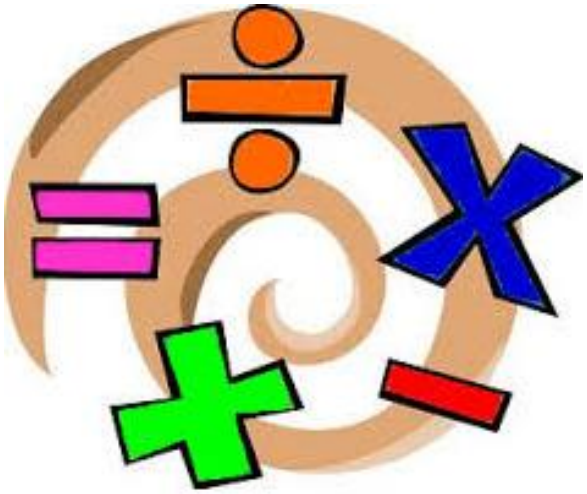
Clifton upon Teme calculation policy.

David Carrette, May 2026, reviewed annually



This calculation policy has been put together with the aim of informing parents on what their children will currently be learning about in mathematics, and how those strategies are being taught. It will assist parents in supporting their children's ongoing learning beyond the classroom and offer an insight into the progression of mathematical teaching and learning at Clifton-upon-Teme Primary school.

National Curriculum (2014) mathematics guidelines:

Purpose of study: A high-quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. The national curriculum for mathematics aims to ensure that all pupils:

- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. Pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

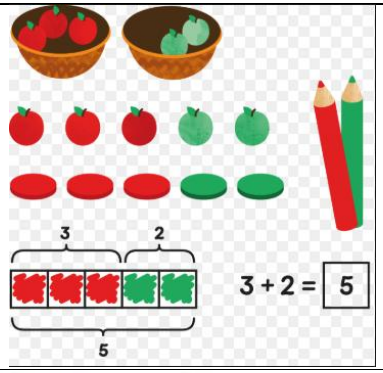
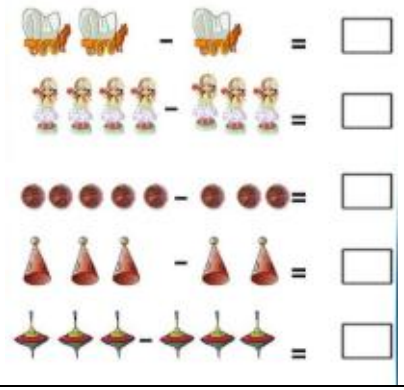
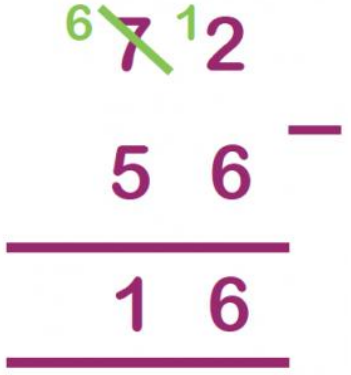
Attainment targets:

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

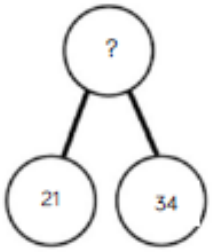
By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Addition and Subtraction.

Concrete Resources:	**Key language for addition:**	**Key language for subtraction:**
100 square Number lines Straws Numicon Place value cards/dice/counters Place value cards Bead strings Dienes	Sum, total, parts and wholes, plus, add, altogether, more, 'is equal to' 'is the same as'.	Count on, count back, fewer, less, take away, difference

Concrete	**Pictorial**	**Abstract**
		
		

Conceptual variation; different ways to ask children to solve 21 + 34



?	
21	34

Word problems:
In year 3, there are 21 children and in year 4, there are 34 children.
How many children in total?

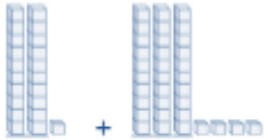
21 + 34 = 55. Prove it

21
+34
___

21 + 34 =

☐ = 21 + 34

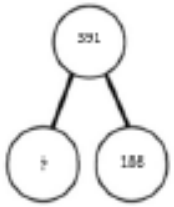
Calculate the sum of twenty-one and thirty-four.



Missing digit problems:

10s	1s
10 10	1
10 10 10	?
?	5

Conceptual variation; different ways to ask children to solve 391 - 186



391	
186	?

Raj spent £391, Timmy spent £186.
How much more did Raj spend?

Calculate the difference between 391 and 186.

☐ = 391 − 186

391
-186
___

What is 186 less than 391?

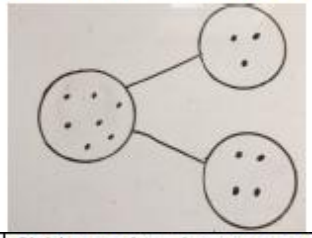
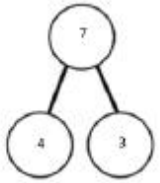
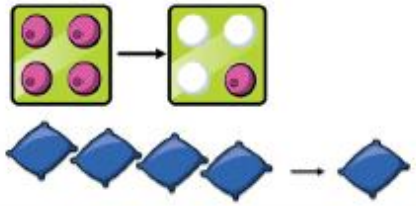
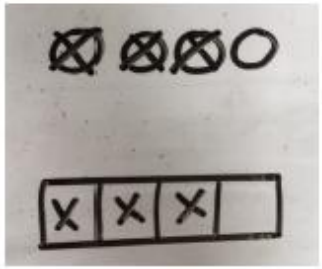
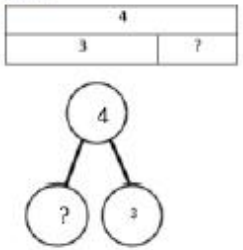
Missing digit calculations

3 9 ☐
- ☐ ☐ 6
☐ 0 5

Reception:

Early learning goals:

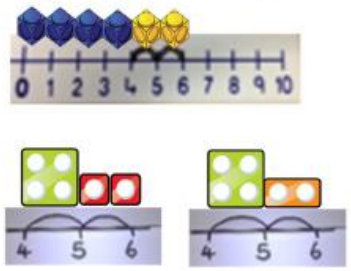
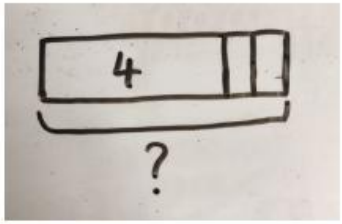
- Count reliably with numbers from 1-20, and place them in order.
- Say which number is one more or one less than a given number.
- Using quantities and objects, add two single-digit numbers and count on to find the answer.

