

Addition

Strand / objective

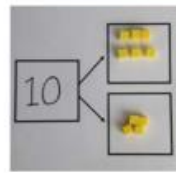
Concrete

Pictorial

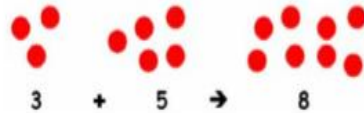
Abstract

Year 1

Combining two parts to make a whole: part part whole model



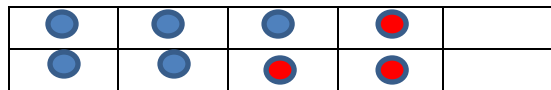
Use cubes to add two numbers together as a group or in a bar.



Use counters to make sets and total by pushing them together.



$$7 + 2 = 9$$



$$5 + 3 = 8$$

Using Numicon

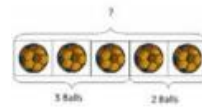
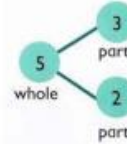


$$3 + 5 \rightarrow 8$$

Draw sets of counters to show the addition sentence pictorially



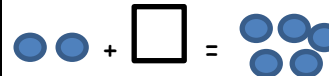
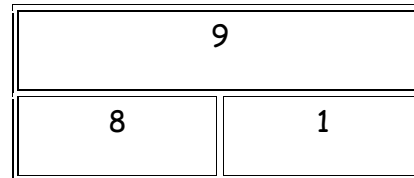
$$3 + 3 = 6$$



Use pictures to add two numbers together as a group or in a bar.

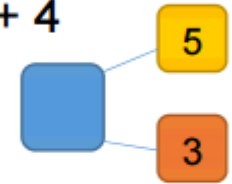


Use the part part whole model to represent the addition of 2 amounts



$$4 + 3 = 7$$

$$10 = 6 + 4$$



Use the part-part whole diagram as shown above to move into the abstract.

$$\square + 3 = 5$$

$$5 = 3 + \square$$

Starting at the larger number and counting on

Use manipulatives to make sets and count on from the larger amount without counting this set of objects.



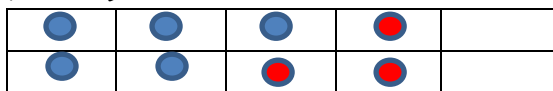
$$8 + 1 = 9$$



$$5 + 3 = 8$$



$$7 + 2 = 9$$

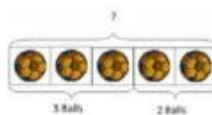


$$5 + 3 = 8$$

Using Numicon



$$5 + 3 = 8$$



Use pictures to add two numbers together as a group or in a bar.

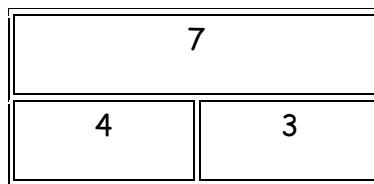


Draw sets of counters to show the addition sentence pictorially. Count on from the larger amount



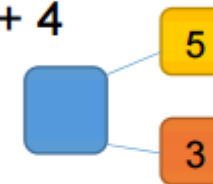
$$4 + 3 = 7$$

Continue to use the part part whole model to represent the addition



$$4 + 3 = 7$$

$$10 = 6 + 4$$



Use the part-part whole diagram as shown above to move into the abstract.

$$\square + 3 = 5$$

$$5 = 3 + \square$$

Knowing number bonds to 10.

Partitioning all numbers e.g.

$$7 = 6 + 1$$

$$7 = 5 + 2$$

Vocabulary

add, more, plus, make, sum, total, altogether, score, double, near double, one more, two more... ten more, equals, sign, is the same as, how many more to make...? how much more is...?

Language stems

I know that ... add... equals....

I need more to make

Another way I can make is by adding ...and

If I add ___ to ___ then I get

Foundations:

1 more

Add 10.

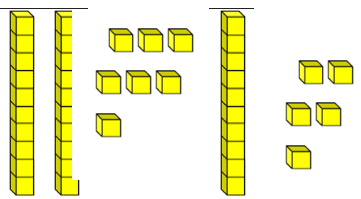
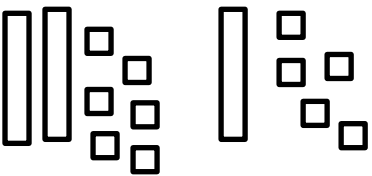
Use number bonds of 10 to derive bonds of 11

Number bonds: 5, 6, 7, 8, 9, 10

Ten plus ones.

Largest number first.

Doubles up to 10

<p>Addition of two 2 digit numbers including regrouping</p>	<p>Use base ten equipment to make both amounts and total. Place the ones together and exchange for a ten block</p> $27 + 15 = 42$ 	<p>Drawing base ten pictures and then combine both amounts to total</p> $26 + 15 = 41$  <p>Cross out 10 ones and then draw a ten block in its place</p>	<p>Calculate number sentences mentally</p> $23 + 38 = 61$ $71 = 24 + 47$								
<p>Vocabulary</p>	<p>add, addition, more, plus, make, sum, total, altogether, score, double, near double, one more, two more... ten more... one hundred more</p>										
<p>Language stems</p>	<p>I know that add..... equals because..... Another way I can makeis by adding</p> <p>I need more to make</p> <p>I know this answer is incorrect/correct because..... I think the calculation is easier than because</p>										
<p style="text-align: center;">Foundations:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">10 more</td> <td style="width: 50%;">Add 1 digit to 2 digit by bridging</td> </tr> <tr> <td>Number bonds: 12, 13, 14,15, 16, 17, 18, 19, 20</td> <td>Partition and recombine</td> </tr> <tr> <td>Partition second number, add tens then ones</td> <td>Add 10 and multiples.</td> </tr> <tr> <td>Doubles up to 20 and multiples of 5</td> <td>Add near multiples of 10.</td> </tr> </table>				10 more	Add 1 digit to 2 digit by bridging	Number bonds: 12, 13, 14,15, 16, 17, 18, 19, 20	Partition and recombine	Partition second number, add tens then ones	Add 10 and multiples.	Doubles up to 20 and multiples of 5	Add near multiples of 10.
10 more	Add 1 digit to 2 digit by bridging										
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Partition second number, add tens then ones	Add 10 and multiples.										
Doubles up to 20 and multiples of 5	Add near multiples of 10.										
Empty space for additional content											

