



Burradon Community Primary School

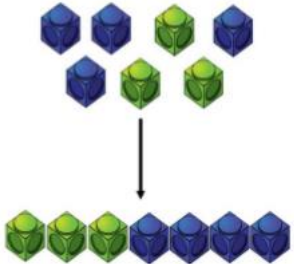
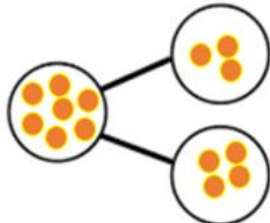
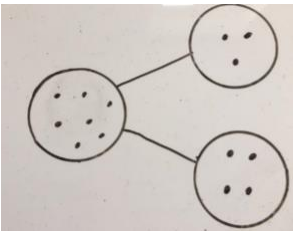
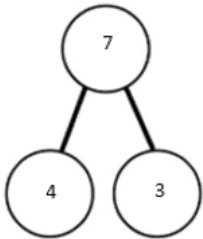
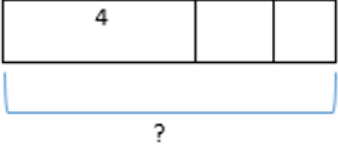
Maths Calculation Policy

Updated: March 2025

Note:

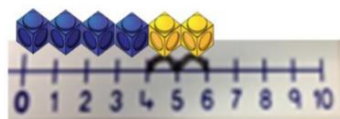
Although concrete, pictorial and abstract are separated into three separate sections in this policy, it is essential that all three models are used together to support children's deeper understanding.

Addition

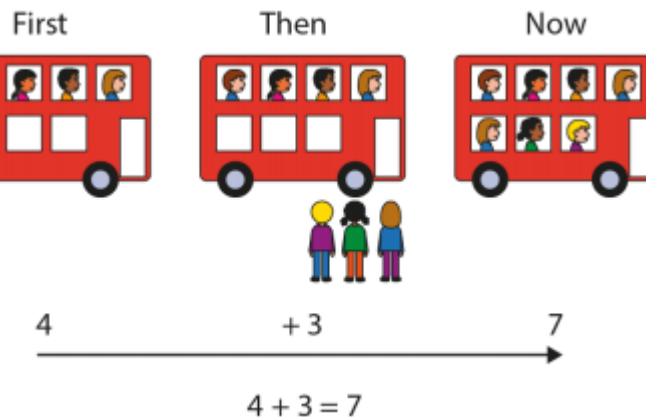
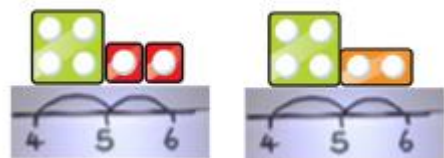
Key vocabulary	sum, total, part, whole, plus, add, increase, altogether, more, is equal to, is the same as addend plus addend is equal to the sum.		
Key skills and stem sentences	<u>Concrete (can we make it?)</u>	<u>Pictorial (can we draw it?)</u>	<u>Abstract (can we write the calculation?)</u>
Combining two parts to make a whole: part-whole model Four is a part, three is a part and the whole is seven. There are ____ in total. First... Then... Now...	Use part whole model.  A range of resources are used, including eggs, shells, teddy bears etc.	 Children use pictorial representations to combine two parts.  Children represent physical objects using dots or crosses.	 $7 = 4 + 3$ $4 + 3 = 7$ Use the part whole diagram to move into the abstract. Include missing number questions to support varied fluency: $8 = ? + 3$ $5 + ? = 8$
Counting on, starting at the greater number The greater number is _____. To find the	 Start with the larger number on the bead string, and then count on the smaller number 1 by 1.	 Children use a bar model which encourages them to count on, rather than count all.	 Abstract numberline. What is 2 more than 4?

total, I need to start at the greatest number, then count on.

First... Then... Now...
E.g. **First** there were 4 children on the bus, **then** 3 children got on, **Now** there are 7 children on the bus.



Count on using a number line and cubes or Numicon.



What is the sum of 2 and 4?
What is the total of 4 and 2?

$$4 + 2 =$$

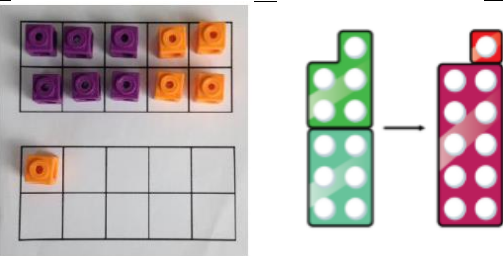
$$5 + 12 = 17$$

Place the larger number in your head and count on the smaller number to find your answer.

Regrouping to make 10

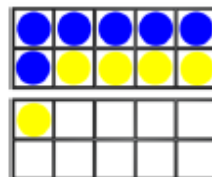
I need ____ to make ten. I have ____ left over. $10 + \underline{\quad}$ is ____.

This is an essential skill for column addition later one.



Start with the bigger number and use the smaller number to make 10.

Using ten frames and counters/ cubes or Numicon



Draw counters on blank ten frames, starting with the bigger number and using the smaller number to make 10.

$$6 + 5 =$$

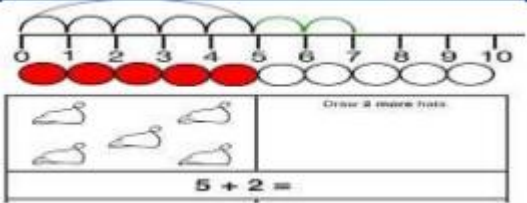
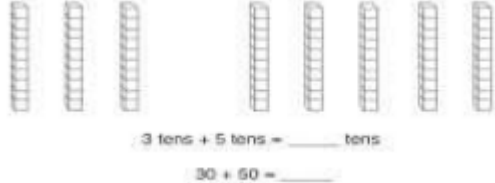
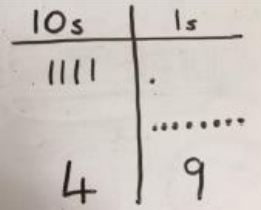
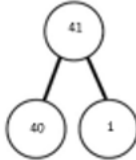
If I am at 6, how many more do I need to make 10? How many more do I add on now?