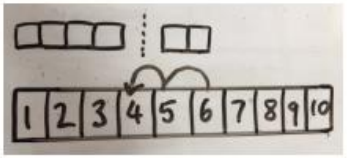
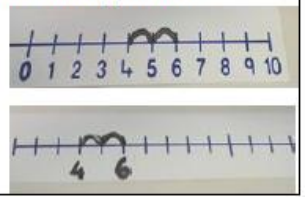
Concrete	Pictorial	Abstract
Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears, cars). 	Children to represent the cubes using dots or crosses. They could put each part on a part whole model too. 	4 + 3 = 7 Four is a part, 3 is a part and the whole is seven. 
Physically taking away and removing objects from a whole (ten frames, Numicon, cubes and other items such as beanbags could be used). 4 – 3 = 1 	Children to draw the concrete resources they are using and cross out the correct amount. The bar model can also be used. 	4- 3 = □ = 4 – 3 

Addition and subtraction Year 1:

National Curriculum (2014) objectives.

With jottings or mentally:	Written methods	Fluency
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens Given a number, identify one more and one less Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Add and subtract one-digit and two-digit numbers to 20, including zero. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9.	Read and write numbers from 1 to 20 in numerals and words. Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs.	Represent and use number bonds and related subtraction facts within 20.

Concrete	Pictorial	Abstract
Counting on using number lines using cubes or Numicon. 	A bar model which encourages the children to count on, rather than count all. 	The abstract number line: What is 2 more than 4? What is the sum of 2 and 4? What is the total of 4 and 2? 4 + 2 

Counting back (using number lines or number tracks) children start with 6 and count back 2. 6 - 2 = 4 	Children to represent what they see pictorially e.g. 	Children to represent the calculation on a number line or number track and show their jumps. Encourage children to use an empty number line 

Conceptual variation:

Number bonds

(Ten frame)

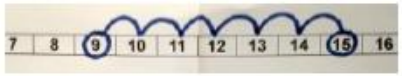
Numicon

Use bonds of 10 to calculate bonds of 20

Count all

Count on

Count on, on number track, in 1s



Number bonds

(Ten frame)

Difference between 7 and 10

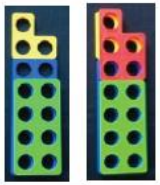
6 less than 10 is 4

Count out, then count how many are left.

7 – 4 = 3

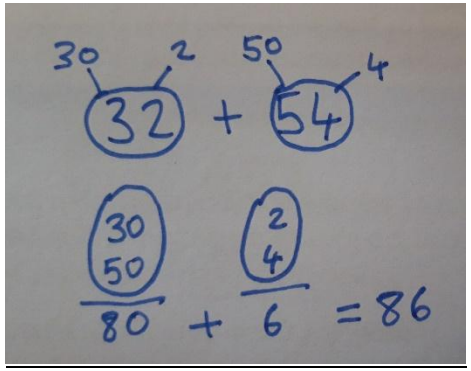
Count back on a number track, then number line.
15 – 6 = 9

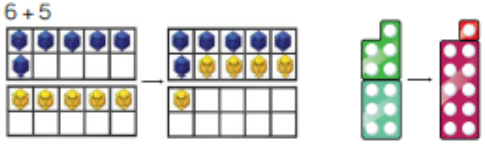
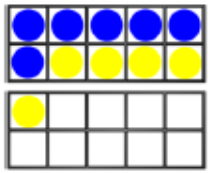
Difference between 13 and 8
13 – 8 = _
8 + _ = 13

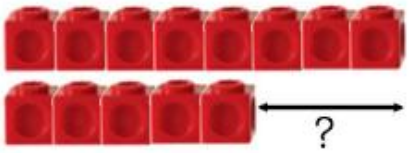
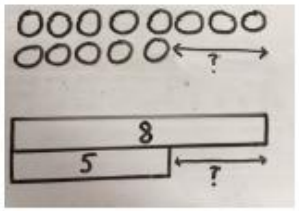


Addition and subtraction year 2:

National Curriculum (2014) objectives.

With jottings or mentally:	Written methods	Fluency
Solve problems with addition and subtraction. Using concrete objects and pictorial representations, including those involving numbers, quantities and measures Add and Subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones o a two-digit number and tens o two two-digit numbers o adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs Using the 'egg' method of adding 2-digit numbers: 	Applying their 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

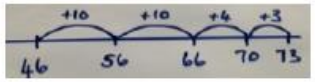
Concrete	Pictorial	Abstract
Regrouping to make 10; using ten frames and counters/cubes or using Numicon. 6 + 5 	Children to draw the ten frame and counters/cubes. 	Children to develop an understanding of equality e.g. 6 + □ = 11 6 + 5 = 5 + □ 6 + 5 = □ + 4

Finding the difference (using cubes, Numicon or Cuisenaire rods, other objects can also be used). Calculate the difference between 8 and 5. 	Children to draw the cubes/other concrete objects which they have used or use the bar model to illustrate what they need to calculate. 	Find the difference between 8 and 5. 8 – 5, the difference is ☐ Children to explore why 9 - 6 = 8 - 5 = 7 - 4 have the same difference.

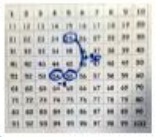
Conceptual variation

Number track / Number line – jumps of 1 then efficient jumps using number bonds
18 + 5 = 23

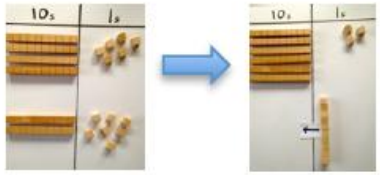
46 + 27 = 73 Count in tens then bridge.



