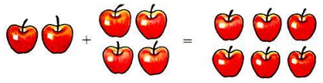
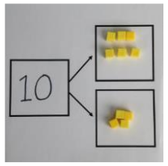
Addition

Year 1

Pictures
2 + 4 = 6

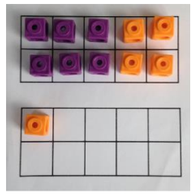


Part Whole
10 = 6 + 4



Number lines
5 + 12 = 17

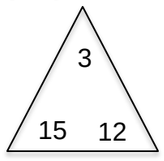
Tens frames
6 + 5 = 11



Number bonds

Linked number sentences
2+3=5
3+2=5

Represent and use number bonds and related subtraction facts within 20 12+3=15
3+12=15
15-12=3
15-3=12



Add and subtract one-digit and two-digit numbers to 20, including zero

Partitioning 12 + 4 =

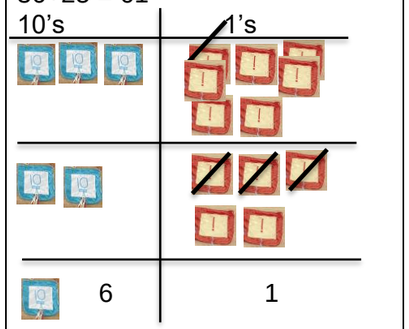
10 2

Year 2

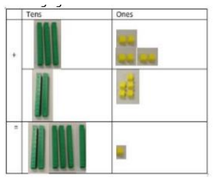
Adding ten to any two digit number to apply understanding of place value
Add 2 two digit numbers

Base Board
(Bags of 10's and 1's)

36+25 = 61

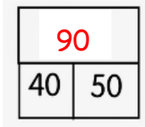


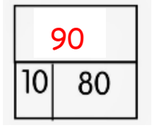
Tens and ones



3 6
+ 2 5

Part-Part-Whole





Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
7 + 2 = 9
70 + 20 = 90

Add numbers using concrete objects, pictorial representations, and mentally, including:
- a two-digit number and ones
  36+7=
- a two-digit number and tens
  28+40=
- two two-digit numbers
  38+27=
- adding three one-digit numbers
  3+5+7=

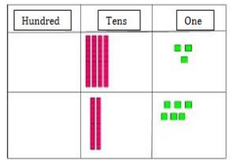
Year 3

Adding using:
-Near doubles e.g. 5+6

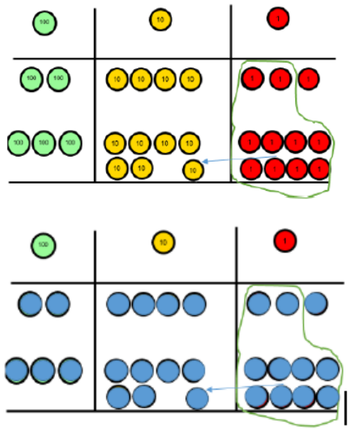
Bridging 8 + 5

-Compensating 23 + 9
(+10 – 1)

Column addition with dienes or PV counters and PV chart



43
+ 26



Add a three-digit number and ones
467+8=
Add a three-digit number and tens
637+50=
Add a three-digit number and hundreds
458+500=

?	
243	368

Add numbers with up to three digits, using formal written methods of column addition

7 6
+ 4 7
1 2 3
1

(Make sure the one ten carried across is marked underneath the line, and is not crossed off when counted)

Year 4

?	
243	368

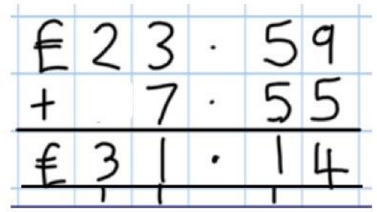
Add numbers with up to 4 digits using the formal written methods of column addition where appropriate