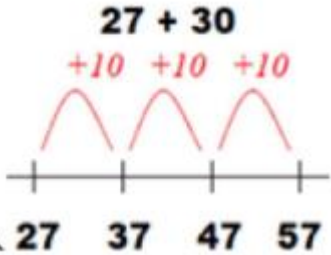
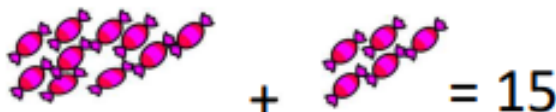
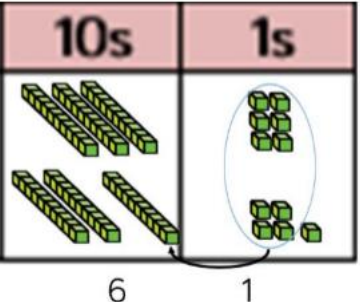
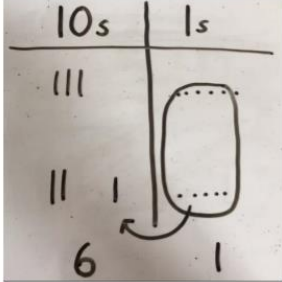
Children develop an understanding of equality, e.g.

$$6 + \square = 11$$

$$6 + 5 = 5 + \square$$

$$6 + 5 = \square + 4$$

Represent & use number bonds and related subtraction facts within 20	 2 more than 5.		Include missing number questions: $8 = ? + 3$ $5 + ? = 8$ Emphasis should be on the language '1 more than 5 is equal to 6.' '2 more than 5 is 7.' '8 is 3 more than 5.'
Adding multiples of ten If ___ ones + ___ ones = 10, then ___ tens + ___ tens = 100 If I have ___ tens, I need to add ___ more tens to make 100	$50 = 30 + 20$  Model using dienes and bead strings.	 Use representations for base 10.	$20 + 30 = 50$ $70 = 50 + 20$ $40 + \square = 60$
Tens and ones + ones I know that <u>6</u> + <u>2</u> is equal to <u>8</u>, so <u>16</u> + <u>2</u> is equal to <u>28</u>. I know that <u>7</u> plus <u>3</u> is equal to 10, so I know that <u>17</u> plus <u>3</u> is equal to <u>30</u>.	 Using understanding of partitioning and place value with base ten	 Children represent the base ten, using lines for tens and dots or crosses for ones.	$41 + 8 =$  $1 + 8 = 9$ $40 + 9 = 49$

Add a 2 digit number and tens The next ten after 20 is 30.	 $25 + 10 = 35$ Explore that the ones digit does not change	 $27 + 30$ $+10 +10 +10$ 27 37 47 57	$27 + 10 = 37$ $27 + 20 = 47$ $27 + \square = 57$
Add three 1-digit numbers	 Combine to make 10 first if possible, or bridge 10 then add third digit	 Regroup and draw representation  $= 15$	$(4 + 7) + 6 = 10 + 7$ $= 17$ Combine the two numbers that make/ bridge ten then add on the third.
Tens and ones + tens and ones First I partition ___ in to ___ and ___. Then I partition ___ into ___ and ___. (partitioning 2-digit addends) ___ plus ___ is equal to ____. (addition of the tens)	 Use base ten to continue developing understanding of partitioning and place value.	 Children represent the base ten, using lines for tens and dots or crosses for ones.	$36 + 25 =$ Look for ways to make 10. $36 + 25 =$ 1 5 $5 + 5 = 10$ $30 + 20 = 50$ $50 + 10 + 1 = 61$

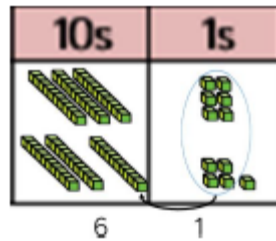
__ plus __ is equal to __. (addition of the ones) So __ plus __ is equal to __. (summary of the overall addition)			
Column method, no regrouping For Dienes: We line up the ones; __ ones plus __ ones. We line up the tens; __ tens plus __ tens. For column addition: The __ is in the ones column – it represents __ ones; the __ is in the ones column – it represents __ ones. The __ is in the tens column – it represents __ tens; the __ is in the tens column; it represents __ tens.	Use base ten or place value counters. Add the ones together, and then the tens.	As above, children represent the base ten, using lines for tens and dots or crosses for ones.	23 + 15 = Start by partitioning the numbers. $\begin{array}{r} 20 + 3 \\ 10 + 5 + \\ \hline 30 + 8 \end{array}$ Before moving onto formal method. $\begin{array}{r} 23 \\ 15 + \\ \hline 38 \end{array}$

In column addition, we start at the right hand side.

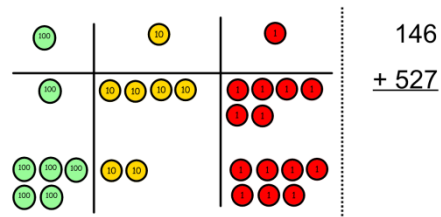
Column method with regrouping

If the column sum is equal to 10 or more, we must regroup.

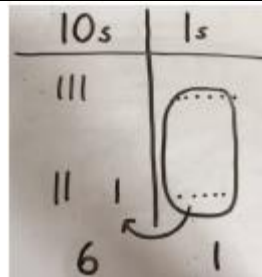
For column addition:
The ___ is in the ___ column – it represents ___; the ___ is in the ___ column – it represents _____.
The ___ is in the ___ column – it represents ____; the ___ is in the ___ column; it represents ____.



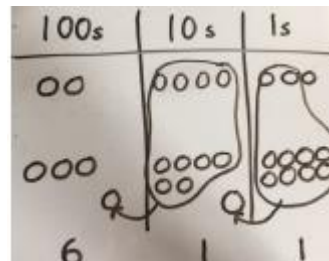
Use base ten alongside abstract method, in order to clearly model regrouping.



Use place value counters alongside abstract method, in order to clearly model regrouping.



As above, children represent base ten using lines for ten and dots for ones.



Children represent place value counters on place value charts.