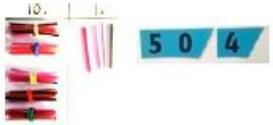
25 + 29 by + 30 then -1 (Round and adjust)



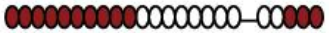
Partition and recombine
46 + 27 = 60 + 13 = 73



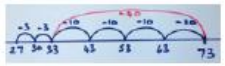
24 +10
+10
+10 = 54



Number track / Number line – jumps of 1 then efficient jumps using number bonds
23 – 5 = 18

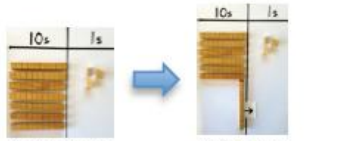


Using a number line, 73 – 46 = 26



Difference between 73 – 58 by counting up, 58 + _ = 73

Taking away and exchanging, 73 – 46



'Where's the 'forty and six?'

Exchange to create 'sixty thirteen'

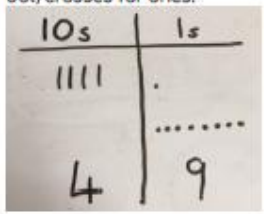
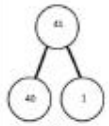
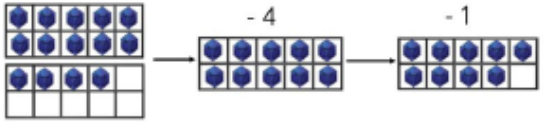
'Twenty seven'

'Now take away the forty and six'

Addition and subtraction in Year 3:

National curriculum objectives.

With jottings or mentally:	Written methods	Fluency
add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds 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.	add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction e.g. 5 2 4 + 9 8 6 2 2 1 1	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100

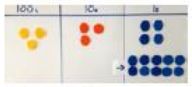
Concrete	Pictorial	Abstract
TO + O using base 10. Continue to develop understanding of partitioning and place value. 41 + 8 	Children to represent the base 10 e.g. lines for tens and dot/crosses for ones. 	41 + 8  1 + 8 = 9 40 + 9 = 49 4 1 + 8 4 9
Making 10 using ten frames. 14 – 5 	Children to present the ten frame pictorially and discuss what they did to make 10. 	Children to show how they can make 10 by partitioning the subtrahend. 14 - 5 = 9 4 1 14 - 4 = 10 10 - 1 = 9

Conceptual variation:

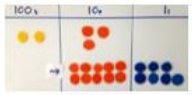
Taking away and exchanging, 344 – 187
Place value counters

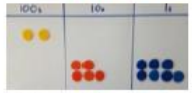
'Where's the one hundred and eighty and seven?

Exchange to create three hundred and thirty and fourteen. Now take away the 'seven'

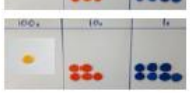


Exchange to create two hundred, thirteen tens and seven
Now take away the 'eighty'

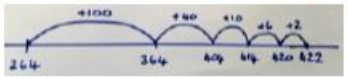




Now take away the 'one hundred



Number line: 264 + 158 efficient jumps

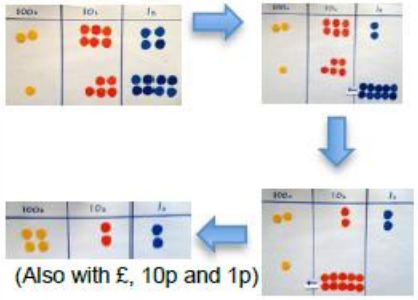


40 + 80 = 120 using 4 + 8 = 12
So 400 + 800 = 1200

243 + 198
by +200 then -2
(Round and adjust)

Pairs that make 100
23 + 77

Place value counters, 100s, 10s, 1s
264 + 158

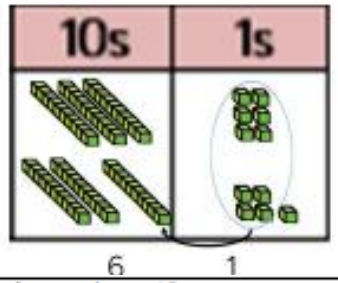
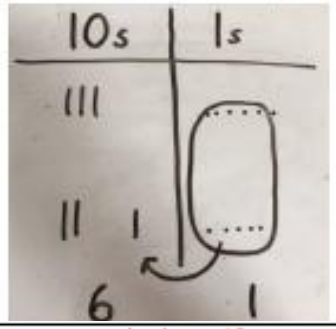
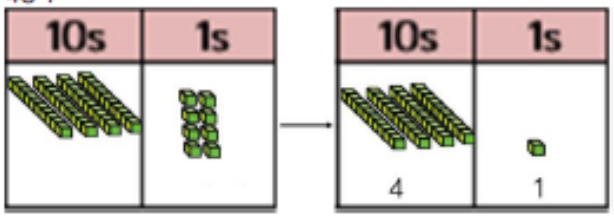
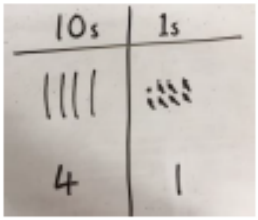


(Also with £, 10p and 1p)

Addition and subtraction in Year 4:

National curriculum objectives.

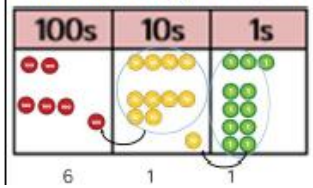
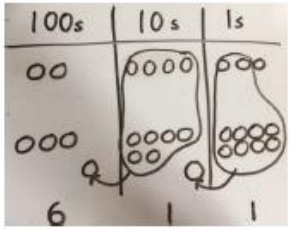
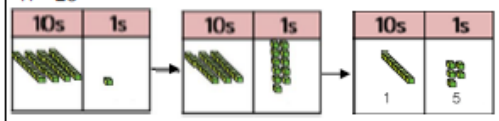
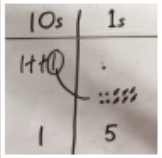
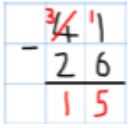
With jottings or mentally:	Written methods
estimate and use inverse operations to check answers to a calculation solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate e.g. 5 2 45 + 9 81 6 2 26 1 1 3 4 1 4 5 0 - 1 7 8 1 7 2

Concrete	Pictorial	Abstract
TO + TO using base 10. Continue to develop understanding of partitioning and place value. 36 + 25 	Chidlren to represent the base 10 in a place value chart. 	Looking for ways to make 10. 36 + 25 = 1 5 30 + 20 = 50 5 + 5 = 10 50 + 10 + 1 = 61 Formal method: 36 +25 61 1
Column method using base 10. 48-7 	Children to represent the base 10 pictorially. 	Column method or children could count back 7. 4 8 - 7 4 1

Addition and subtraction in Year 5:

National curriculum objectives.