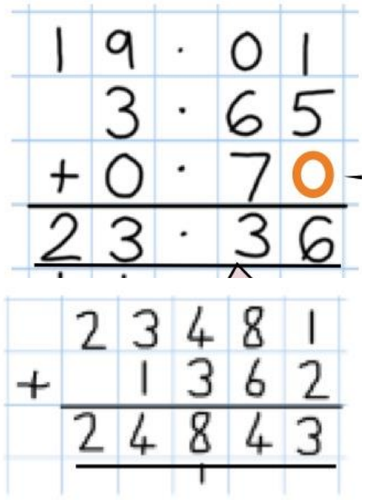
7 8 9
+ 6 4 2
1 4 3 1
1 1

Year 5

Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

2 3 4 5 4
+ 5 9 6
2 4 0 5 0
1 1 1





Add and subtract numbers mentally with increasingly large numbers

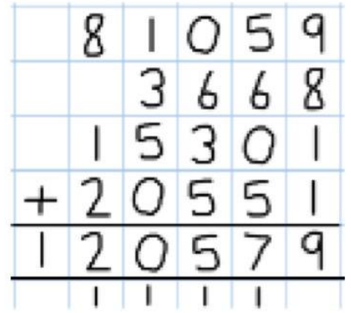
Year 6

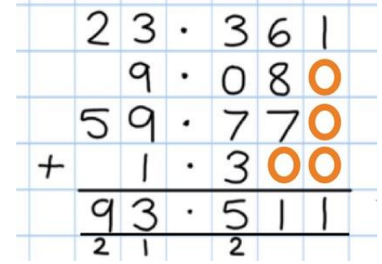
Pupils practice addition, for larger numbers, using the formal written methods of column addition

22.3
+ 34.1
56.4

1.234
+ 4.1
5.334

Building tp to adding several numbers using written method, including zeroes as place holders:





Use their knowledge of the order of operations to carry out calculations involving the four Operations

$3.5 + 1.5 \times 10 =$

To solve problems using the inverse:

□ – 3,652 = 10,420

Subtraction

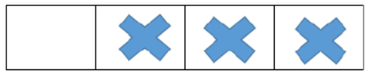
Year 1

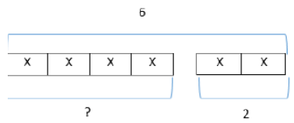
take away, distance between, difference between, more than and less than

Multilink towers
5-4 =1

6 less than 10 is 4

Use of the bar model:

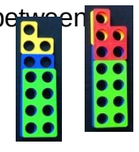




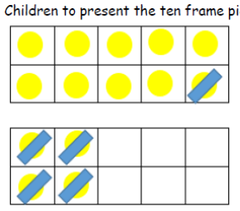
Count out, then count how many are left.

7 – 4 = 3

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

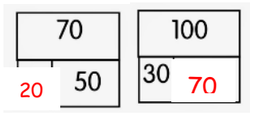


Children to present the ten frame pictorially

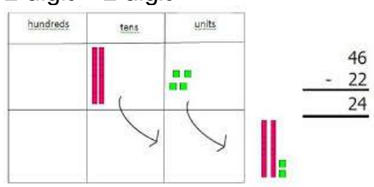


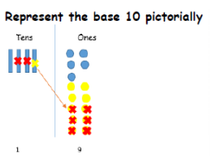
Year 2

Part-Part-Whole

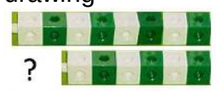


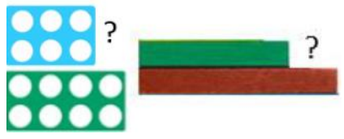
2 digit – 2 digit





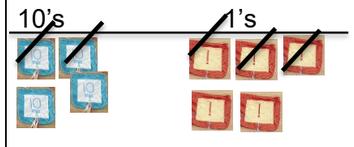
Difference with practical resources, children recording drawing





Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
e.g. 12 – 4 = 8
120 – 40 = 80