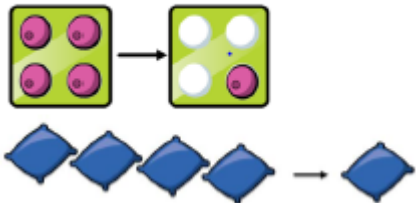
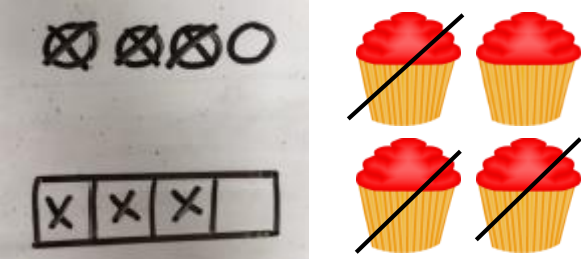
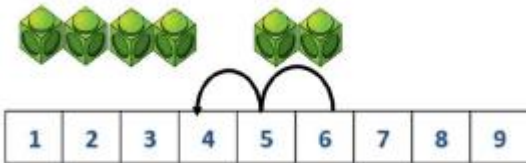
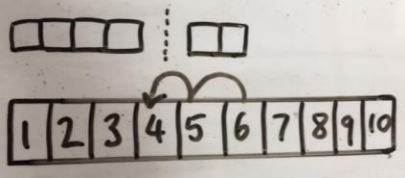
Start by partitioning the numbers before moving on to clearly showing the exchange below the addition.

$$\begin{array}{r} 20 + 5 \\ 40 + 8 \\ 60 + 13 = 73 \end{array}$$

$$\begin{array}{r} 536 \\ + 85 \\ \hline 621 \\ 11 \end{array}$$

$$\begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \\ 11 \end{array}$$

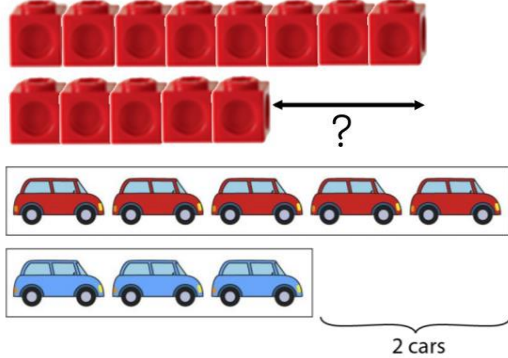
Subtraction

Key vocabulary	Take away, less than, difference, subtract, minus, fewer, decrease Minuend minus subtrahend is equal to the difference.		
Key skills and stem sentences	Concrete (can we make it?)	Pictorial (can we draw it?)	Abstract (can we write the calculation?)
Physically taking away objects from a whole First... Then... Now... e.g. First there were 4 children in the car, then 3 children got out. Now there is 1 child in the car.	$4 - 3 = 1$  Children use ten frames, Numicon, cubes and other items to physically take away objectives from a whole.	 Children cross out drawn objects to show what has been taken away.	$4 - 3 =$ $\underline{\quad} = 4 - 3$
Counting back The whole is ____. The part we are taking away is ____. Start on ____ and count back ____.	 Children use a numberline or number track, starting at 6 and counting back 2.	 Children represent what they see pictorially, for example by drawing a number track.	$6 - 2 =$ Counting back mentally

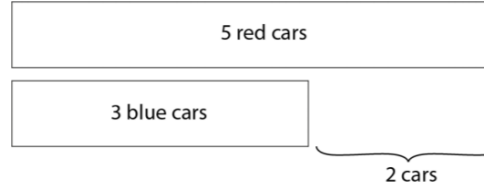
Finding the difference

The difference between the number of ___ and the number of ___ is ___.

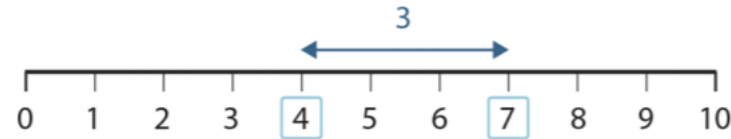
The difference between ___ and ___ is ___.



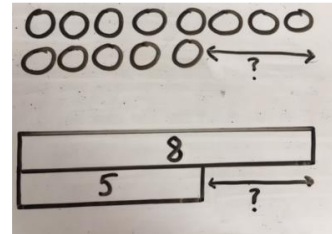
Children use cubes, Numicon or other objects to find the difference, by comparing the number of objects in one set with the number of objects in another.



Children use a bar model to focus on the 'gap' between the numbers.



Children use a numberline to focus on the 'gap' between the numbers.

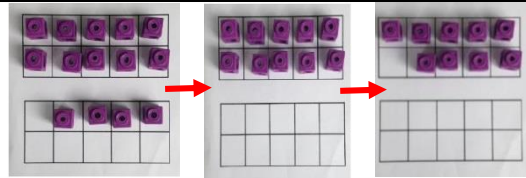


Find the difference between 8 and 5.

$8 - 5$. The difference is ____.
Children explore why $9 - 6$, $8 - 5$, $7 - 4$ have the same difference.

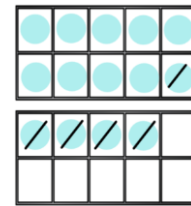
Subtracting through ten

First, then, now
First there were twelve children on the ride. Then four got off. Now there are eight children on the ride.



$$14 - 5 =$$

Children use cubes make 14 on the ten-frame, take away the first 4 to make ten, and then take away 1 more.