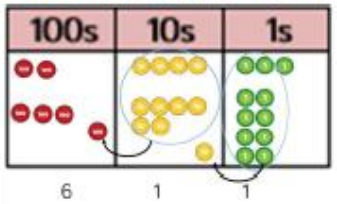
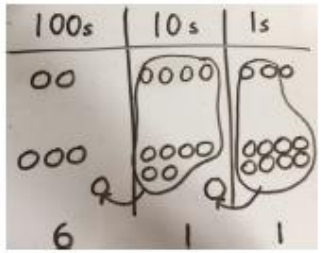
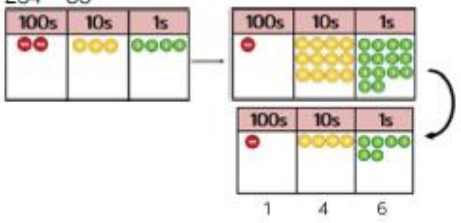
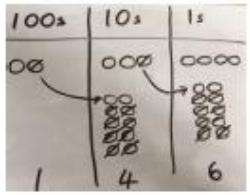
With jottings or mentally:	Written methods
add and subtract numbers mentally with increasingly large numbers use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction) solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Add and subtract decimals up to 2 decimal places e.g. 23454 + 596 = 24050 ; 5234 − 1187 = 51157

Concrete	Pictorial	Abstract
Use of place value counters to add HTO + TO, HTO + HTO etc. When there are 10 ones in the 1s column- we exchange for 1 ten, when there are 10 tens in the 10s column- we exchange for 1 hundred. 	Chidren to represent the counters in a place value chart, circling when they make an exchange. 	243 +368 611 1 1
Column method using base 10 and having to exchange. 41 – 26 	Represent the base 10 pictorially, remembering to show the exchange. 	Formal column method. Children must understand that when they have exchanged the 10 they still have 41 because 41 = 30 + 11. 

Addition and subtraction in Year 6:

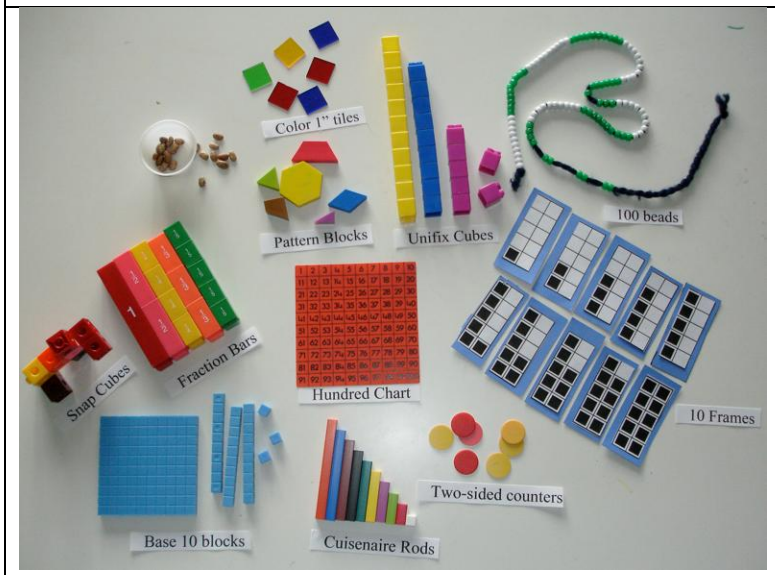
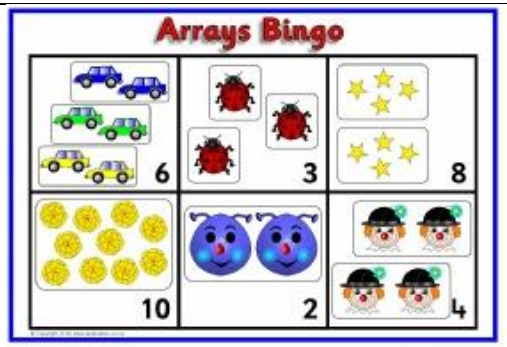
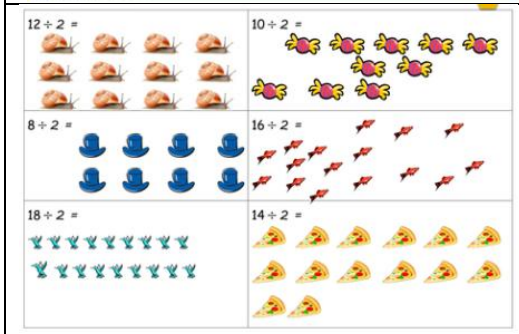
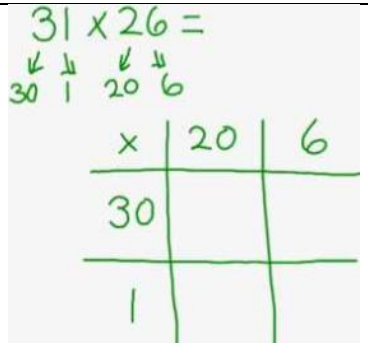
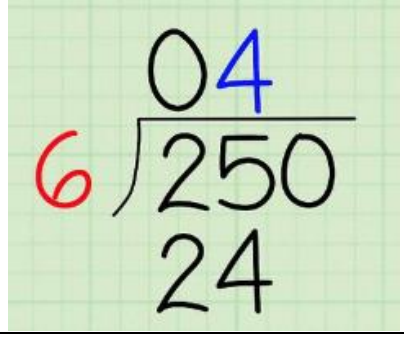
National curriculum objectives. (**NB: In Year 6 children are expected to consolidate and build upon all that they have learned throughout the rest of their journey through primary school. Therefore, there are fewer NC objectives.)**

With jottings or mentally:	**Written methods**
use their knowledge of the order of operations to carry out calculations involving the four operations solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	perform mental calculations, including with mixed operations and large numbers