Base Board
(Bags of 10's and 1's)
45 – 22 = 23

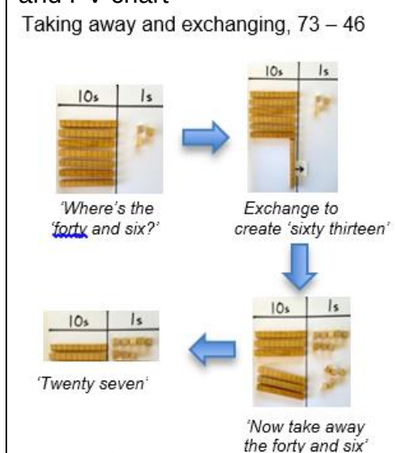


Subtract numbers using concrete objects, pictorial representations, and mentally, including:

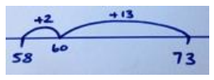
- a two-digit number and ones
- a two-digit number and tens
- two two-digit numbers

Year 3

Column subtraction with dienes and PV chart



Counting up to find change and the difference.
Difference between 73 – 58 by counting up, 58 + _ = 73



Subtract:

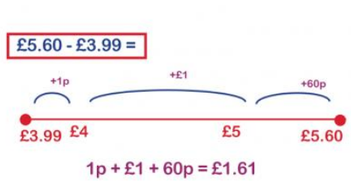
- a three-digit number and ones
- a three-digit number and tens
- a three-digit number and hundreds

Subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

$$\begin{array}{r} {}^{2}\,{}^{3}\,{}^{1} \\ 3\not{4}4 \\ -\ 1\,8\,7 \\ \hline 1\,5\,7 \end{array}$$

Year 4

Counting up to find change



Subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate

$$\begin{array}{r} {}^{1} \\ 2\,3\,1 \\ 2\not{3}\not{4}4 \\ -\ 1\,8\,7 \\ \hline 2\,1\,5\,7 \end{array}$$

Counting up on a number line to find complements to multiples of 10 or 100 to used for money, fractions, decimals and negative numbers.

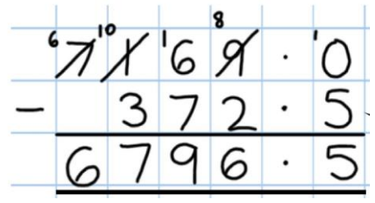
Year 5

Subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

$$\begin{array}{r} \text{T Th Th H T O} \\ 7\ {}^{4}\not{5},\ {}^{1}5\ {}^{2}\not{3}\ {}^{1}2 \\ -\ 2\ 2,\ 6\ 2\ 3 \\ \hline 5\ 2,\ 9\ 0\ 9 \end{array}$$

213323 - 70 =
512893 + 300 =
819354 - 500 = 319954 + 100

Subtract numbers mentally or using written methods with increasingly large numbers including decimals:

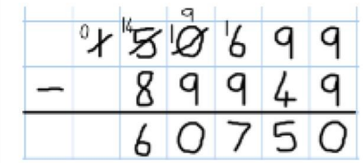


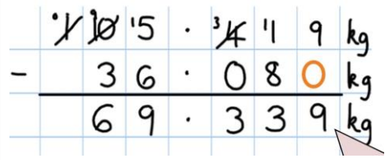
11.74 - 11.18

33.3 – 32.71

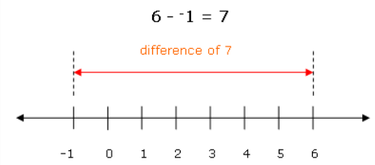
Year 6

Subtract numbers mentally and using formal written methods fluently.