Children represent the ten-frame pictorially, discussing what they did to make 10.

$$12 - 4 =$$

Becomes

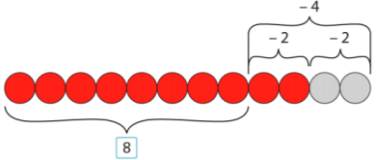
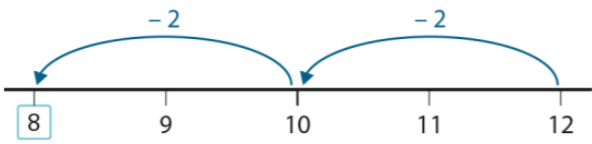
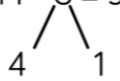
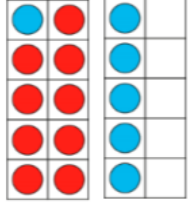
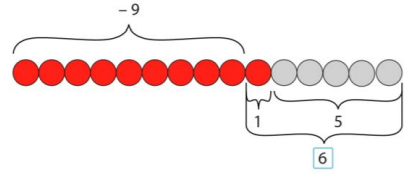
$$12 - 2 - 2 = 8$$

OR

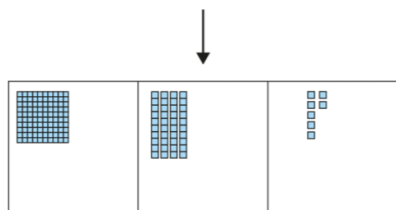
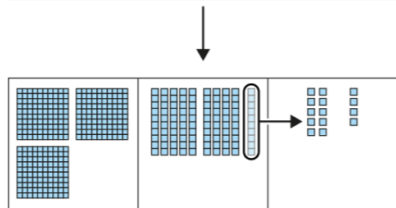
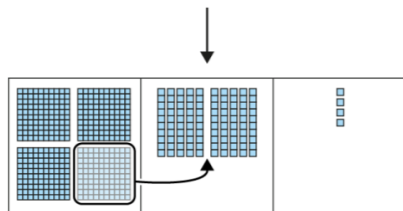
$$12 - 2 = 10$$

$$10 - 2 = 8$$

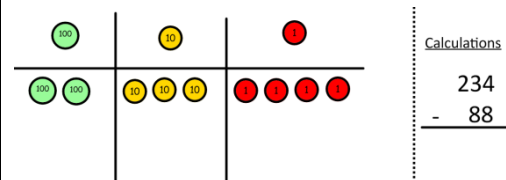
Children **should not** write $12 - 2 = 10 - 2 = 8$ to avoid differing values on either side of the equals symbols.

	 Children use a bead bar to subtract through ten.	 Children represent their subtraction on a numberline, showing how they have partitioned the subtrahend.	$14 - 5 = 9$  Children show how they can partition the subtrahend to subtract through ten.
Subtracting from ten First, then, next First there were <u>twelve</u> children on the ride. Then <u>four</u> got off. Now there are <u>eight</u> children on the ride.	 $15 - 9 =$ Children use cubes/ counters on a ten-frame to subtract the subtrahend from ten, and then add on the difference between the minuend and ten. E.g. $10 - 9 = 1$ $1 + 5 = 6$  Children use a bead bar to subtract the subtrahend from ten.	As above, children represent the ten-frame pictorially, discussing what they did to subtract from ten.	$\begin{array}{r} 14 \\ - 8 \\ \hline 10 \quad 4 \end{array}$ Children show how they can partition the minuend to subtract from ten. $14 - 8 =$ $10 - 8 = 2$ $2 + 4 = 6$ So, $14 - 8 = 6$

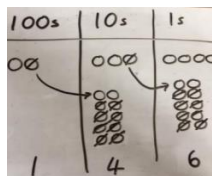
Column Method, no exchanging For Dienes: ___ ones minus ___ ones is equal to ___ ones. ___ tens minus ___ tens is equal to ___ tens. For column subtraction: The ones column represents ___ ones minus ___ ones is equal to ___ ones. The tens column represents ___ tens minus ___ tens is equal to ___ tens.	Children use base ten to calculate $48 - 7$ by taking away 7 ones. Children may move onto using place value counters to represent subtraction questions, <u>only when they are secure in the concept of one ten.</u>	Children represent base ten pictorially, crossing out the 7 ones. Children use diagrams of base 10 alongside the written algorithm. Children may move onto using place value counters diagrams to represent subtraction questions, <u>only when they are secure in the concept of one ten.</u>	Children can start their formal written method by partitioning the number into clear place value columns, before moving onto the formal algorithm. $48 - 7 =$ $40 + 8$ $\quad \quad 7 -$ $\hline 40 + 1$ 48 $\quad \quad 7 -$ $\hline 41$ $54 - 22 =$ $50 + 4$ $20 + 2 -$ $30 + 2$ 54 $\quad \quad 22 -$ $\hline 32$ $176 - 64 =$ 176 $\quad \quad 64 -$ $\hline 112$
Column method with exchanging If there aren't enough of a unit to subtract in a certain column, we must exchange from the column to the left.	$41 - 26$ Children use base 10 as above. Here 1 ten has been exchanged for 10 ones.	Children represent base 10 using squares for hundreds, lines for tens and dots for ones. Children show on their diagram what they have exchanged. Here, 1 ten has been exchanged for 10 ones.	Children use the formal column method to subtract.



Children learn how to use base 10 to 'work through a zero'.



Children move onto using place value counters to subtract.



Children represent place value counters pictorially, remembering to show what has been exchanged.

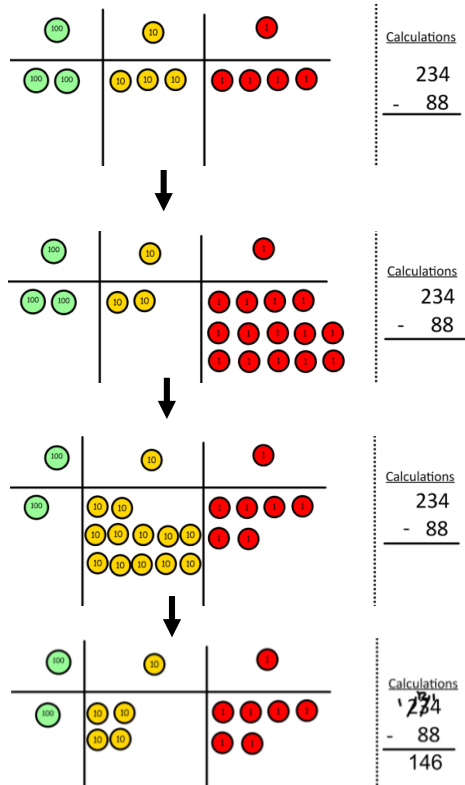
Children can start their formal written method by partitioning the number into clear place value columns, before moving onto the formal algorithm.

$$\begin{array}{r} 836 - 254 = 582 \\ \begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 800 \quad 30 \quad 6 \\ - 200 \quad 50 \quad 4 \\ \hline 500 \quad 80 \quad 2 \end{array} \end{array}$$