Concrete	Pictorial	Abstract
Use of place value counters to add HTO + TO, HTO + HTO etc. When there are 10 ones in the 1s column- we exchange for 1 ten, when there are 10 tens in the 10s column- we exchange for 1 hundred. 	Chidren to represent the counters in a place value chart, circling when they make an exchange. 	243 +368 611 1 1
Column method using place value counters. 234 – 88 	Represent the place value counters pictorially; remembering to show what has been exchanged. 	Formal colum method. Children must understand what has happened when they have crossed out digits. 2 1 2 3 4 - 8 8 6

Multiplication and division

Concrete Resources:		Key language for multiplication:	Key language for division:
Place value apparatus	Place value cards	Product, double, groups, factors, multiply, multiples, array, times, lots of.	Groups of, divisible, remaider, factor, half, divide, fraction, part
Place value counters	Dienes		
Arrays	Multiplication squares		
100 square	Counting stick		
Number lines (numbered and blank)			

Concrete	Pictorial	Abstract
	 	 

Conceptual variation; different ways to ask children to solve 6 × 23

Mai had to swim 23 lengths, 6 times a week.
How many lengths did she swim in one week?

With the counters, prove that 6 x 23 = 138

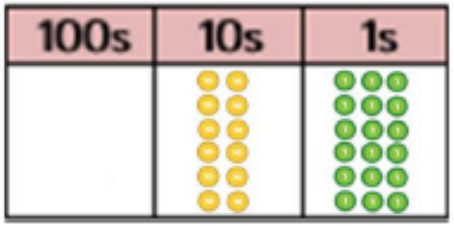
Find the product of 6 and 23

6 × 23 =

☐ = 6 × 23

6	23
× 23	× 6
___	___

What is the calculation?
What is the product?



Conceptual variation; different ways to ask children to solve 615 ÷ 5

Using the part whole model below, how can you divide 615 by 5 without using short division?

I have £615 and share it equally between 5 bank accounts. How much will be in each account?

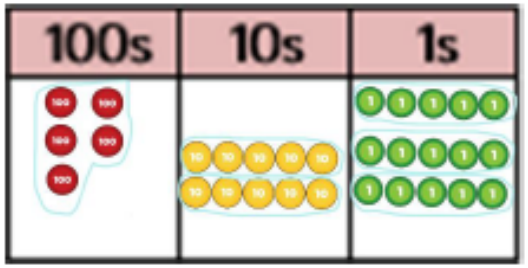
615 pupils need to be put into 5 groups. How many will be in each group?

$5\overline{)615}$

615 ÷ 5 =

☐ = 615 ÷ 5

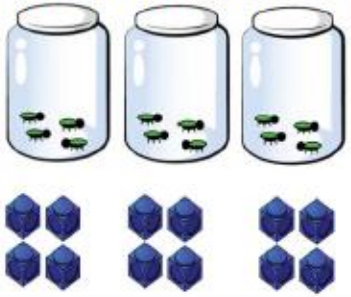
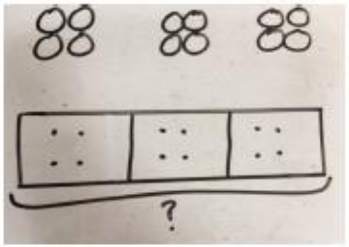
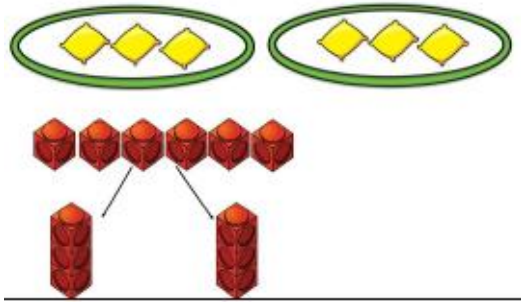
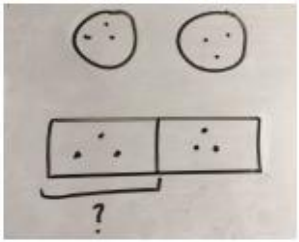
What is the calculation?
What is the answer?



Multiplication and division in Reception:

Early Learning goals:

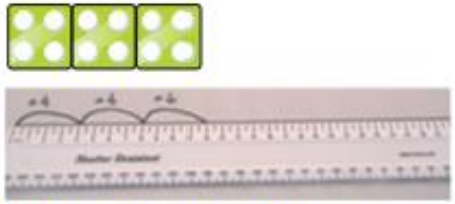
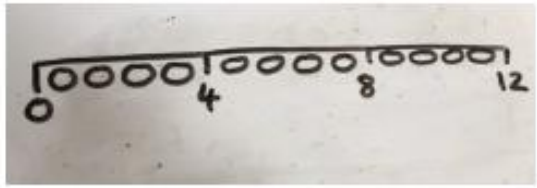
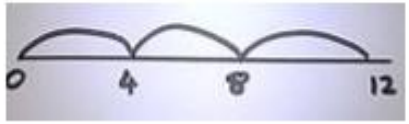
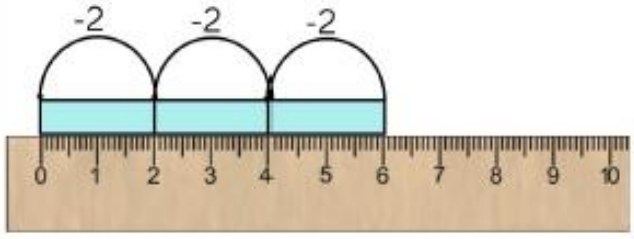
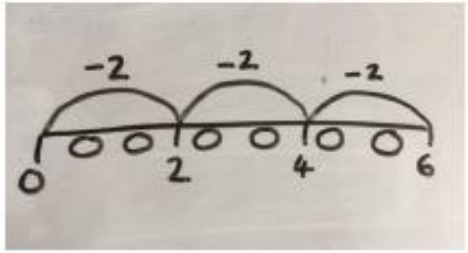
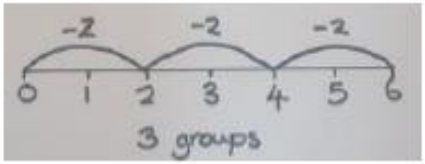
- Solve problems, including doubling, halving and sharing.