Finding differences between positive and negative



22,964 – 7,483

3054 − 817 − 44

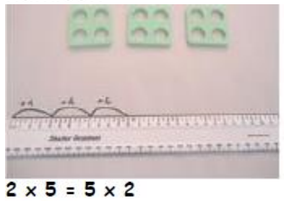
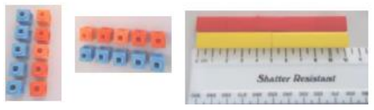
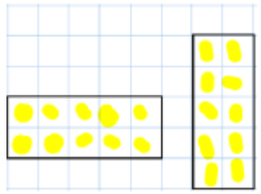
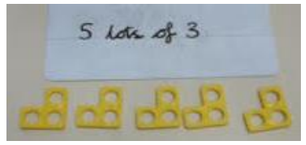
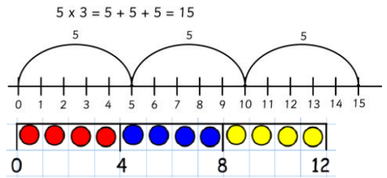
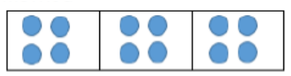
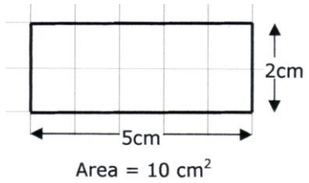
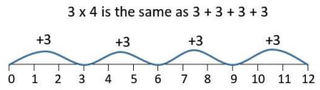
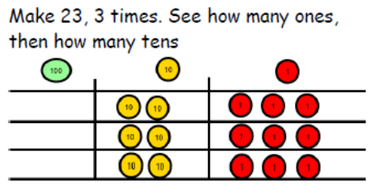
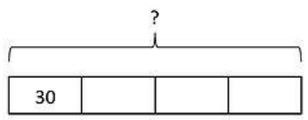
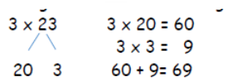
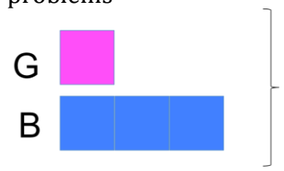
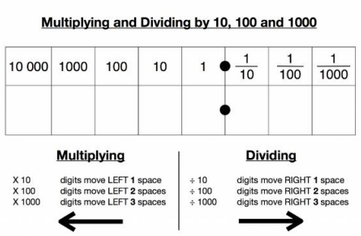
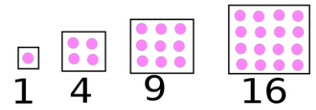
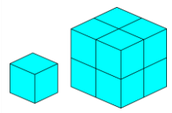
Carry out mental subtraction converting measures.

3200m – 1,65km

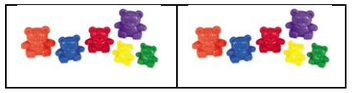
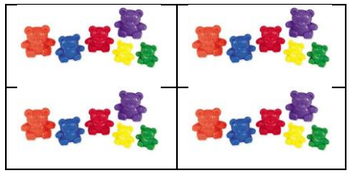
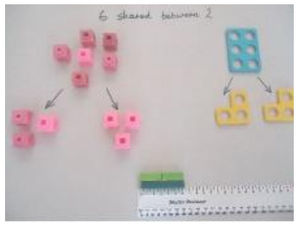
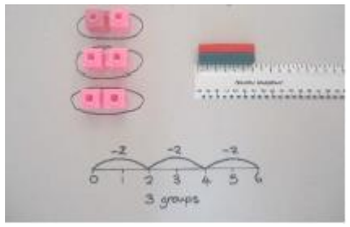
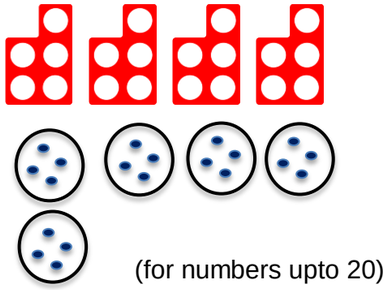
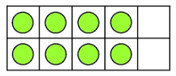
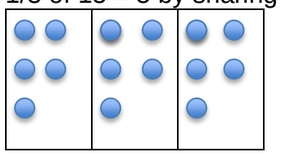
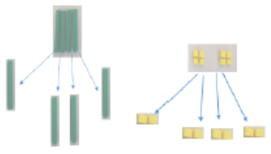
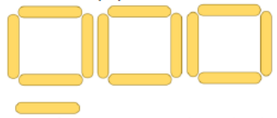
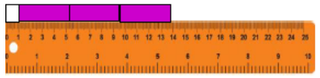
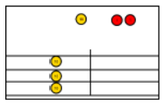
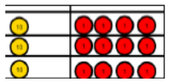
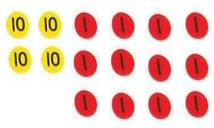
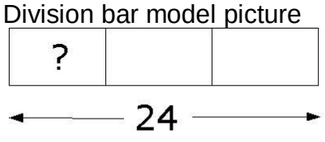
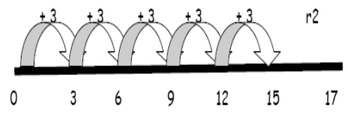
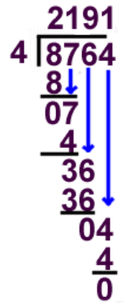
Subtract fractions with different denominators.

