects so each group/person gets the same amount 	Draw representations of sharing equally 	15 shared between 3 is 5.

Division

Year 1

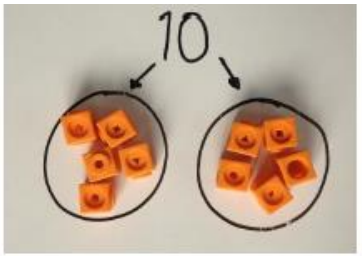
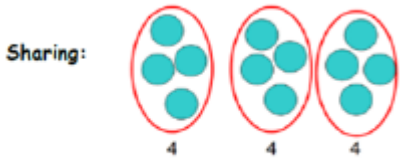
The Big Ideas

Counting in steps of equal sizes is based on the big idea of 'unitising' ; treating a group of, say, five objects as one unit of five.
Working with arrays helps pupils to become aware of the commutative property of multiplication, that 2 × 5 is equivalent to 5 × 2.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

Objective and strategy	Concrete	Pictorial	Abstract
Division as sharing	   I have 10 cubes, can you share them equally in 2 groups?	 12 shared between 3 is 4	12 shared between 3 is 4. 12÷3=4

Division

Year 2

The Big Ideas

It is important that pupils both commit multiplication facts to memory and also develop an understanding of conceptual relationships. This will aid them in using known facts to work out unknown facts and in solving problems.

Pupils should look for and recognise patterns within tables and connections between them (e.g. 5× is half of 10×).

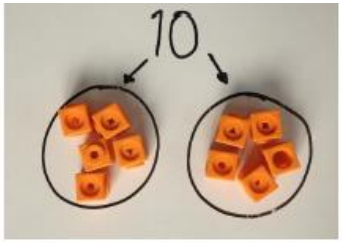
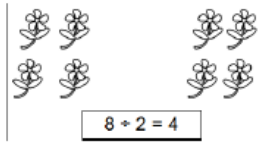
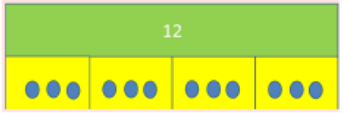
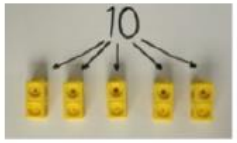
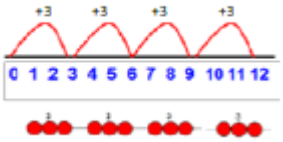
Pupils should recognise multiplication and division as inverse operations and use this knowledge to solve problems. They should also recognise division as both grouping and sharing.

The recognition of pattern in multiplication helps pupils commit facts to memory, for example doubling twice is the same as multiplying by four, or halving a multiple of ten gives you the related multiple of five.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- 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 multiplication and division 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) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

Objective and strategy	Concrete	Pictorial	Abstract
Division as sharing	 I have 10 cubes, can you share them equally in 2 groups?	Children use pictures or shapes to share quantities.  Children use bar modelling to show and support understanding. 	12 ÷ 3 = 4
Division as grouping	With 10 cubes I can make 5 groups of 2 	Use number lines for grouping 	28 ÷ 7 = 4 Divide 28 into 7 groups. How many are in each group?

Division

Year 3

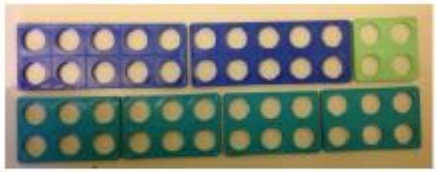
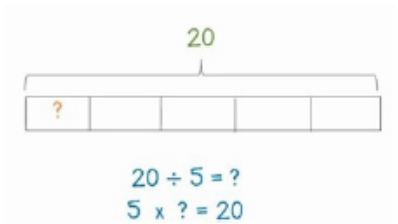
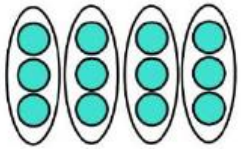
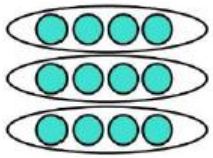
The Big Ideas