Year 1 & 2

Inverse

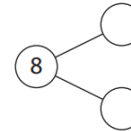
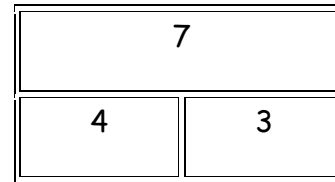
Using multilink to represent the part part whole model practically.
Notice the 4 number sentences associated with the model and say



these

$$\begin{aligned} 3 + 2 &= 5 \\ 2 + 3 &= 5 \\ 5 - 3 &= 2 \\ 5 - 2 &= 3 \end{aligned}$$

Use the bar model or part part whole model to represent the 4 related number sentences



Missing box questions e.g.

$$3 + \square = 5$$

$$\square + 2 = 7$$

$$10 + 8 = 3 + \square$$

$$9 = 2 + \square$$

$$7 - \square = 2$$

$$\square - 4 = 10 + 1$$

Language stems Y1

The number sentences that link these numbers are

I know ...add/subtract ... is so I know ... add/subtract ... is

It is true/not true that because

The missing number can't be I know this because

The missing sign must/can't be because

I notice that the numbers are

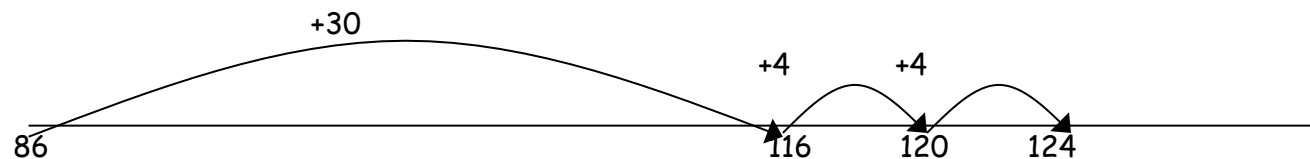
Language stems Y2

From this number sentence I also know ...because...

Year 3

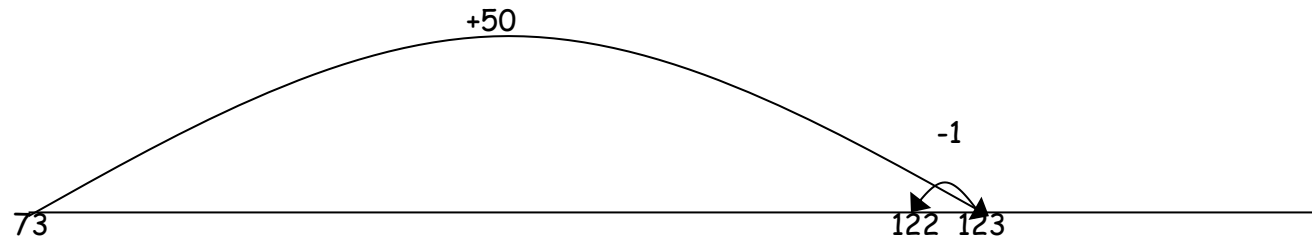
Continue to use empty number lines with increasingly large numbers, including compensation where appropriate.
Count on from the largest number irrespective of the order of the calculation.

$$38 + 86 = 124$$



Compensation – counting on to the nearest 10 then adjusting

$$49 + 73 = 122$$

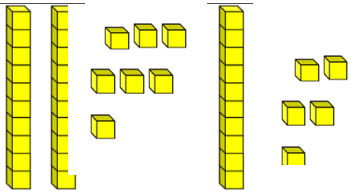
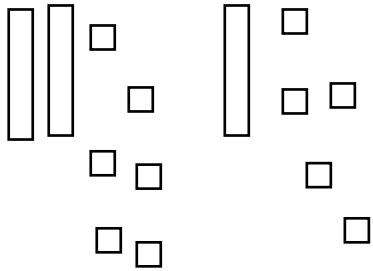
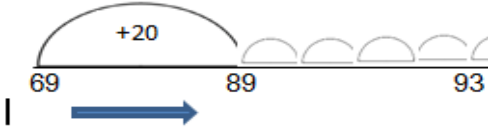


Year 3

Partition numbers in a TO + TO sum.(Year 2 and 3)

$$\begin{aligned} & 64 + 27 \\ = & \begin{array}{l} \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ (60 + 4) + (20 + 7) \end{array} \\ = & (60 + 20) + (4 + 7) = 91 \end{aligned}$$

Children who are not ready for number line to consolidate concrete and pictorial before moving onto abstract – Re-visit:

Strand / objective	Concrete	Pictorial	Abstract
Addition of two 2 digit numbers including regrouping	<p>Use base ten equipment to make both amounts and total. Place the ones together and exchange for a ten block</p> <p>$27 + 15 = 42$</p> 	<p>Drawing base ten pictures and then combine both amounts to total</p> <p>$26 + 15 = 41$</p>  <p>Cross out 10 ones and then draw a ten block in its place</p>	<p>Use a number line to count on the tens and ones using numbers that cross tens</p> <p>$69 + 24 =$</p> 