$$\frac{8}{9} - \frac{2}{3}$$

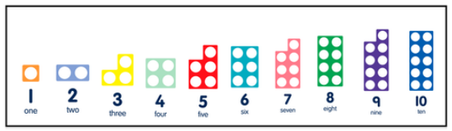
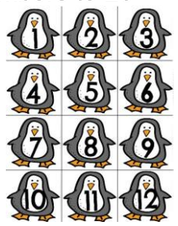
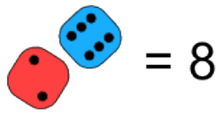
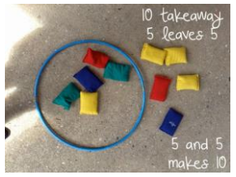
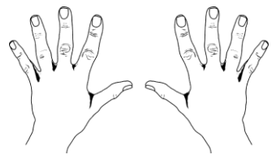
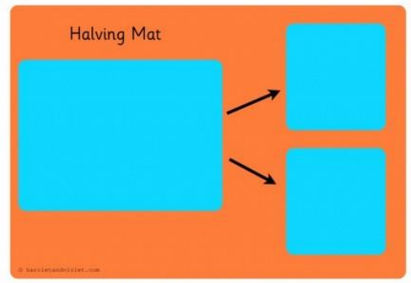
Multiplication

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting in twos, fives and tens repeated addition 2 x 3 = 2 + 2 + 2 =  arrays multilink  numicon  2 x 5 = 5 x 2  solve one-step problems involving multiplication and by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	Times Tables 2,5,10 and counting in 3s Arrays  4 x 6 = 24 6 x 4 = 24  Numicon  Repeated addition  Use of a bar model for a more structured method  Application of times tables facts	Times Tables: 4, 8 and 3 Arrays / linked to area 5cm x 2 cm = 10cm^2  Repeated addition  Partitioning Method 13 x 4 = (10 x 4) + (3 x 4)   Bar model   23 x 3 69 Short formal multiplication 7 2 X 3 2 1 6	Factors and multiples Use terminology 'factor', 'multiples; and 'product' e.g. 3 x 4 = 12 3 and 4 are a factor pair for 12 (the product) Multiply numbers up to 4 digits by a two-digit whole number using the formal written method of short multiplication 243 x 6 2058 1 Bar Model to solve scaling problems  Multiplying by 0 Multiply numbers by 10, 100 and 1000  	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long **Long multiplication** 32 X15 160 320 480 Factors and multiples, prime numbers Squared and cubed numbers  1 4 9 16  Numbers x 100, 1000 and 10,000, including decimals.	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long 469 x 32 1938 14070 15008 Perform mental calculations, including with mixed operations and large numbers multiplication Multiplication of decimals using linked times tables facts. 0.6 x 7 0.08 x 9 15 x 6.1 Common factors, common multiples and prime numbers Multiply one-digit numbers with up to two decimal places by whole numbers **Short method** 21.8 X 3 65.4 2 Use their knowledge of the order of operations to carry out calculations involving the four operations