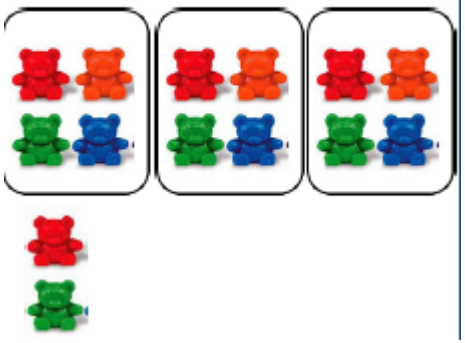
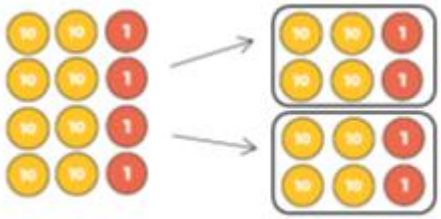
It is important for children not just to be able to chant their multiplication tables but also to understand what the facts in them mean, to be able to use these facts to figure out others and to use in problems. It is also important for children to be able to link facts within the tables (e.g. 5× is half of 10×).
They understand what multiplication means, see division as both grouping and sharing, and see division as the inverse of multiplication.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which *n* objects are connected to *m* objects

Objective and strategy	Concrete	Pictorial	Abstract
Division as grouping	 24 divided into groups of 6 = 4	Continue to use bar modelling to aid solving division problems. 	How many groups of 6 are in 24? 24÷6=4
Division with arrays	 Link with multiplication and infer number sentences: 15÷3=5 15÷5=3 3x5=15 5x3=15	*Draw an array and use lines to split it into groups.*  	Make links by creating fact families: 2 x 4 = 8 4 x 2 = 8 8 ÷ 2 = 4 8 ÷ 4 = 2 8 = 2 x 4 8 = 4 x 2 2 = 8 ÷ 4 4 = 8÷ 2

Division with remainders	Divide objects between groups and see how much is left over  Use PV chips to represent tens and ones: $84 \div 2 = 42$ 	Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.  Draw dots and group them to divide an amount and clearly show a remainder.  Use bar models to show division with remainders.	$14 \div 3 = 4 r 2$ (Use the vocabulary dividend, divisor and quotient)

Division

Year 4

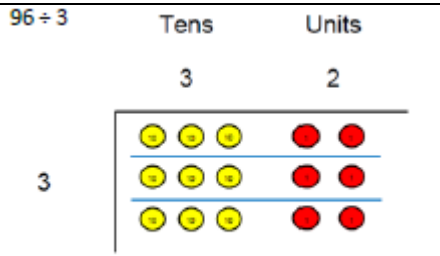
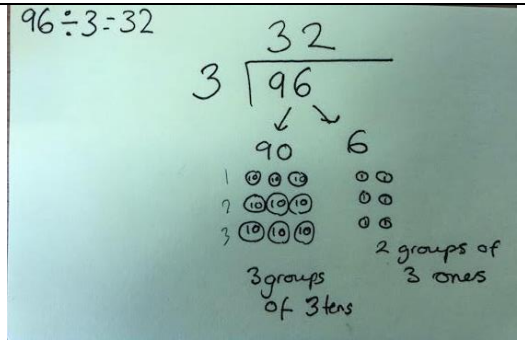
The Big Ideas

It is important for children not just to be able to chant their multiplication tables but to understand what the facts in them mean, to be able to use these facts to figure out others and to use them in problems.
It is also important for children to be able to link facts within the tables (e.g. 5× is half of 10×).
They understand what multiplication means and see division as both grouping and sharing, and to see division as the inverse of multiplication.
The distributive law can be used to partition numbers in different ways to create equivalent calculations. For example, 4 × 27 = 4 × (25 + 2) = (4 × 25) + (4 × 2) = 108.
Looking for equivalent calculations can make calculating easier. For example, 98 × 5 is equivalent to 98 × 10 ÷ 2 or to (100 × 5) – (2 × 5). The array model can help show equivalences.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to 12 × 12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout
- 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 problems such as *n* objects are connected to *m* objects

Objective and strategy	Concrete	Pictorial	Abstract
Divide 2 and 3D numbers by 1digit	 Use place value counters to divide using the bus stop method alongside	 Draw place value counters to divide, alongside the bus stop method.	Begin with divisions that divide equally with no remainder. 2 1 8 3 4 8 7 2 Move onto divisions with a remainder. 8 6 r 2 3 5 4 3 2 (Continue to use the vocabulary dividend, divisor and quotient)