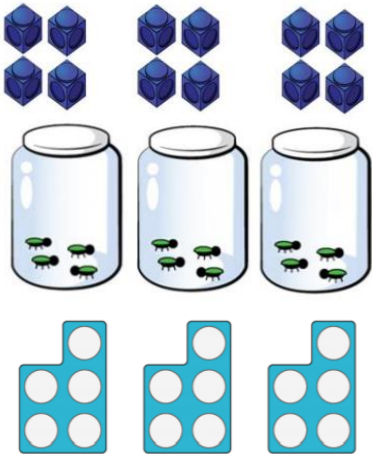
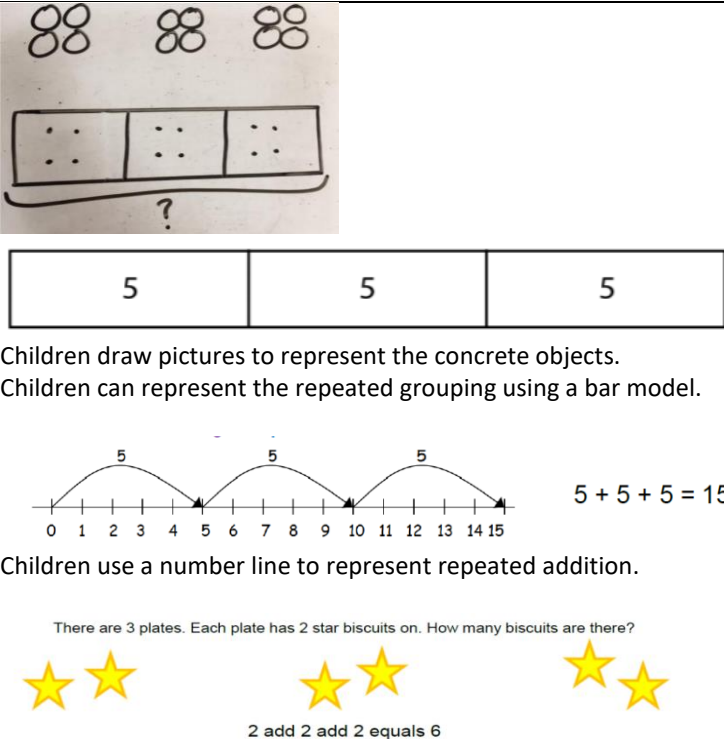
100s	10s	1s
2 1	12	3
- 1	4	2
0	8	1

Children will learn how to 'work through a zero'.

100s	10s	1s
4 3	1 0	14
- 2	5	7
1	4	7



Multiplication

Key vocabulary	Double, times, multiply, multiplied by, product, groups of, lots of, equal groups, regroup, commutativity, distributive law, partitioning Factor times factor equals product		
Key skills and stem sentences	Concrete (can we make it?)	Pictorial (can we draw it?)	Abstract (can we write the calculation?)
Repeated grouping/ repeated addition There are ___ equal groups of ___. There are ___ in each group. There are ___ groups of ___. There are ___ groups of ___. There are ___ and ___ and ___. We can write this as ___ plus ___ plus ___. $\square + \square + \square$ There are ___ groups of ___. We can write this as ___ times ___.	 Children use concrete resources to support them to count in groups.	 Children draw pictures to represent the concrete objects. Children can represent the repeated grouping using a bar model. Children use a number line to represent repeated addition. There are 3 plates. Each plate has 2 star biscuits on. How many biscuits are there? 2 add 2 add 2 equals 6 Children use pictures of objects to support them to count in groups.	$4 + 4 + 4 = 12$ $3 \times 4 = 12$ $5 + 5 + 5 = 15$

Using arrays to illustrate commutativity

One group of ____ is equal to ____.

One times ____ is equal to ____.

Five groups of two is equal to ten **and** five times two is equal to ten.

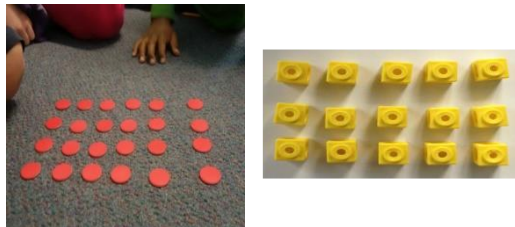
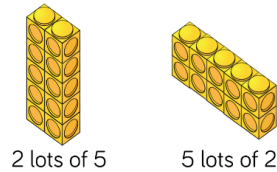
Five two times is equal to ten **and** five times two is equal to ten.

a times b can represent a groups of b. It can also represent b groups of a (or a, b times).

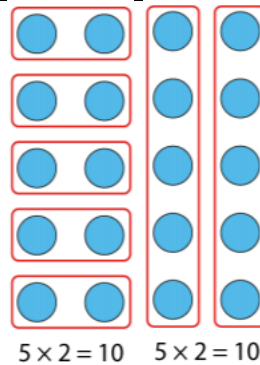
algebraic terms for teacher's use only

If there are two equal groups, we can use the two times table.

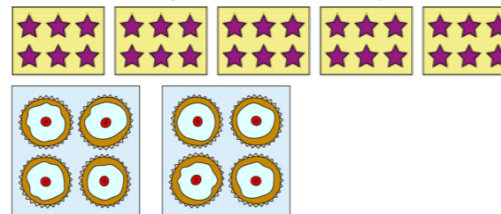
If ____ is a factor, we can use the ____ times table.



Children create arrays using counters, cubes and other physical resources to show commutativity.



Children draw around different groups on pictorial diagrams, using stem sentences to show commutativity.