Begin to use informal pencil and paper methods

Option 1 - Adding most significant digits first, and then moving to adding least significant digits.

$$\begin{array}{r} 67 \\ + 24 \\ \hline 80 \text{ (60 + 20)} \\ \underline{11} \text{ (7 + 4)} \\ \hline 91 \end{array}$$

$$\begin{array}{r} 267 \\ + 85 \\ \hline 200 \\ 140 \text{ (60 + 80)} \\ \underline{12} \text{ (7 + 5)} \\ \hline 352 \end{array}$$

Option 2 - Adding the least significant digits first

$$\begin{array}{r} 67 \\ + 24 \\ \hline 11 \text{ (7 + 4)} \\ \underline{80} \text{ (60 + 20)} \\ \hline 91 \end{array}$$

$$\begin{array}{r} 267 \\ + 85 \\ \hline 12 \text{ (7 + 5)} \\ 140 \text{ (60 + 80)} \\ \underline{200} \\ \hline 352 \end{array}$$

Year 3

Begin to carry below the line

$$\begin{array}{r} 625 \\ + 48 \\ \hline 673 \\ 1 \end{array}$$

$$\begin{array}{r} 783 \\ + 42 \\ \hline 825 \\ 1 \end{array}$$

$$\begin{array}{r} 367 \\ + 85 \\ \hline 452 \\ 11 \end{array}$$

Year 4

Extend the carrying method to number with up to 4 digits.

$$\begin{array}{r} 7648 \\ + 1486 \\ \hline 9134 \\ 111 \end{array}$$

$$\begin{array}{r} 6584 \\ + 5848 \\ \hline 12432 \\ 111 \end{array}$$

$$\begin{array}{r} 42 \\ 6432 \\ 786 \\ 3 \\ + 4681 \\ \hline 11944 \\ 121 \end{array}$$

Year 5

Add whole numbers with more than 4 digits, using formal written methods columnar addition

$$\begin{array}{r}
 71584 \\
 + 81486 \\
 \hline
 153070 \\
 \hline
 111
 \end{array}$$

Begin to add two or more decimal fractions with up to four digits and either one or two decimal places.

E.g. $401.2 + 26.85 + 0.71$.

Using and applying Mathematics :

In Year 6, children are expected to:

“Solve problems involving addition, subtraction, multiplication and division.”

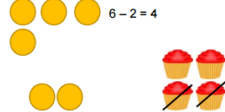

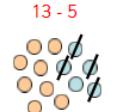
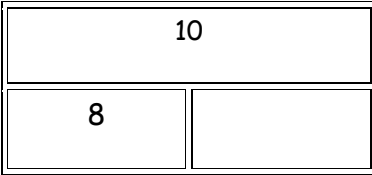


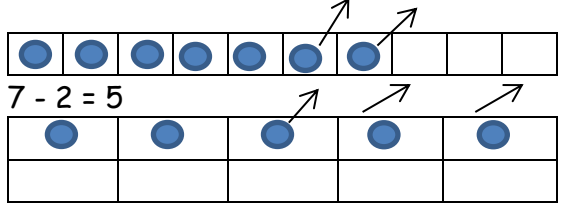
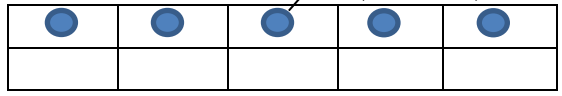
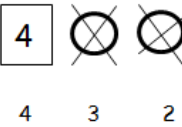
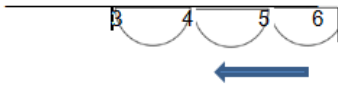

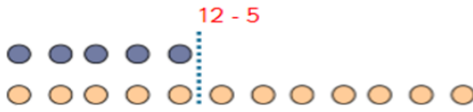
“Solve problems which require answers to be rounded to specified degrees of accuracy.”

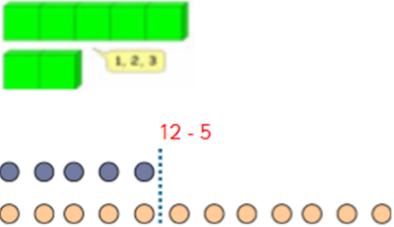


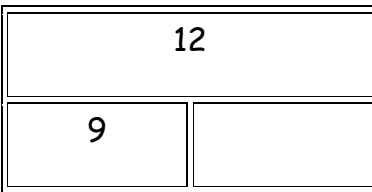
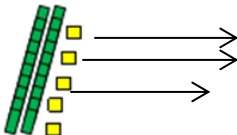
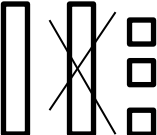
“Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.”

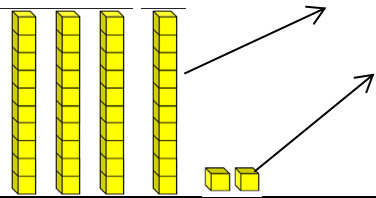
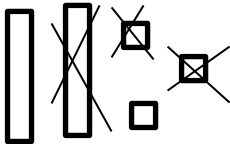
“Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.”