Division

Year 5

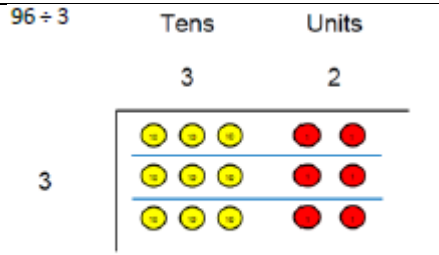
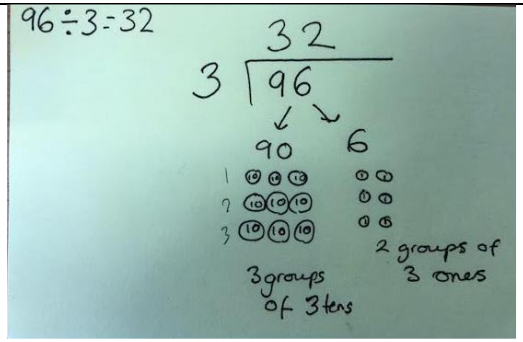
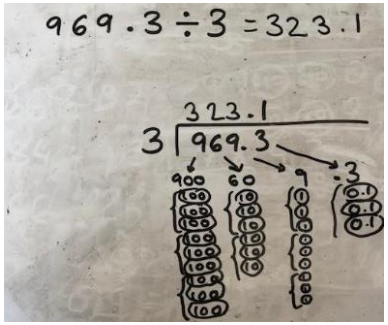
The Big Ideas

Pupils have a firm understanding of what multiplication and division mean and have a range of strategies for dealing with large numbers, including both mental and standard written methods. They see the idea of factors, multiples and prime numbers as connected and not separate ideas to learn.
They recognise how to use their skills of multiplying and dividing in new problem solving situations.
Factors and multiples are connected ideas: 48 is a multiple of 6 and 6 is a factor of 48.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- multiply numbers up to four digits by a 1 or 2-digit number using a formal written method, including long multiplication for 2-digit numbers
- multiply and divide numbers mentally drawing upon known facts
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

Objective and strategy	Concrete	Pictorial	Abstract
Use the bus stop method, including division with decimals	 Use place value counters to divide using the bus stop method alongside	 	Begin with divisions that divide equally with no remainder. 2 1 8 3 4 8 7 2 Move onto divisions with a remainder. 8 6 r 2 3 5 4 3 2

Division

Year 6

The Big Ideas

Standard written algorithms use the conceptual structures of the mathematics to produce efficient methods of calculation.

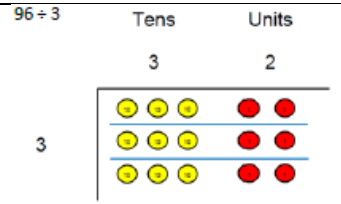
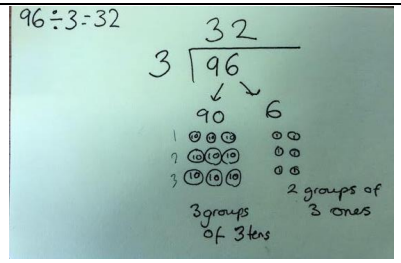
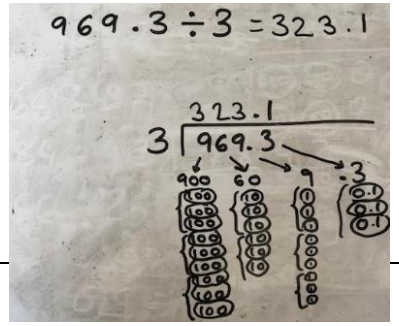
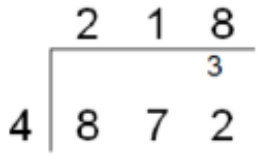
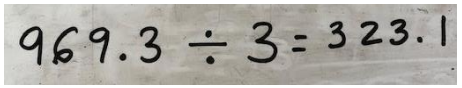
Standard written multiplication method involves a number of partial products. For example, 36 × 24 is made up of four partial products 30 × 20, 30 × 4, 6 × 20, 6 × 4.

There are connections between factors, multiples and prime numbers and between fractions, division and ratios.

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- multiply up to four digit numbers by a 2-digit whole number using the formal written method of long multiplication
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve problems involving addition, subtraction, multiplication and division
- multiply 1-digit numbers with up to two decimal places by whole numbers *(taken from Fractions including Decimals and Percentages)*

Objective and strategy	Concrete	Pictorial	Abstract
Bus stop method including decimals,	 Use place value counters to divide using the bus stop method alongside Use place value counters to deepen understanding of the bus stop method, but build fluency so children's need to represent numbers and group them decreases.	 	 Increasing mental fluency:  8408.32 ÷ 4= 2102.08
Bus stop method including division with remainders	Use place value counters to deepen understanding of the bus stop method, but build fluency so children's need to represent numbers and group them decreases.