Children use diagrams to form arrays using counters or cubes to show commutativity.

$$5 \times 2 = 10$$

$$2 \times 5 = 10$$

$$2 \times 5 = _ \times 2$$

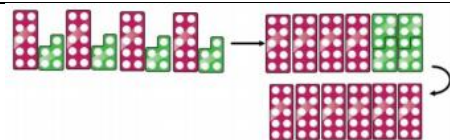
$$_ \times 5 = _ \times 2$$

__ x 5 = 5 x __ How many possibilities can you find?

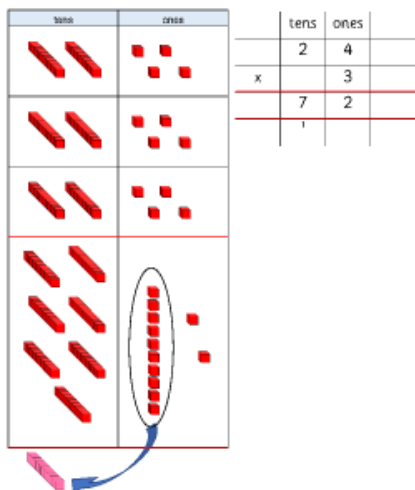
**The distributive law:
partitioning to multiply**

If there are ten or more
ones, we must regroup
the ones into tens and
ones.

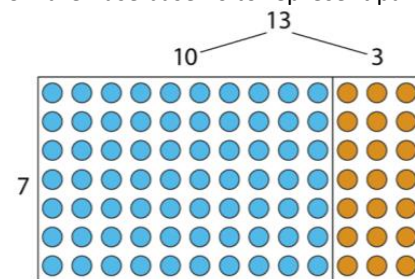
If there are ten or more
tens, we must regroup
the tens into hundreds
and tens.



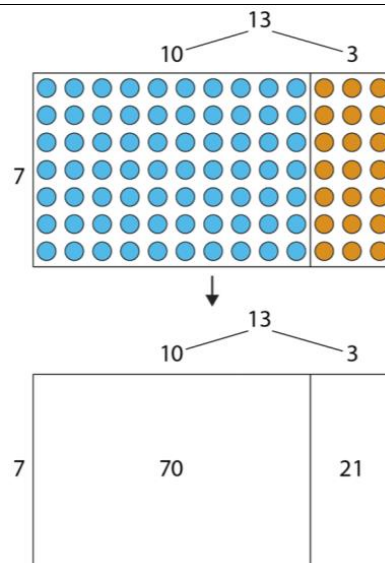
Children use Numicon to represent partitioning.



Children use base 10 to represent partitioning.



Children use arrays to represent partitioning.



After practice with the array representation, scaffold is removed and children work with a pictorial grid representation.

$$13 \times 7 = 10 \times 7 + 3 \times 7$$

$$= 70 + 21$$

$$= 91$$

$$26 \times 4 = 20 \times 4 + 6 \times 4$$

$$= 80 + 24$$

$$= 80 + 20 + 4$$

$$= 104$$

0

Short multiplication, no regrouping

Tens	Ones
	
	
	

Children use base 10 to solve 21×3 , making 3 groups of 21.

Tens	Ones
	
	
	
	

Children use place value counters to solve 22×4 , making 4 groups of 22.

10s	1s
00	000
00	000
00	000
6	9

Children represent place value counters/ base ten pictorially.

10s	1s
3	2
×	3
	6
9	0
9	6

$3 \times 2 \text{ ones} = 6 \text{ ones}$
 $3 \times 3 \text{ tens} = 9 \text{ tens}$

Children may use the expanded method initially to secure understanding of place value, before moving on to compact short multiplication.

10s	1s
3	2
×	3
9	6

Gradually, place value headings can be removed.

2	1
×	4
8	4

Short multiplication with regrouping If there are ten or more ones, we must regroup the ones into tens and ones. If there are ten or more tens, we must regroup the tens into hundreds and tens.	<table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>	Hundreds	Tens	Ones																																																																																																																																																																																																																																																																																																																																																																					
Hundreds	Tens	Ones																																																																																																																																																																																																																																																																																																																																																																							

tenths is equal to __ tenths. __ times __ ones is equal to __ ones, so __ times __ hundredths is equal to __ hundredths. If there are ten or more tenths, we must regroup the tenths into ones and tenths. If there are ten or more hundredths, we must regroup the hundredths into tenths and hundredths.																																	
Long multiplication If there are ten or more ones, we must regroup the ones into tens and ones. If there are ten or more tens, we must regroup the tens into hundreds and tens. If there are ten or more hundreds, we must regroup the hundreds	NB: Children working at this level are expected to have secured the use of place value counters to multiply by a one-digit number. Therefore, they should proceed to formal methods.		<table><tr><td></td><td>100s</td><td>10s</td><td>1s</td><td></td></tr><tr><td></td><td></td><td>3</td><td>1</td><td></td></tr><tr><td>×</td><td></td><td>2</td><td>4</td><td></td></tr><tr><td></td><td>1</td><td>2</td><td>4</td><td>31 × 4</td></tr><tr><td></td><td>6</td><td>2</td><td>0</td><td>31 × 20</td></tr><tr><td></td><td>7</td><td>4</td><td>4</td><td></td></tr></table> Children use the expanded method initially, before moving onto the compact algorithm.		100s	10s	1s				3	1		×		2	4			1	2	4	31 × 4		6	2	0	31 × 20		7	4	4	
	100s	10s	1s																														
		3	1																														
×		2	4																														
	1	2	4	31 × 4																													
	6	2	0	31 × 20																													
	7	4	4																														

into thousands and
hundreds.

$$\begin{array}{r} 31 \\ \times 24 \\ \hline 124 \\ 620 \\ \hline 744 \end{array}$$

~~1~~

	1,000s	100s	10s	1s
		3	1	2
$\times$			2	8
		2	4	9
		6	2	4
		8	7	3
				6

1

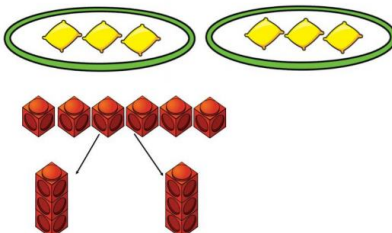
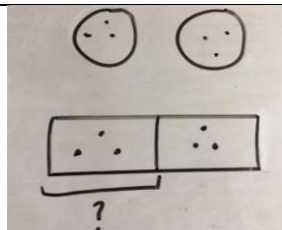
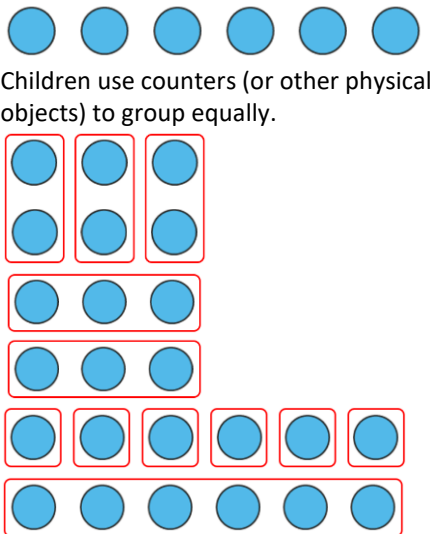