Concrete	Pictorial	Abstract
Repeated grouping/repeated addition 3 × 4 4 + 4 + 4 There are 3 equal groups, with 4 in each group. 	Children to represent the practical resources in a picture and use a bar model. 	3 × 4 = 12 4 + 4 + 4 = 12
Sharing using a range of objects. 6 ÷ 2 	Represent the sharing pictorially. 	6 ÷ 2 = 3 3 | 3 Children should also be encouraged to use their 2 times tables facts.

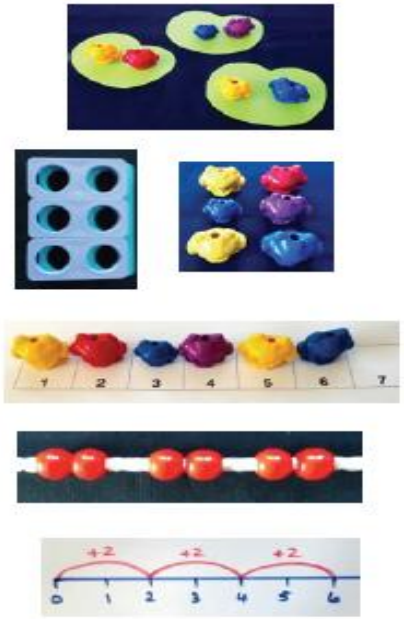
Multiplication and division in Year 1:

National curriculum objectives.

With jottings or mentally:	**Fluency**
calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher solve one-step problems involving multiplication and division	count in multiples of twos, fives and tens

Concrete	Pictorial	Abstract
Number lines to show repeated groups- 3 × 4  Cuisenaire rods can be used too.	Represent this pictorially alongside a number line e.g.: 	Abstract number line showing three jumps of four. 3 × 4 = 12 
Repeated subtraction using Cuisenaire rods above a ruler. 6 ÷ 2  3 groups of 2	Children to represent repeated subtraction pictorially. 	Abstract number line to represent the equal groups that have been subtracted. 

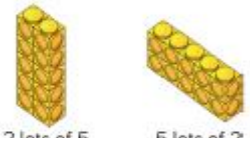
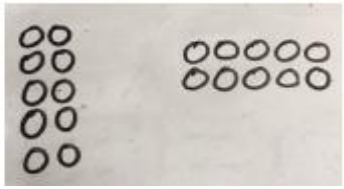
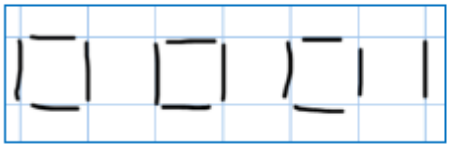
Conceptual variation:

2 frogs on each lily pad.	6 ÷2 = 3 by sharing into 2 groups and by grabbing groups of 2
	 How many 2s?

Multiplication and division in Year 2:

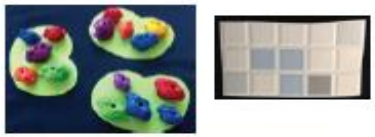
National curriculum objectives.

With jottings or mentally:	Fluency
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.	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

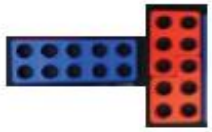
Concrete	Pictorial	Abstract
Use arrays to illustrate commutativity counters and other objects can also be used. $2 \times 5 = 5 \times 2$ 	Children to represent the arrays pictorially. 	Children to be able to use an array to write a range of calculations e.g. $10 = 2 \times 5$ $5 \times 2 = 10$ $2 + 2 + 2 + 2 + 2 = 10$ $10 = 5 + 5$
2d ÷ 1d with remainders using lollipop sticks. Cuisenaire rods, above a ruler can also be used. $13 \div 4$ Use of lollipop sticks to form wholes- squares are made because we are dividing by 4.  There are 3 whole squares, with 1 left over.	Children to represent the lollipop sticks pictorially.  There are 3 whole squares, with 1 left over.	$13 \div 4 = 3$ remainder 1 Children should be encouraged to use their times table facts; they could also represent repeated addition on a number line. '3 groups of 4, with 1 left over' 

Conceptual variation:

5 frogs on each lily pad
5 x 3 = 15

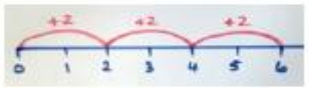


5 x 2 = 2 x 5



Build tables on counting stick

Link to repeated addition

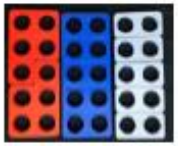


15 ÷ 3 = 5 in each group (sharing)

Link to fractions

15 ÷ 3 = 5 groups of 3 (grouping)

10 ÷2 = 5



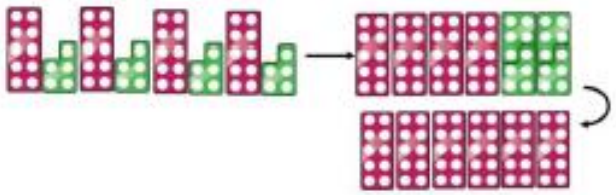
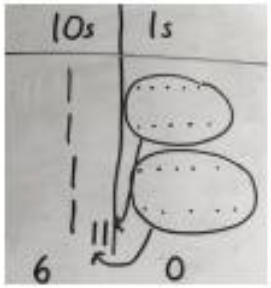
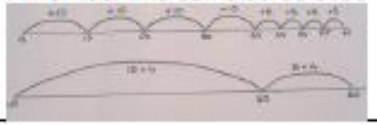
Use language of division linked to tables

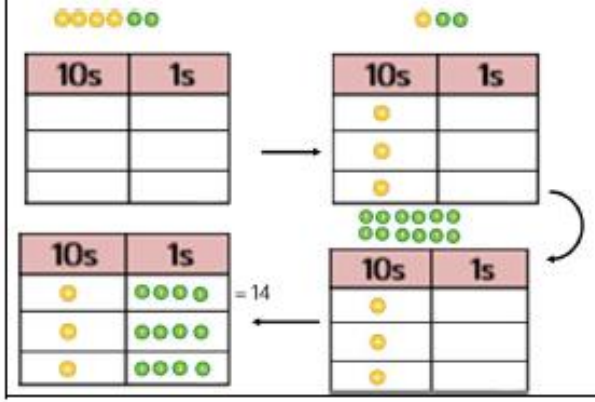
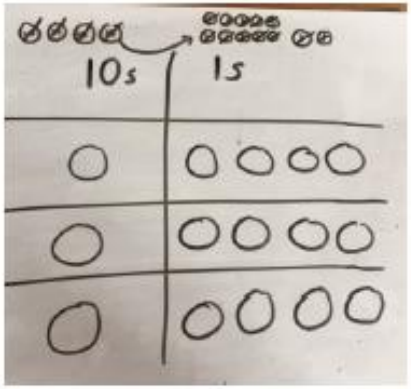
How many 2s?