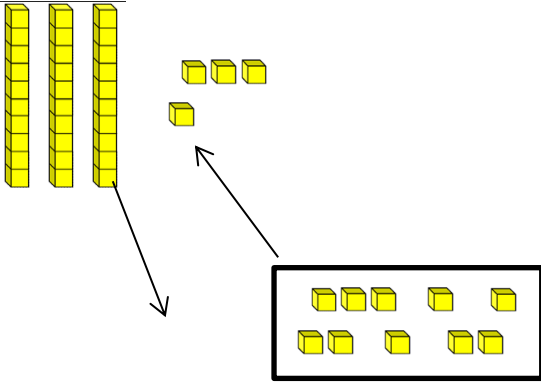
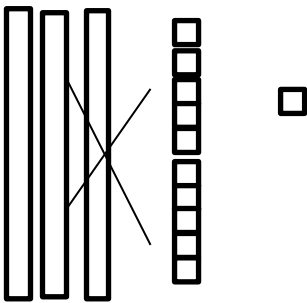
Subtraction

Strand / objective	Concrete	Pictorial	Abstract
Year 1	Use manipulatives to take objects away from a set	Draw sets of objects to show the addition sentence pictorially	Use the part part whole diagram to move into the abstract

<p>Taking away from a set</p>	 <p>6 - 2 = 4</p> <p>Make the initial amount using Numicon and fill with pegs. Remove the amount of pegs you are taking away and count / match to Numicon what is left</p> 	 <p>13 - 5</p> <p>Use the part part whole diagram to represent subtraction number sentences</p> 	 <p>10 5</p> <p>18 - 3 = 15</p> <p>7 - <input type="text"/> = 4</p> <p>8 = 10 - <input type="text"/></p>
<p>Counting back from an amount</p>	<p>Put the larger number in head and count back as remove the manipulatives</p> <p>9 - 3 = 6</p>  <p>9, 8, 7, 6</p>  <p>7 - 2 = 5</p>  <p>5 - 3 = 2</p>	<p>Draw the starting amount in a box. Draw the ones that you need to take off. Count back from the starting number crossing off the ones as you count back</p> <p>4 - 2 = 2</p>  <p>4 3 2</p> <p>Using a number line to count back in 1s</p> 	 <p>10 5</p> <p>18 - 3 = 15</p> <p>7 - <input type="text"/> = 4</p> <p>8 = 10 - <input type="text"/></p> <p>Knowing subtraction number bonds to 10. e.g.</p> <p>7 - 1 = 6</p> <p>7 - 2 = 5</p>
<p>Vocab:</p>	<p>subtract, take (away), minus, leave, how many are left(over)? One/two/ten less... how much less is...than? equals, sign, is the same as,</p>		
<p>Language stems</p>	<p>If I subtract/take away from it equals..... I know that ... subtract ... equals.... Another way I can make is by subtracting</p>		
<p>Finding the difference</p>	<p>Make both sets and lay them side by side. Find the difference between sets by counting on</p>	<p>Draw images of objects side by side to find the difference</p>  <p>12 - 5</p>	<p>12 - 9 =</p> <p>23 - 18 =</p>

	 <p>With Numicon Lay the two amounts on top of one another and then find the missing piece which covers the difference</p>  <p>The difference between 3 and 8</p>	<p>Draw blocks to represent the sets of objects and count on from the smaller to the larger amount</p>  <p>Use the numbers within a part part whole model to find the difference</p> 	$3 + \square = 5$ $6 - \square = 5$ $4 = 6 - \square$
Vocabulary	subtract, minus , one less, two less , ten less... how much less is...than....? difference between , equals, sign, is the same as		
Language stems	how many more to make...? how many more is... than...? how much more is...? how many fewer is... than...?		
Foundations:			
Year 2 Subtraction of ones/tens from a 2 digit number	Using base 10 to subtract sets of tens or ones from a 2 digit number e.g $25 - 3 = 22$ 	Drawing base ten pictures and then crossing out the tens or ones you are taking away. $23 - 10 = 13$ 	Bridging the ten when subtracting e.g. $22 - 5$ $22 - 2 - 3 = 17$ Recalling multiples of ten/one less than an amount from any number
Subtraction of two 2 digit numbers without regrouping	Use base ten equipment to the starting amount and then remove the tens and ones required	Drawing base ten picture of the starting amount and then crossing out the tens and ones you are subtracting	Calculate number sentences mentally

	$42 - 11 = 31$ 	$23 - 12 = 11$ 	$45 - 23 = 22$ $34 = 45 - 11$
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<p>Subtraction of two 2 digit numbers including regrouping</p>	<p>Use base ten equipment to make the starting amount. Exchange one ten block for ten ones then subtract</p> $34 - 15 = 19$ 	<p>Drawing base ten pictures. Cross out a ten block and replace with ten ones. Calculate the subtraction.</p> $31 - 12 = 19$ 	<p>Calculate number sentences mentally</p> $42 - 23 = 19$ $28 = 47 - 19$
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Vocabulary subtract, **subtraction**, take (away), minus, leave, how many are left/left over?

<p>Language Stems</p>	<p>how many more to make...? how much more is...? Another way I can makeis by addingsubtract/take away is I know this answer is incorrect/correct because.....</p>	<p>I know that subtract equals because..... I need to subtract to make..... The difference between..... andis..... I think the calculation is easier than because</p>
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Foundations:

<p>10 less Subtract 10 and multiples of 10 Partition second number, count back in 10s then 1s</p>	<p>Number bonds, subtraction: 12, 13, 14, 15, 16, 17, 18, 20 Subtract near multiples of 10</p>	<p>Subtract 1 digit from 2 digit by bridging Difference between</p>
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Year 3
 Partitioning and decomposition

Initially, the children will be taught using examples that do not need the children to exchange.

$$\begin{array}{r} 89 \\ - 57 \\ \hline \end{array} = \begin{array}{r} 80 + 9 \\ \underline{50 + 7} \\ 30 + 2 = 32 \end{array} \quad \text{OR} \quad \begin{array}{r} 89 \\ - 57 \\ \hline 32 \end{array}$$

Partitioning and decomposition - begin to exchange

$$\begin{array}{r} 71 \\ - 46 \\ \hline \end{array} = \quad =$$

Step 1

$$\begin{array}{r} 70 + 1 \\ - 40 + 6 \\ \hline \end{array}$$

Step 2

$$\begin{array}{r} 60 + 11 \\ - 40 + 6 \\ \hline 20 + 5 = 25 \end{array}$$

The calculation should be read as e.g. take 6 from 1.