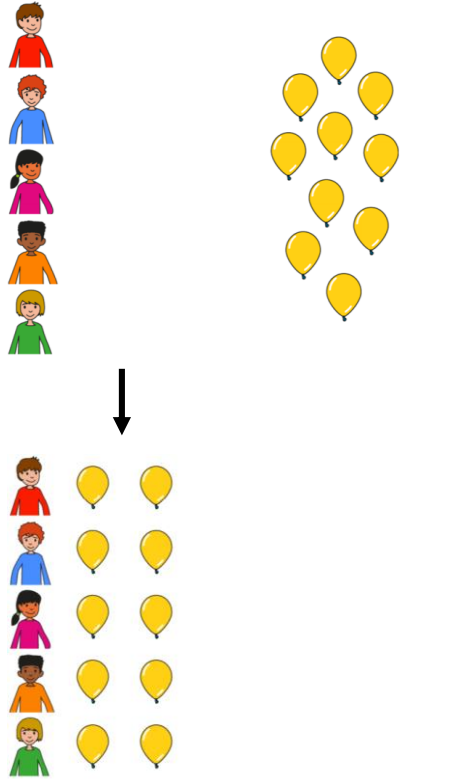
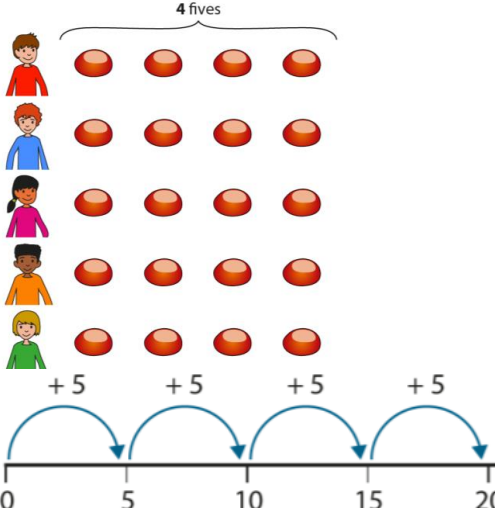
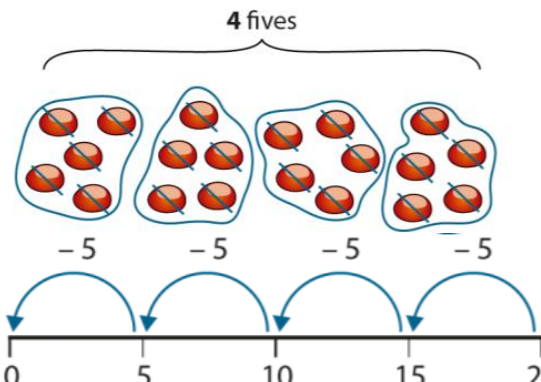
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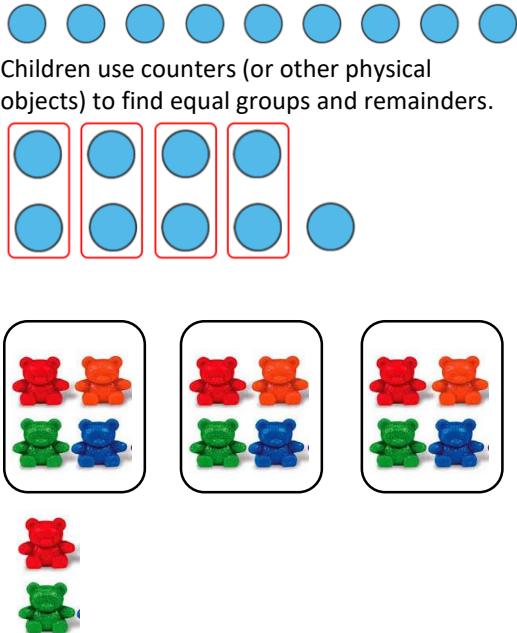
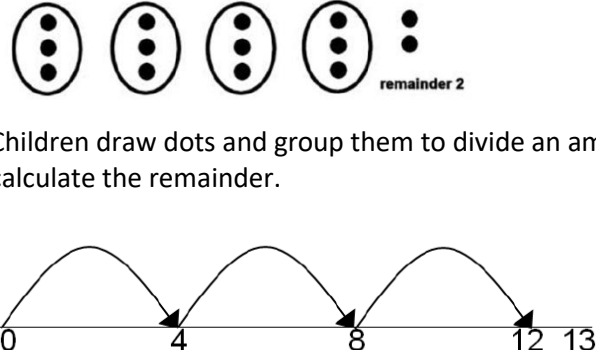
$$\begin{array}{r} 312 \\ \times 28 \\ \hline 2496 \\ 6240 \\ \hline 8736 \end{array}$$

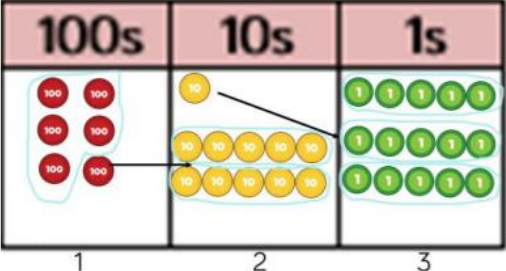
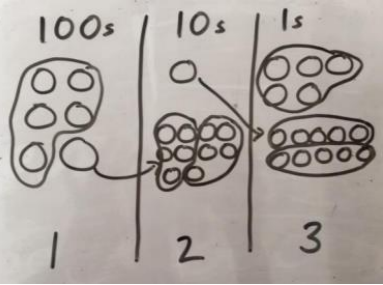
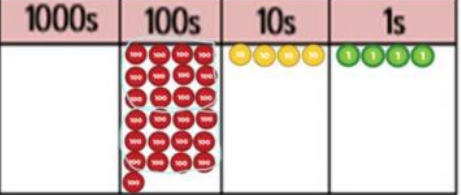
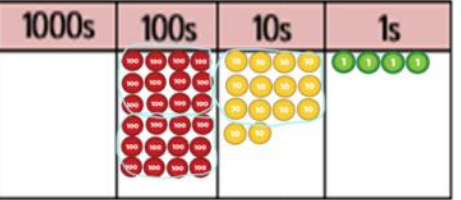
1