Multiplication and division in Year 3:

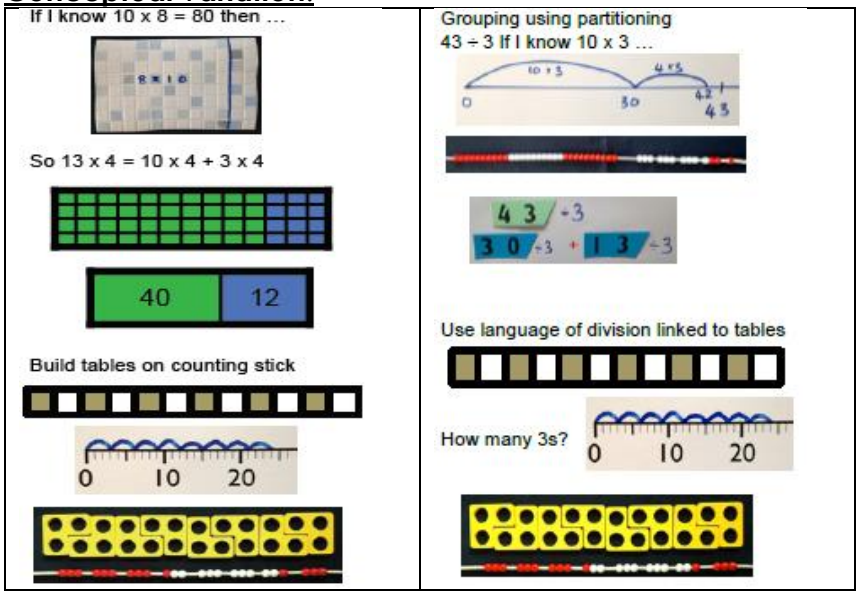
National curriculum objectives.

With jottings or mentally:	Written methods	Fluency
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.	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

Concrete	Pictorial	Abstract
Partition to multiply using Numicon, base 10 or Cuisenaire rods. 4 × 15 	Children to represent the concrete manipulatives pictorially. 	Children to be encouraged to show the steps they have taken. 4 x 15 10 5 10 x 4 = 40 5 x 4 = 20 40 + 20 = 60 A number line can also be used 

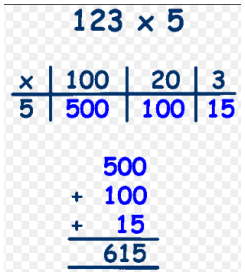
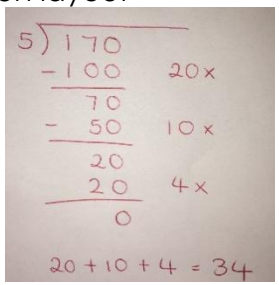
Sharing using place value counters. 42 ÷ 3 = 14  	Children to represent the place value counters pictorially.  	Children to be able to make sense of the place value counters and write calculations to show the process. 42 ÷ 3 42 = 30 + 12 30 ÷ 3 = 10 12 ÷ 3 = 4 10 + 4 = 14

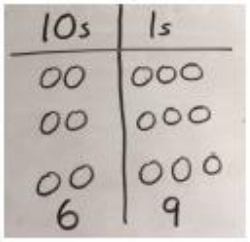
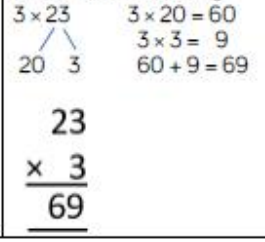
Conceptual variation:



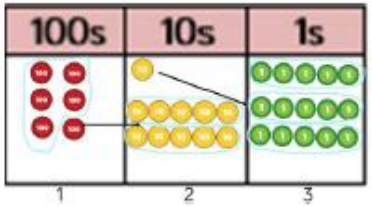
Multiplication and division in Year 4:

National curriculum objectives.

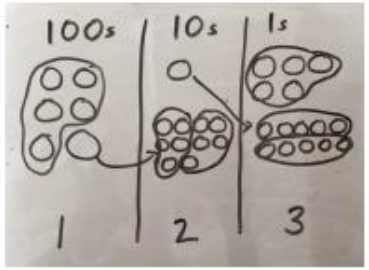
With jottings or mentally:	Written methods	Fluency
recognise and use factor pairs and commutativity in mental calculations	multiply and divide two-digit and three-digit numbers by a one-digit number using formal written layout   solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	count in multiples of 6, 7, 9, 25 and 1000 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

Concrete	Pictorial	Abstract
Formal column method with place value counters (base 10 can also be used.) 3 × 23 	Children to represent the counters pictorially. 	Children to record what it is they are doing to show understanding. 

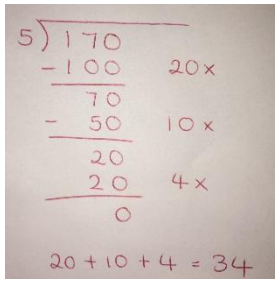
615 ÷ 5



1. Make 615 with place value counters.
2. How many groups of 5 hundreds can you make with 6 hundred counters?
3. Exchange 1 hundred for 10 tens.
4. How many groups of 5 tens can you make with 11 ten counters?
5. Exchange 1 ten for 10 ones.
6. How many groups of 5 ones can you make with 15 ones?



division scaffold.



Conceptual variation:

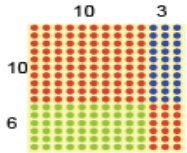
43 x 6 by partitioning

X	40	3
6	240	18

40 x 6 = 240
3 x 6 = 18
43 x 6 = 258

If I know 4 x 6 = 24
then 40 x 6 is ten times bigger,
40 x 60 is one hundred times bigger.