This would be recorded by the children as

$$\begin{array}{r} 60 \\ \cancel{70} + 11 \\ - 40 + 6 \\ \hline 20 + 5 = 25 \end{array}$$

Children should know that units line up under units, tens under tens, and so on.

Partitioning and decomposition - HTO

$$\begin{array}{r} 754 \\ - 86 \\ \hline \end{array} =$$

$$\begin{array}{r} \text{Step 1} \quad 700 + 50 + 4 \\ - \quad \quad \quad 80 + 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{Step 2} \quad 700 + 40 + 14 \quad (\text{adjust from } T \text{ to } O) \\ - \quad \quad \quad 80 + 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{Step 3} \quad 600 + 140 + 14 \quad (\text{adjust from } H \text{ to } T) \\ - \quad \quad \quad 80 + 6 \\ \hline 600 + 60 + 8 = 668 \end{array}$$

This would be recorded by the children as

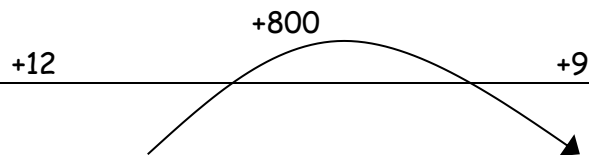
$$\begin{array}{r} \quad \quad 600 \quad \quad 140 \\ \quad \quad \cancel{700} + \cancel{50} + 14 \\ - \quad \quad \quad 80 + 6 \\ \hline 600 + 60 + 8 = 668 \end{array}$$

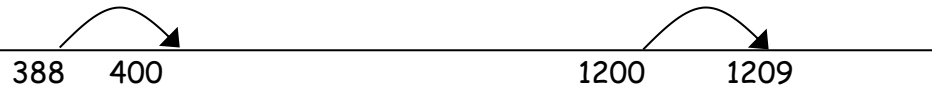
Decomposition

$$\begin{array}{r} \quad 614 \quad 1 \\ \quad \cancel{7} \cancel{3} 4 \\ - \quad 286 \\ \hline 468 \end{array}$$

Where the numbers involved in a calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used.

$$1209 - 388 = 821$$





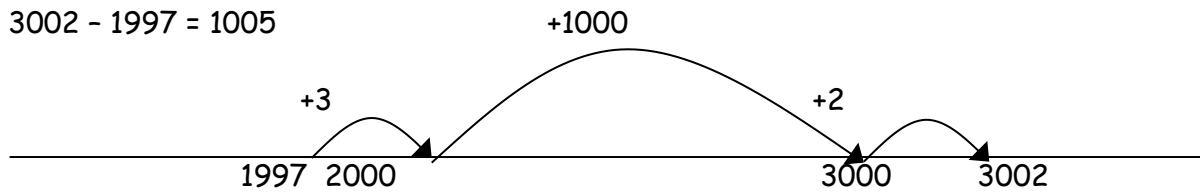
Year 4

Decomposition –THTO

$$\begin{array}{r}
 5131 \\
 \cancel{6}467 \\
 - \underline{2684} \\
 \hline
 3783
 \end{array}$$

Where the numbers involved in a calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used.

$$3002 - 1997 = 1005$$



Year 5

Pupils should practise using the efficient written methods of columnar addition and subtraction with increasingly large numbers to aid fluency.

Subtract two or more decimal fractions with up to three digits and either one or two decimal places including money.

E.g. $96.7 - 3.9$ $5.32 - 2.07$

Year 6

Using and applying Mathematics.

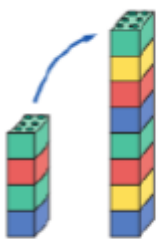

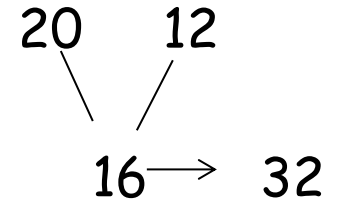
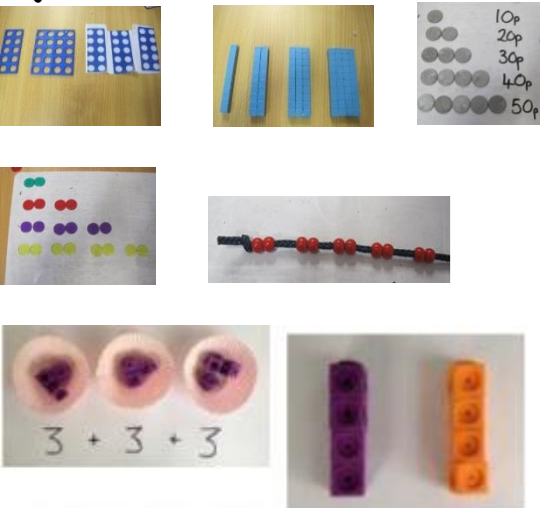