Division

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Halving 10 ÷2 = 5  Quarters 20 ÷4 = 5  Sharing 15 ÷ 3 = 5 in each group (sharing)   Link to fractions   Grouping 15 ÷ 3 = 5 groups of 3 (grouping)  	Counting in 2,5,10 and 3. Division by grouping (numicon, or counting in groups), eg 20 ÷ 5  (for numbers upto 20) Applying knowledge of halving (can be supported with a tens frame or numicon)  e.g. Half of 8 = 4 Half of 24 = 12 Half of 30 = 15 1/3 of 15 = 5 by sharing  From a known fact, create a division fact e.g. 3x5 = 15 so 15 ÷ 5 = 3 BUT 5 ÷ 15 ≠ 3 48 ÷ 4 = 12  Start with the tens.	Counting on in groups mentally (using a number line, practical resoruces or numicon as required) 20 ÷ 3 = 6r2  Use of lollipop sticks to form wholes  Use of Cuisenaire rods and rulers (using repeated subtraction)  42 ÷ 3= 14  1. Make 42. Share the 4 tens between 3. Can we make an exchange with the extra 10?  Exchange the ten for 10 ones and share out 12 ones Long division with one digit using place value counters 2 6 2 | 5 2 - 4 ↓ 1 2 - 1 2 0  Division bar model picture  24 ÷ 3 = ?	Mental Division with remainders How many groups of 3 in 17? e.g. 17 ÷ 3 = 5 r 2  Long division – continuing to use the place value counters and recording: 2 6 2 | 5 2 - 4 ↓ 1 2 - 1 2 0 Dividing by 0 Numbers ÷ 10 and 100.	Divide numbers up to 4 digits by a one-digit number using the formal written method of long and short division and interpret remainders appropriately for the context Long division (with remainders)  2191 4 | 8764 8↓ 07 4 36 36 04 4 0 615 ÷ 5  Step 1: make 615 Step 2: Circle your groups of 5 Step 3: Exchange 1H for 10T and circle groups of 5 Step 4: exchange 1T for 10ones and circles groups of 5 Short division (if needed) 192 ÷ 6 3 2 6 | 1 9 1 2 192 ÷ 6 = 32 Record remainders as fractions and known decimals. Numbers ÷ 100, 1000 and 10,000, including decimals.	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 564 ÷ 13 4 3 . 3 8 … 13 | 5 6 4 . 0 0 … 5 2 4 4 - 3 9 5 0 - 3 9 1 1 0 - 1 0 4 6 = 43 r 5 = 43 5/13 = 43.4 (to 1dp) 564 ÷ 13 *Known multiplication facts:* *13, 26, 39, 52, 65, …* *10 x 13 = 130, 20 x 13 = 260* 4 3 r 5 13 | 5 6 4 4 564 ÷ 13 = 43 r 5 = 43 5/13 Divide fractions by whole numbers 9/17 ÷ 3 = 9/17 ÷ 3/1 = 9/17 x 1/3 = 9x1/17x3 = 9/51 = 9÷3/51÷3 = 3/17

EYFS

Basic Skills	Addition	Subtraction	Multiplication	Division
Number recognition to 20  Match numeral to quantity (including Numicom tiles)   Ordering numbers to 20  Writing numbers (Rhyme cards)  1:1 correspondence, counting objects (deliberate pause) Count out given number or objects from larger group	Find total of 2 groups of objects by counting all of them  Number tracks  Counting on from the larger number  1 more (mentally counting on to the next number) 	Take away a number of objects from a group  Number tracks  Problem stories e.g. 5 dinosaurs, 2 were eaten by a T-Rex, how many are left?  I less than (mentally counting back to the previous number)	Doubling  Fingers – same on both hands 	Sharing fairly  Finding half of a number of objects 

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