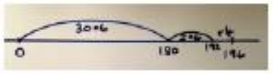
13 x 16 by partitioning



100 + 30 + 60 + 18 = 208
Build tables on counting stick

Grouping using partitioning
196 ÷ 6 If I know 3 x 6 … then 30 x 6…

'Chunking up' on a number line
196 ÷ 6 = 32 r 4

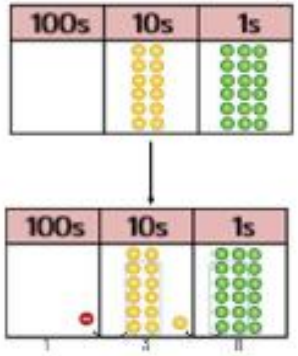
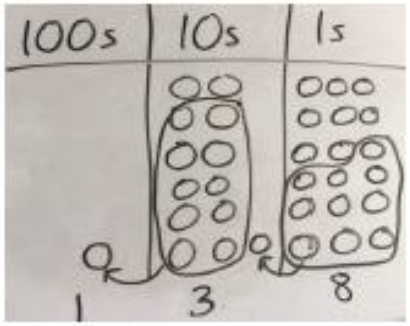


Use language of division linked to tables.

Multiplication and division in Year 5:

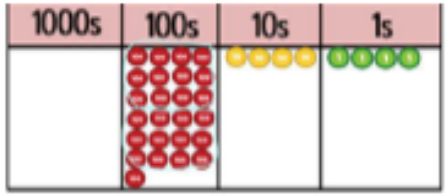
National curriculum objectives.

With jottings or mentally:	Written methods	Fluency
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 solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	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 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 243 x 36 1458 7290 8748 1 194 ÷ 6 3 2 6 | 1 9 1 2 192 ÷ 6 = 32	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers know and use the vocabulary 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

Concrete	Pictorial	Abstract
Formal column method with place value counters. 6 x 23 	Children to represent the counters/base 10, pictorially e.g. the image below. 	Formal written method 6 x 23 = 23 × 6 138 1 1

Long division using place value counters
2544 ÷ 12

We can't group 2 thousands into groups of 12 so will exchange them.



We can group 24 hundreds into groups of 12 which leaves with 1 hundred.

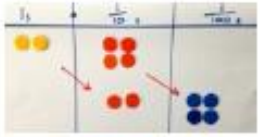
$$\begin{array}{r} 02 \\ 12\overline{)2544} \\ \underline{24} \\ 1 \end{array}$$

Conceptual variation:

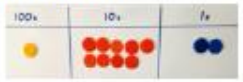
Grid method linked to formal written method

x	200	40	3	
30	6000	1200	90	= 7290
6	1200	240	18	= 1458 +
				8748

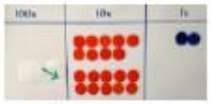
If I know 4 x 6 then 0.4 x 6 is ten times smaller
0.4 x 0.6 is ten times smaller again.



192 ÷ 6 using place value counters to support written method



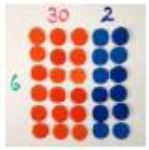
Exchange 100 for ten 10s



19 tens into groups of 6

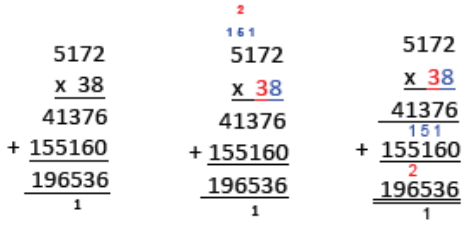
3 groups so that is 30 x 6,
exchange remaining 10 for ten 1s

So 192 ÷ 6 = 32



Multiplication and division in Year 6:

National curriculum objectives.

With jottings or mentally:	Written methods	Fluency
perform mental calculations, including with mixed operations and large numbers use their knowledge of the order of operations to carry out calculations involving the four operations solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication 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 	identify common factors, common multiples and prime numbers

564 ÷ 13

$$13 \overline{)\,5\,6\,{}^{4}4\,} \quad 4\ 3\ \text{r}\ 5$$

Using known multiplication facts

1	13
2	26
4	52
5	130
8	104
10	260

$$564 \div 13 = 43 \text{ r } 5 = 43\frac{5}{13} = 43.38\ldots$$

$$13 \overline{)\,5\,6\,{}^{4}4\,.\,{}^{5}0\,{}^{11}0\,} \quad 4\ 3\ .\ 3\ 8\ldots$$

564 ÷ 13

$$13 \overline{)\,5\,6\,4\,.\,0\,0\ldots} \quad 4\ 3\ .\ 3\ 8\ldots$$

5 2

4 4

− 3 9

5 0

− 3 9

1 1 0

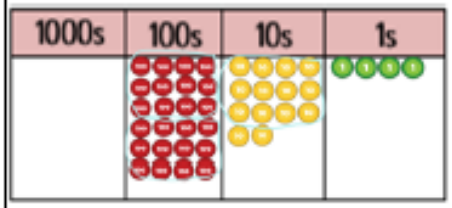
Concrete	Pictorial	Abstract

When children start to multiply 3d × 3d and 4d × 2d etc., they should be confident with the abstract:

To get 744 children have solved 6 × 124.
To get 2480 they have solved 20 × 124.

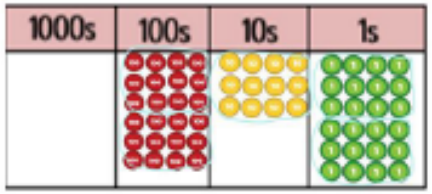
$$\begin{array}{r} 1\ 2\ 4 \\ \times\quad 2\ 6 \\ \hline 7\ 4\ 4 \\ 2\ 4\ 8\ 0 \\ \hline 3\ 2\ 2\ 4 \\ 1\ 1 \end{array}$$

Answer: 3224



After exchanging the hundred, we have 14 tens. We can group 12 tens into a group of 12, which leaves 2 tens.

$$\begin{array}{r} 021 \\ 12\overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 2 \end{array}$$



After exchanging the 2 tens, we have 24 ones. We can group 24 ones into 2 group of 12, which leaves no remainder.

$$\begin{array}{r} 0212 \\ 12\overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$$