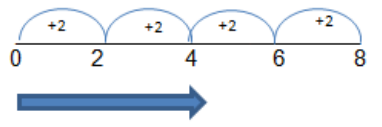
In Year 6, children are expected to:

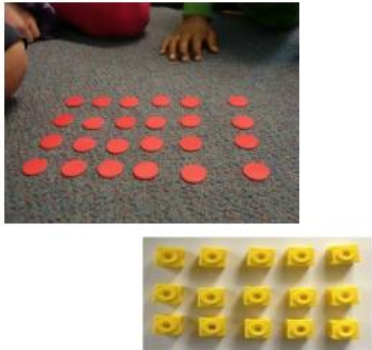

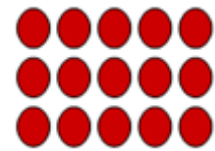
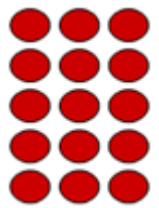
“Solve problems involving addition, subtraction, multiplication and division”

“Solve problems which require answers to be rounded to specified degrees of accuracy”

“Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.”

Multiplication

Strand / objective	Concrete	Pictorial	Abstract
<p>Year 1 & 2</p> <p>Doubling</p>	<p>Use practical activities to show how to double a number.</p>  <p>double 4 is 8 $4 \times 2 = 8$</p>	<p>Draw pictures to show how to double a number.</p> <p>Double 4 is 8</p> 	<p>Double the tens and ones separately and then recombine</p>  <p>$20 \rightarrow 40$ $12 \rightarrow 24$ $40 + 24 = 64$</p>
<p>Vocab and Language</p>	<p>Y1: Doubling, Double is, I know double is because, It is true/false because</p>		
<p>Counting in multiples / Repeated Addition</p> <p>Y1 - 2, 5, 10</p> <p>Y2 - 2, 3, 5, 10</p>	<p>Count in multiple sets of practical objects</p>  <p>Use different objects to add equal groups.</p>	<p>Use visual images to count in equal steps</p>  <p>$2 + 2 + 2 =$ How many altogether?</p>  <p>$2 + 2 + 2 + 2 = 8$</p>	<p>Count in multiples of a number aloud.</p> <p>Write sequences with multiples of numbers.</p> <p>2, 4, 6, 8, 10</p> <p>5, 10, 15, 20, 25, 30</p> <p>Use a number line for repeated addition</p>  <p>Write multiplication sentences in response to objects, images and word problems</p> <p>$5 \times 2 = 10$</p>

<p>Arrays showing commutative multiplication</p>	<p>Create arrays using counters/ cubes to show multiplication sentences.</p>  <p>Finding arrays around the school and local environment Looking at real life arrays</p> 	<p>Drawing pictorial arrays to represent multiplication sentences. Rotating arrays to understand the commutativity of multiplication</p>  <p>$3 \times 5 = 15$ $5 \times 3 = 15$</p>  <p>$3 \times 5 = 15$ $5 \times 3 = 15$</p>	<p>If you know $3 \times 2 = 6$ what else do you know?</p> <p>Solving empty number boxes</p> <p>$4 \times \square = 8$</p> <p>$15 = \square \times 5$</p> <p>Creating pairs of \times sentences for an array drawing on commutativity of multiplication.</p> <p>$3 \times 5 = 15$</p> <p>$5 \times 3 = 15$</p> <p>Extend to finding the division sentences linked to these</p>
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<p>Vocabulary Y1</p>	<p>Grouping, Count in 2s 5s 10s, array</p>	
<p>Language stems Y1</p>	<p>I will/won't say when I count in 2s/5s/10s One bunny has ears 3 bunnies have ears</p>	<p>I won't say when I count in 2s/5s/10s There can't be a total of ears because....</p>
<p>Vocabulary Y2</p>	<p>lots of, groups of, \times, times, multiply, multiplied by, multiple of, once, twice, three times... ten times..., times as (big, long, wide... and so on), repeated addition, array, row, column, double</p>	
<p>Language stems Y2</p>	<p>.....groups of equal.... can be put into equal groups of I will/won't say when I count in because .. I know is even/odd because A number can't be odd and even because \times ... is .. so I know that ... \times ... is also .. I have checked\times... by using ...\times.... I have checked\times... by using ...\div.... If I know \times Then I also know... I know that\times.... has the same answer as \times because I can prove this statement is true/not true because.....groups of is So I know that shared into..... equal groups is</p>	

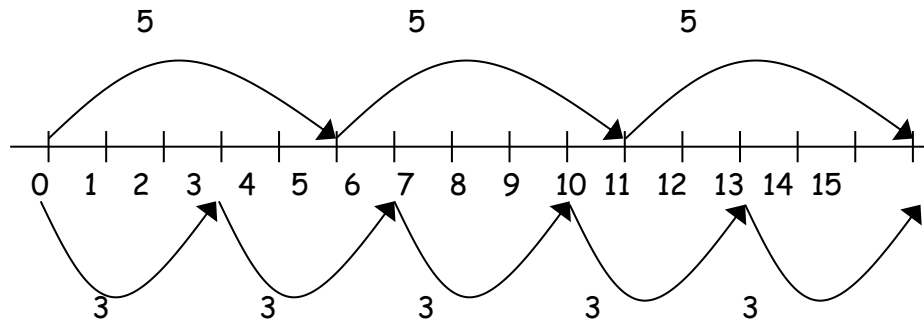
Foundations:

<p>Year 1:</p>			<p>Year 2:</p>		
<p>Count in 2s, 5s and 10s</p>	<p>Doubles up to 10</p>	<p>Double multiples of 10</p>	<p>$2 \times$, $5 \times$ and $10 \times$ tables</p>	<p>Doubles up to 20 and multiples of 5</p>	<p>Count in 3s</p>

Year 2

Commutative using number lines

Children should know that 3×5 has the same answer as 5×3 . This can also be shown on the number line.