Division

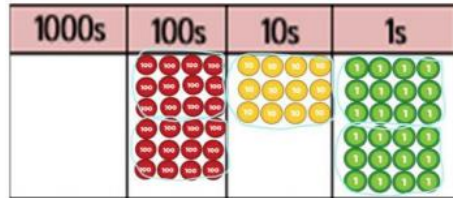
Key vocabulary	Share, group, divide, divided by, half Dividend divided by divisor equals quotient. Teachers: quotitive division (divided into groups of/ grouping)/ partitive division (divided between/ sharing)																								
Key skills and stem sentences	Concrete (can we make it?)	Pictorial (can we draw it?)	Abstract (can we write the calculation?)																						
Sharing ___ is divided into groups of __. There are __ groups. ___ is divided into __ groups of __. ÷ =	 Children use a range of objects to physically share.	 Children represent the sharing pictorially.	$6 \div 2 = 3$ <table border="1" data-bbox="1751 547 2040 592"><tr><td>3</td><td>3</td></tr></table> When appropriate, children use their 2 times table facts.	3	3																				
3	3																								
Grouping ___ is divided into groups of __. There are __ groups. ___ is divided into __ groups of __. ÷ =	 Children use counters (or other physical objects) to group equally.	As above, children represent the grouping pictorially.	$6 \div 3 = 2$ <table border="1" data-bbox="1751 825 2056 957"><tr><td colspan="3">6</td></tr><tr><td>2</td><td>2</td><td>2</td></tr></table> $6 \div 2 = 3$ <table border="1" data-bbox="1751 1002 2056 1133"><tr><td colspan="2">6</td></tr><tr><td>3</td><td>3</td></tr></table> $6 \div 6 = 1$ <table border="1" data-bbox="1751 1177 2056 1310"><tr><td colspan="6">6</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table> $6 \div 1 = 6$	6			2	2	2	6		3	3	6						1	1	1	1	1	1
6																									
2	2	2																							
6																									
3	3																								
6																									
1	1	1	1	1	1																				

			<table><tr><td>6</td></tr><tr><td>6</td></tr></table>	6	6
6					
6					
Skip Counting to share ___ divided between ___ is equal to ___ each. Generalised statement: We can use skip counting using the divisor to find the quotient.	 Rather than dealing out one at a time, children distribute all 5 balloons simultaneously. 'One five is one each. That's five.' 'Two fives is two each. That's ten.' 'Ten divided by five is equal to two each.' 'So, each child gets two balloons.'	 Children use a numberline to draw forward jumps to 20 to represent skip counting forwards (receiving a share). 	$10 \div 5 = 2$		

		Children use a numberline to draw backwards jumps from 20, removing from the original as they are shared out (removing a share).																								
Grouping/ sharing with a remainder ___ is divided into ___ groups of ___ with a remainder of ___. ÷ =	Children use counters (or other physical objects) to find equal groups and remainders. 	Children draw dots and group them to divide an amount and calculate the remainder.  Children use a number line to make forward jumps, then see how many are remaining to find the remainder.	$9 \div 2 = 4 \text{ remainder } 1$ When writing, the remainder should be shown using 'r', e.g. $9 \div 2 = 4 \text{ r } 1$																							
Short division, no exchanging	$96 \div 3$ <table data-bbox="571 994 893 1265"><thead><tr><th></th><th>Tens</th><th>Units</th></tr></thead><tbody><tr><td></td><td>3</td><td>2</td></tr><tr><td>3</td><td> 10 10 10 </td><td> 10 10 </td></tr><tr><td></td><td> 10 10 10 </td><td> 10 10 </td></tr><tr><td></td><td> 10 10 10 </td><td> 10 10 </td></tr></tbody></table> Children use place value counters to group.		Tens	Units		3	2	3	10 10 10	10 10		10 10 10	10 10		10 10 10	10 10		$848 \div 4 =$ <table data-bbox="1753 994 1910 1074"><tbody><tr><td></td><td>2</td><td>1</td><td>2</td></tr><tr><td>4</td><td>8</td><td>4</td><td>8</td></tr></tbody></table>		2	1	2	4	8	4	8
	Tens	Units																								
	3	2																								
3	10 10 10	10 10																								
	10 10 10	10 10																								
	10 10 10	10 10																								
	2	1	2																							
4	8	4	8																							

Short division, with exchanging If dividing the _____ gives a remainder of one or more _____, we must exchange the remaining _____ for _____.	$615 \div 5$  Children use place value counters to group and exchange.	 Children represent place value counters pictorially.	$612 \div 4 =$ $\begin{array}{r} 153 \\ 4 \overline{) 612} \\ \underline{4} \\ 21 \\ \underline{20} \\ 12 \\ \underline{12} \\ 0 \end{array}$
Long division If dividing the _____ gives a remainder of one or more _____, we must exchange the remaining _____ for _____.	NB: children would still be encouraged to use short division for $\div 11/12$. This example uses $\div 12$ for clarity.  We can't group 2 thousands into groups of 12 so will exchange them.  We can group 24 hundreds into 2 groups of 12 which leaves 1 hundred. 	Children represent place value counters pictorially as above.	$\begin{array}{r} 014 \\ 31 \overline{) 434} \\ \underline{31} \\ 124 \\ \underline{124} \\ 0 \end{array}$ $\begin{array}{r} 21r25 \\ 33 \overline{) 718} \\ \underline{66} \\ 58 \\ \underline{33} \\ 25 \end{array}$

After exchanging the hundred, we have 14 tens. We can group 12 tens into 1 group of 12, which leaves 2 tens.



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