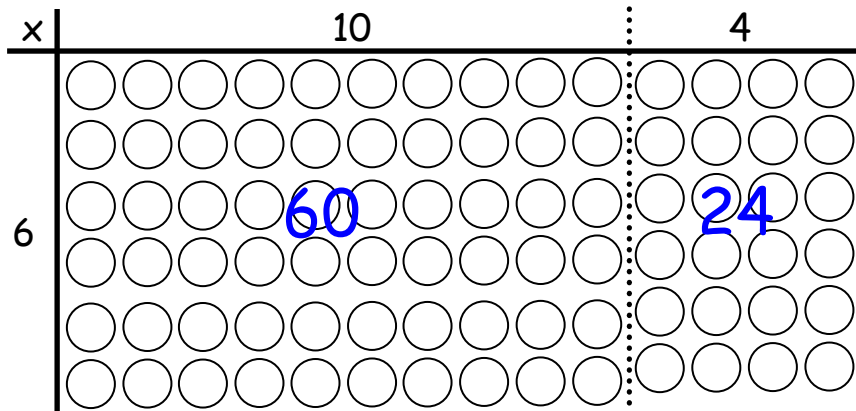
They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.

Year 3

Partitioning

$$\begin{aligned} 38 \times 5 &= (30 \times 5) + (8 \times 5) \\ &= 150 + 40 \\ &= 190 \end{aligned}$$

Children will continue to use arrays where appropriate.



$$(6 \times 10) + (6 \times 4)$$

$$60 + 24$$

$$84$$

Expanded short multiplication for $TO \times O$

$$\begin{array}{r}
 30 + 8 \\
 \times 7 \\
 \hline
 210 \text{ (} 30 \times 7 \text{)} \\
 56 \text{ (} 8 \times 7 \text{)} \\
 \hline
 266
 \end{array}$$

Leading to:

$$\begin{array}{r}
 38 \\
 \times 7 \\
 \hline
 210 \\
 56 \\
 \hline
 266
 \end{array}$$

Year 4

(Year 4 expectation, can be introduced in Year 3 when children are confident with previous learning)

Short multiplication for TO x O

38

X 7

266

5

The step here involves adding 210 and 50 mentally

Short multiplication for HTO x O

438

X 7

3066

25

Year 5

Towards long multiplication for TO x TO

72 x 38 is approximately 70 x 40 = 2800

$$\begin{array}{r} 72 \\ \times 38 \\ \hline 2100 \\ 60 \\ 560 \\ \underline{16} \\ 2736 \\ 1 \end{array}$$

70×30
 2×30
 70×8
 2×8

Next, reduce the recording further

$$\begin{array}{r} 72 \\ \times 38 \\ \hline 2160 \\ 576 \\ \hline 2736 \\ 1 \end{array}$$

72×30
 72×8

(Expectation: Starts in Year 5, continues in Year 6)

Long multiplication for ThHTO x TO

$$\begin{array}{r} 5372 \\ \times 38 \\ \hline 161160 \quad 5372 \times 30 \\ 42976 \quad 5372 \times 8 \\ \hline 204136 \\ 111 \end{array}$$

Year 6

Multiply one digit numbers with up to 2 decimal places by whole numbers (Year 6 requirement)

$$\begin{array}{r} 3.85 \\ \times 7 \\ \hline 26.95 \\ 53 \end{array}$$

Using and applying in Year 6

In Year 6, children are expected to:

“Solve problems involving addition, subtraction, multiplication and division”

“Solve problems which require answers to be rounded to specified degrees of accuracy”

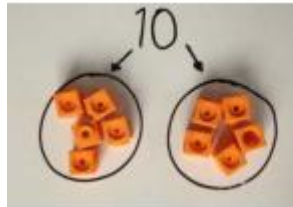
“Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate”

Division

Year 1

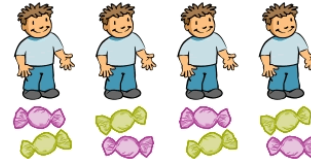
Sharing objects into groups

Sharing out manipulatives between people and seeing how many they have each

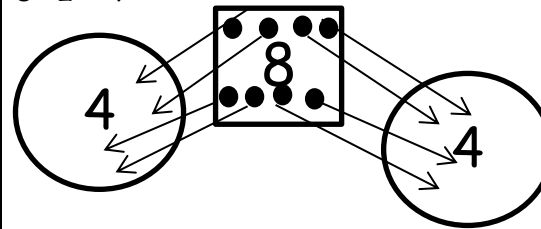


I have 10 cubes, can you share them equally in 2 groups?

Using images to represent sharing of objects



Physically draw the amounts in the empty circles and cross out each one you have used from the starting amount
 $8 \div 2 = 4$



$$12 \div 2 = \square$$

$$10 \div 5 = \square$$

$$30 \div 10 = \square$$

Word problems involving sharing amounts out to people or in sets

Year 1 & 2

Division as grouping

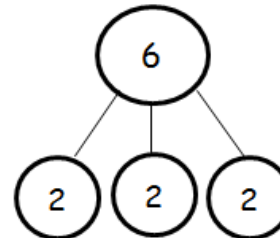
Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.



$$10 \div 2 = 5$$

Drawing pictorial equal sets taken from the total amount

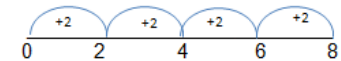
$$6 \div 2 = 3$$



$$15 \div 5 = 3$$



Counting in equal steps to divide. Using a number line to count how many jumps you made to reach a total
 $8 \div 2 = 4$



Solving word problems and division number sentences

$$12 \div 2 = \square$$

$$10 \div \square = 2$$

Division within arrays



Link division to multiplication by creating an array and thinking about the

number sentences that can be created.

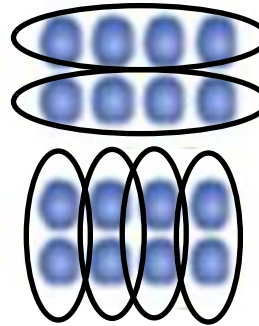
Eg $15 \div 3 = 5$ $5 \times 3 = 15$
 $15 \div 5 = 3$ $3 \times 5 = 15$



Finding arrays around the school and local environment
Looking at real life arrays



Drawing pictorial arrays to represent division sentences. Drawing rings around sets to find pairs of division sentences for each array



If you know $15 \div 3 = 5$ what else do you know?

Solving empty number boxes

$$14 \div \square = 7$$

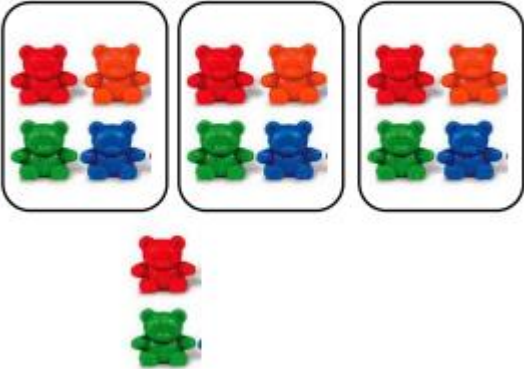
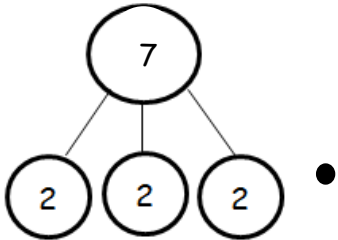


$$3 = \square \div 5$$

Creating pairs of \div sentences for an array

$$8 \div 2 = 4$$

$$8 \div 4 = 2$$

Extend to finding the multiplication sentences linked to these

<h2>Year 2</h2> <p>Division with a remainder</p>	<p>Divide objects between groups and see how much is left over</p>  <p>$14 \div 4 = 3 \text{ r } 2$</p>	<p>Use pictorial representations to make equal groups and then draw the remainders outside the groupings</p> <p>$7 \div 2 = 3 \text{ r } 1$</p>  <p>$17 \div 5 = 3 \text{ r } 2$</p> 	<p>Draw jumps on a number line until you can make no more jumps. Draw the remainders as dots counting on to make the total amount</p> <p>$13 \div 4 = 3 \text{ r } 1$</p> 
<p>Vocabulary Y1</p>	<p>Grouping, Count in 2s 5s 10s, Array, sharing</p>		
<p>Language stems Y1</p>	<p>I will/won't say when I count in 2s/5s/10s When I share into groups I will have</p> <p style="text-align: right;">You can/can't share equally because....</p>		
<p>Vocabulary Y2</p>	<p>array, row, column, halve, share, share equally, one each, two each, three each..., group in pairs, threes... tens, equal groups of, divide, divided by, divided into, left left over (In Y2 move towards grouping, not sharing)</p>		
<p>Language stems Y2</p>	<p>.....shared into equals I will/won't say when I count in because .. A number can't be odd and even because If I know x Then I also know... I have checked÷... by using ...÷..... groups of is So I know that shared into..... equal groups is</p> <p style="text-align: right;">..... can be put into equal groups of</p> <p style="text-align: right;">I know is even/odd because x is so I know that x is also .. I can/can't divide by because... I have checkedx... by using ...÷.....</p> <p>I can prove this statement is true/not true because..</p>		
<p>Foundations:</p>			
<p>Count back in 2s, 10s, 5s Halves up to 10</p>	<p>How many 2s? 5s? 10s? Halve multiples of 10</p>	<p>Division facts (2/5/10 x table) Halves up to 20</p>	<p>Count back in 3s</p>

Year 3

Towards short division $TO \div O$

$$6 \overline{) 9.6} \quad \begin{array}{r} 16 \\ \hline \end{array}$$

Any remainders should be shown as integers, i.e. 14 remainder 2 or 14 r 2.

Year 4

Short division $HTO \div O$ $196 \div 6$

$$6 \overline{) 19.6} \quad \begin{array}{r} 32 \text{ r } 4 \\ \hline \end{array}$$

Any remainders should be shown as integers, i.e. 14 remainder 2 or 14 r 2.

Year 5

Short division $ThHTO \div O$ $3196 \div 6$

$$6 \overline{) 319.6} \quad \begin{array}{r} 532 \text{ r } 4 \\ \hline \end{array}$$

Short division: decimals with up to two decimal places. Children should know that decimal points line up under each other.

$$7 \overline{) 87.35} \quad \begin{array}{r} 12.5 \\ \hline \end{array}$$

Year 6

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.

short division:

$$15 \overline{) 42 \overset{28}{0}}$$

Children will only be introduced to long division if they are deemed able enough to attempt the level 6 Key Stage 2 SAT tests.

Using and applying in Year 6

In Year 6, children are expected to:

“Solve problems involving addition, subtraction, multiplication and division”

“Solve problems which require answers to be rounded to specified degrees of accuracy”

“Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate”