Balfour Infant School
Maths Policy

Date Written: September 2025
Next Review: September 2027

Mathematics is essential for everyday life and understanding our world. It enables the development of pupils' natural ability to think logically and solve puzzles and real-life problems. Pupils learn to think creatively and make links between mathematical concepts through exploring patterns in the number system, shape, measures and statistics. They make and discuss propositions, explaining their reasoning and justifying their answers. They develop the skills, knowledge and efficient methods of calculation necessary to support their economic future and problem solving in life.

Intent

The intent of this policy to ensure all children leave our school with a secure understanding of the four operations and can confidently use and apply both written and mental calculation strategies in a range of contexts. It aims to ensure consistent strategies, models and images are used across the school to embed and deepen children's learning and understanding of mathematical concepts.

Implementation

The curriculum for mathematics is as set out in the National Curriculum and EYFS Documentation with the focus of teaching in Key Stage 1 being to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. White Rose maths resources are used to support teaching and learning. We ensure that learning is sequential and uses small steps to support children to master each mathematical concept. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with reading and spelling at Key Stage 1. Mathematics is an interconnected subject in which pupils need to be able to move fluently between mathematical ideas. Maths is always taught as a discrete subject with links made with other areas of the curriculum where appropriate. The expectation is that the majority of pupils will move through the learning at a similar pace. Children who grasp concepts rapidly should be challenged through problems and reasoning before being taught new content. Those who are not sufficiently fluent with earlier material or have a specific SEND will consolidate their understanding, including through additional practice, support and scaffolded learning.

In our lessons we will be using: Concrete, pictorial, abstract (CPA) concepts. CPA is used with the whole class and our teachers will promote each area as equally valid. Manipulatives in particular are not presented as a resource to support the less confident or lower attaining pupils, they are used for deeper mathematical understanding.

Aims

The aim is that when children leave Balfour Infant School, they:

- Have a secure knowledge of number facts and a good understanding of the four calculation operations (addition, subtraction, multiplication and division)
- Make use of jottings, diagrams and informal notes to help record steps and part answers when using mental methods that generate more information than can be kept in their heads
- Have an efficient, reliable, written method of calculation for each operation that they are able to apply with confidence when they are unable to perform a calculation mentally
- They children have the ability to discuss mathematics with confidence
- They have a love of mathematics.

Maths is taught daily across the school in all year groups. There is a specific maths lesson planned daily using White Rose Maths. These lessons involve following small steps to allow children to grasp new concepts in an ordered sequence which builds on skills to achieve mastery of a concept.

Differentiation and Inclusion

At Balfour Infants, we deliver a mastery approach. (True mastery aims to develop all children's mathematical understanding at the same pace). As much as possible, children will be accessing the same learning. Differentiation is primarily through support, scaffolding and deepening, and not through task. However, on occasion certain children may have to have an adapted curriculum to suit their individual needs.

To ensure challenge we have extension tasks to deepen understanding and stretch the children through reasoning and problem solving.

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Assessment and Feedback

Teachers use a range of assessment methods and models to ensure effective formative and summative assessment of all children.

Learning is recorded in a number of ways including direct observations of children learning through pictures and written notes, capturing children's voices through quotes and statements, children's written recording and problem solving and formal assessments.

Feedback needs to be timely and targeted in order to be effective. Verbal feedback is given to children on their work wherever possible. This feedback can be given within lessons, at the end of a lesson or at the start of following sessions. When verbal feedback is not possible, written comments are made on children's work. This feedback is linked to the focused learning outcomes and/or success criteria for each lesson.

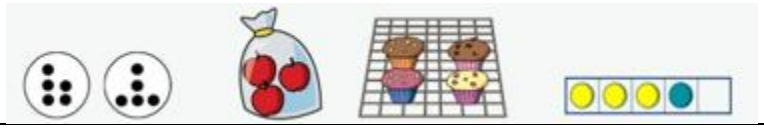
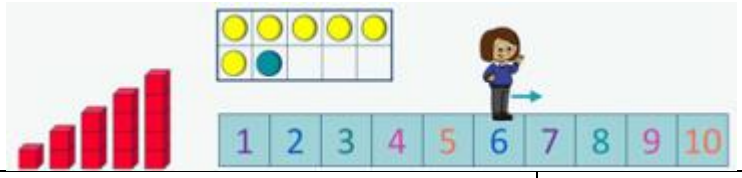
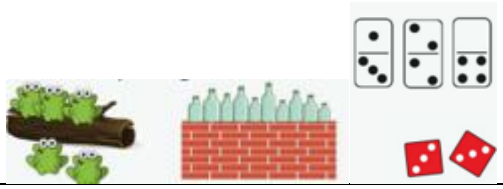
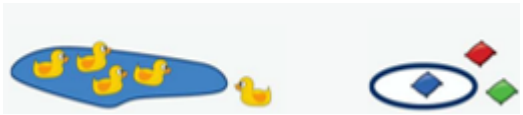
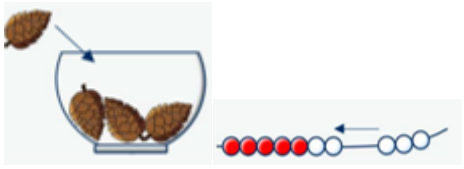
Home-School Support

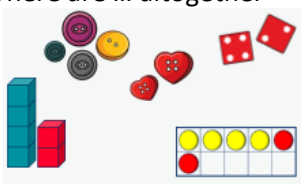
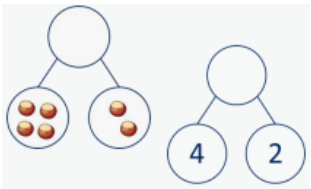
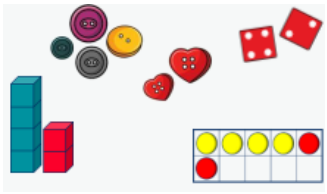
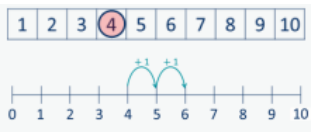
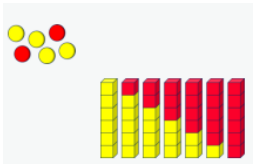
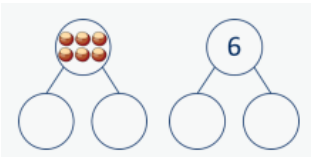
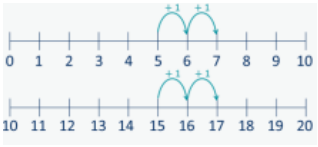
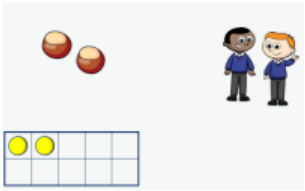
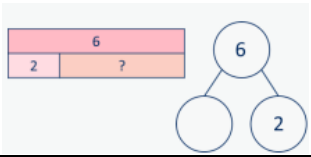
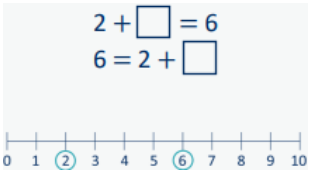
We recognise the vital contribution of home support to children's on-going learning and strive to develop a strong home-school partnership to support all children to succeed.

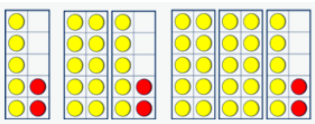
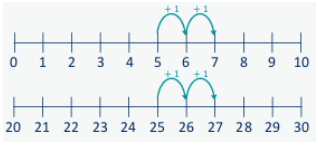
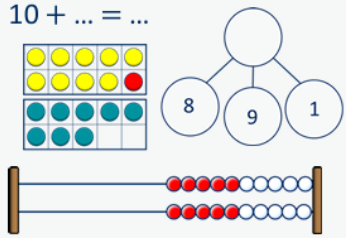
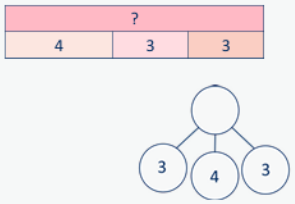
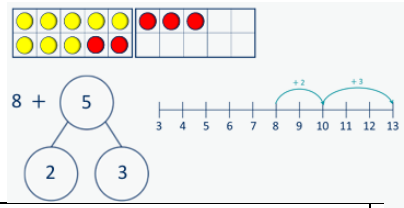
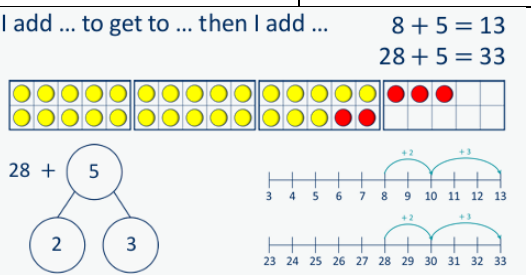
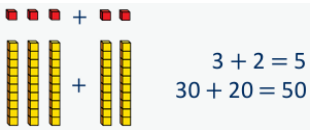
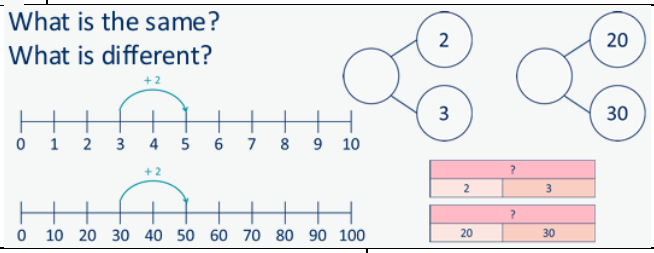
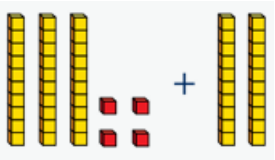
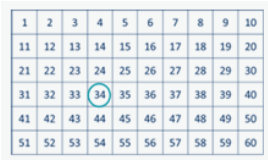
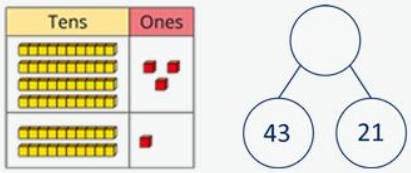
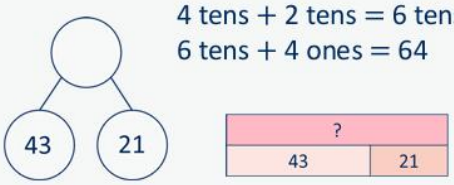
Workshops are offered to parents of each year group to support parents' understanding of the mathematical concepts being taught in each year, the strategies used at school to support children and to empower parents to support children at home.

The following grids show how the different operations are taught within each year group along with questions and stem sentences that may be used to support the children's learning.

Addition

Reception	• Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some up to 10, including double facts.
Progression of skills	**Key Representations**
Conceptually subitise up to 5 Notice the parts that make up the whole.	What do you see? How do you see it? 
1 more Continue to link stories, songs and rhymes.	1 more than … is … 
Notice the composition of numbers within 10 Link to stories, songs and rhymes.	How many … ? How many … ? How many altogether? 
	How many ways can you make? 
Combine two groups Two groups are combined to find the total.	There are … There are … There are … altogether. 
	… and … make … 
Add more A quantity is increased.	First … Then … Now … 
	I have … I add … more. Now I have … 

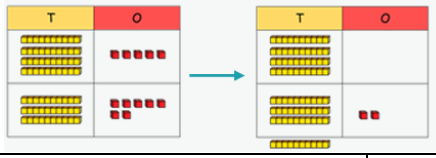
Year 1	• Read, write and interpret mathematical statements involving addition (+) and equals (=) signs. • Represent and use number bonds within 20 • Add 1-digit and 2-digit numbers to 20, including zero. • Solve one-step problems that involve addition, using concrete objects and pictorial representations, and missing number problems such as 7 = + 2		
Progression of skills	**Key Representations**		
Add together (aggregation) 2 quantities are combined to find the total.	There are … There are … There are … altogether 	. … is a part . … is a part. … is the whole. 	… plus … is equal to … … is equal to …. + … 4 + 2 = 6 2 + 4 = 6 6 = 4 + 2 6 = 2 + 4
Add more (augmentation) A quantity is increased.	First… Then… Now… 	I start at … I jump on … I land on … 	… plus … is equal to … is equal to … + … 4 + 2 = 6 2 + 4 = 6 6 = 4 + 2 6 = 2 + 4
Bonds within 10 Include bonds for each number within 10 Encourage children to notice patterns.	… is made of … and … … and … make … 	… can be partitioned into … and … 	… plus … is equal to … 6 + 0 = 6 5 + 1 = 6 4 + 2 = 6 3 + 3 = 6 2 + 4 = 6 1 + 5 = 6 0 + 6 = 6
Related facts within 20 Make links to known facts	I know that … and … = … so … and … = … 	… more than … is … so … more than … is … 	What patterns do you notice? 5 + 2 = 7 15 + 2 = 17 7 = 5 + 2 17 = 15 + 2
Missing numbers Make links to known facts	How many more do you need to make …? 	If … is the whole and … is a part, the other part must be… 	… plus … is equal to … 

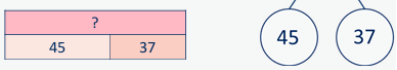
Year 2	• Recall and use addition facts to 20 fluently, and derive and use related facts up to 100 • Add numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and 1s • a two-digit number and 10s • 2 two-digit numbers • adding 3 one-digit numbers • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.		
Progression of skills	**Key Representations**		
Add ones to any number (related facts) Make links to known facts.	I know that … and … = … so … and … = … 	… more than … is … so … more than … is … 	What do you notice? Can you continue the pattern? 5 + 2 = 7 15 + 2 = 17 25 + 2 = 27…
Add three 1-digit numbers Prompt children to understand that addition can be done in any order and to make links to known facts.	… and … are a bond to 10 10 + … = … 	Double … + … = … 	What do you notice? Which addition is the easiest to calculate? 8 + 9 + 1 = 8 + 1 + 9 = 9 + 1 + 8 =
Add across a 10 Partition the number being added to make a full ten.	… can be partitioned into … and … 	I add … to get to … then I add … 8 + 5 = 13 28 + 5 = 33 	
Add multiples of 10 Make links to known facts within ten.	… ones + … ones = … ones so … tens + … tens = … tens 	What is the same? What is different? 	
Add 10s to any number Make links to known facts.	… tens + … tens = … tens … tens and … ones = … 	To add … I need to add 10 … times. 	I know that … and … = … so … and … = … 30 + 20 = 50 34 + 20 = 54
Add 2-digit numbers (not across a ten) Lining up ones and tens in columns will support with later written methods.	… ones + … ones = … ones … tens + … tens = … tens 	3 ones + 1 one = 4 ones 4 tens + 2 tens = 6 tens 6 tens + 4 ones = 64 	

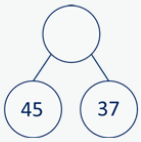
<table>
<tr>
<td>Add 2-digit numbers

(across a ten) Begin to exchange 10 ones for 1 ten.</td>
<td colspan="3">There are …. ones, so I do/do not need to make an exchange.

… ones = … ten and … ones

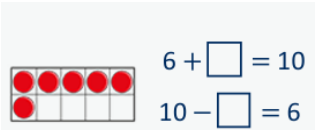
 

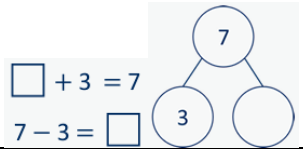


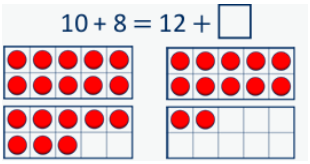


5 ones + 7 ones = 12 ones
12 ones = 1 ten and 2 ones
4 tens + 3 tens + 1 ten = 8 tens
8 tens and 2 ones = 82</td>
</tr>
<tr>
<td>Missing numbers

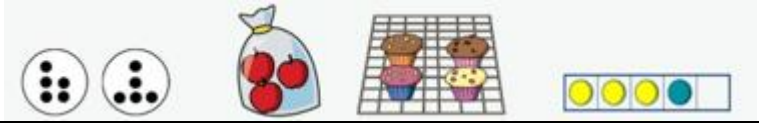
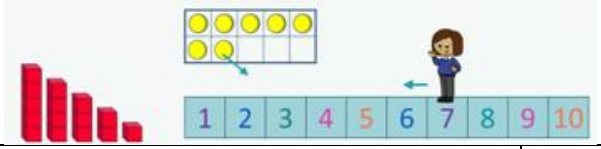
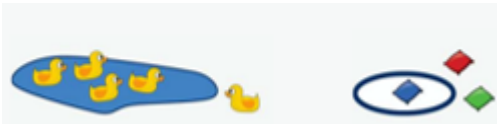
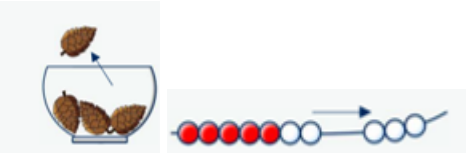
Solve missing number problems and use the inverse to check.</td>
<td>How many more do you need to make …?

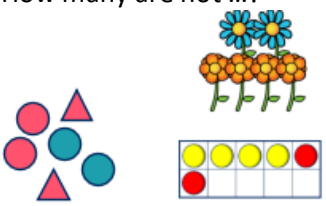
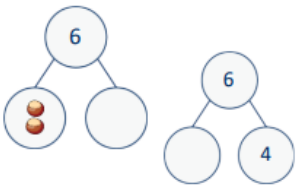
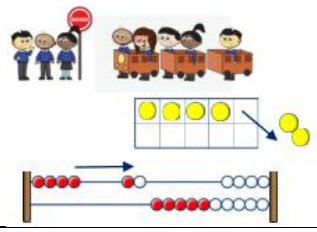
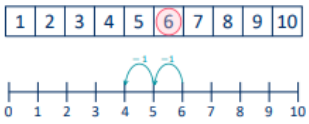
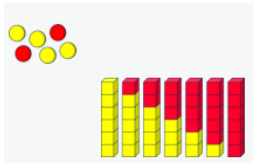
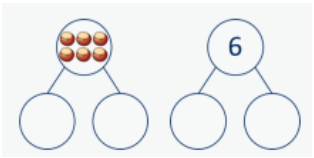
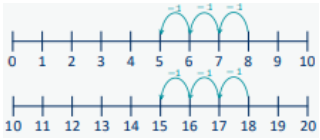
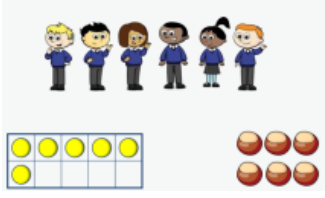
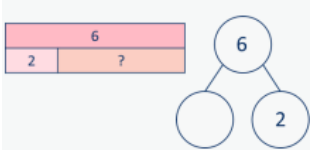
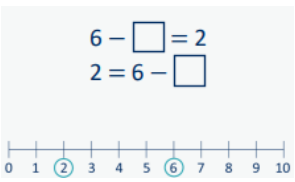
 
</td>
<td>If … is a whole and … is a part, then … is the other part.

 
</td>
<td>… can be partitioned into … and …

 
</td>
</tr>
</table>

Subtraction

Reception	• Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some up to 10, including double facts.
Progression of skills	**Key Representations**
Conceptually subitise up to 5 Notice the parts that make up the whole.	What do you see? How do you see it? 
1 less Continue to link to stories, songs and rhymes.	1 less than … is … 
Notice the composition of numbers within 10 Link to stories, songs and rhymes.	How many … ? How many … ? How many altogether? 
	How many ways can you make? 
Partition Using objects, explore different ways to partition a number into two or more parts.	There are … altogether. I can see … here and … there. 
	… and … make … 
Take away A quantity is reduced.	First … Then … Now … 
	I have … I take … away. Now I have … 

Year 1	• Read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20 • Subtract one-digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9		
Progression of skills	**Key Representations**		
Find a part Link to number bonds and known facts. E.g. 2 + 4 = 6 so if 6 is the whole and 4 is a part, the other part must be 2	There are … in total. … are … How many are not …? 	… is the whole. … is a part. … is a part. 	… subtract … is equal to … … is equal to … – … 6 – 2 = 4 6 – 4 = 2 4 = 6 – 2 2 = 6 – 4
Take away A quantity is decreased.	First… Then… Now… 	I start at … I jump back … I land on … 	… minus … is equal to … … is equal to … – … 6 – 2 = 4 6 – 4 = 2 4 = 6 – 2 2 = 6 – 4
Bonds within 10 Focus on subtraction facts. Encourage children to notice patterns.	… is made of … and … … and … make … 	… can be partitioned into … and … 	… minus … is equal to … 6 – 0 = 6 6 – 1 = 5 6 – 2 = 4 6 – 3 = 3 6 – 4 = 2 6 – 5 = 1 6 – 6 = 0
Related facts within 20 Make links to known facts.	I know that … minus … = … so … minus … = … 	… less than … is … so … less than … is … 	What patterns do you notice? 8 – 3 = 5 18 – 3 = 15 5 = 8 – 3 15 = 18 – 3
Missing numbers Make links to known facts.	How many do you need to subtract to make …? 	If … is the whole and … is a part, the other part must be… 	… minus … is equal to … 

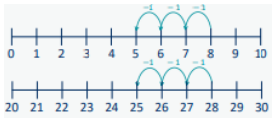
<table>
<tr><td>Year 2</td><td colspan="3">• Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
• Subtract numbers using concrete objects, pictorial representations, and mentally, including:
• a two-digit number and 1s
• a two-digit number and 10s
• 2 two-digit numbers

• Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</td></tr>
<tr><td>Progression of skills</td><td colspan="3">Key Representations</td></tr>
<tr><td>Subtract one from any number

(related facts)

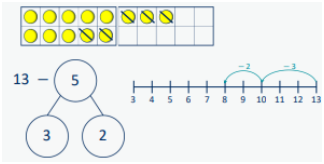
Make links to known facts</td><td>I know that … minus … = … so … minus … = …

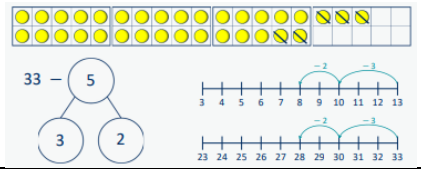
  </td><td>… less than … is … so … less than … is …

  </td><td>What do you notice? Can you continue the pattern?

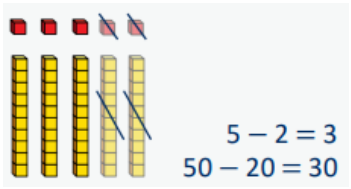
8 – 3 = 5
18 – 3 = 15
28 – 3 = 2 …</td></tr>
<tr><td>Subtract across a 10

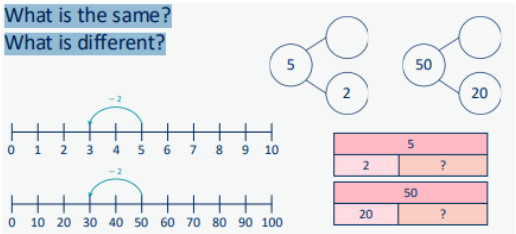
Partition the number being subtracted to bridge through 10.</td><td>… can be partitioned into … and …

  </td><td colspan="2">Make links with related facts.

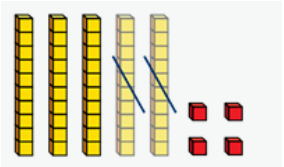
  </td></tr>
<tr><td>Subtract multiples of 10

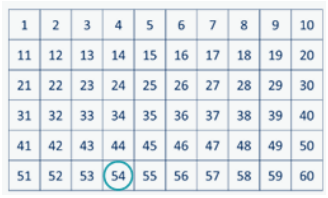
Make links to known facts within ten.</td><td>… ones – … ones = … ones so … tens – … tens = … tens

  </td><td colspan="2">What is the same? What is different?

  </td></tr>
<tr><td>Subtract 10s from any numbers.

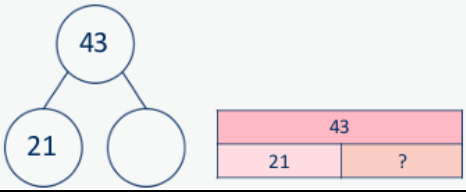
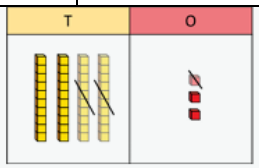
Make links to known facts.</td><td>… tens – … tens = … tens
… tens and … ones = …

  </td><td>To subtract … I need to subtract 10 … times.

  </td><td>I know that … minus … = … so … minus … = …

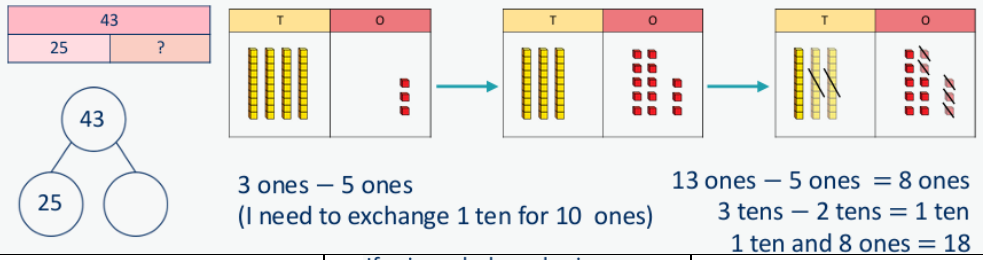
50 – 20 = 30
54 – 20 = 34</td></tr>
<tr><td>Subtract two 2 digit numbers

(not across ten)</td><td colspan="3">… ones – … ones = … ones
… tens – … tens = … tens

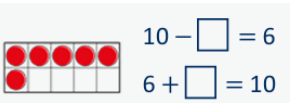
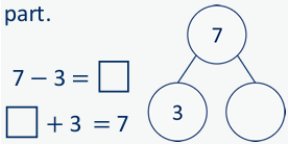
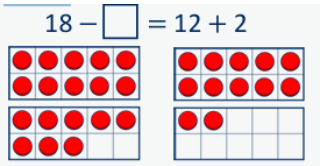
 
 
3 ones – 1 one = 2 ones
4 tens – 2 tens = 2 tens
2 tens and 2 ones = 22</td></tr>
</table>

<table>
<tr>
<td>Subtract two 2 digit numbers

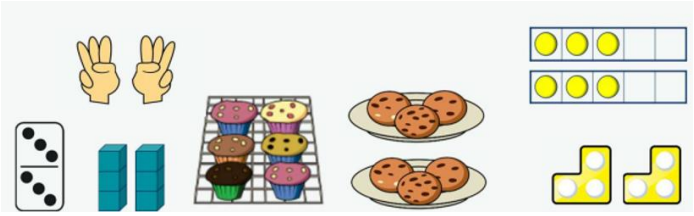
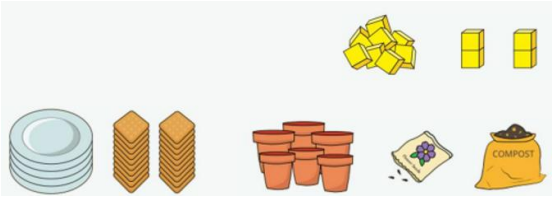
(across a ten)

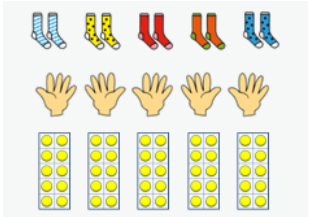
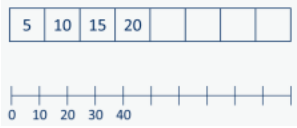
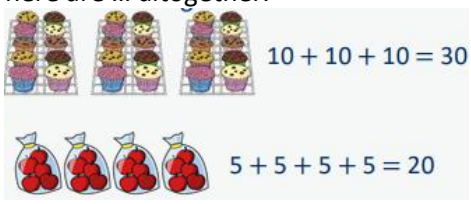
Begin to exchange 1 ten for 10 ones.</td>
<td colspan="3">I need to make an exchange because I do not have enough ones to subtract … ones.
 

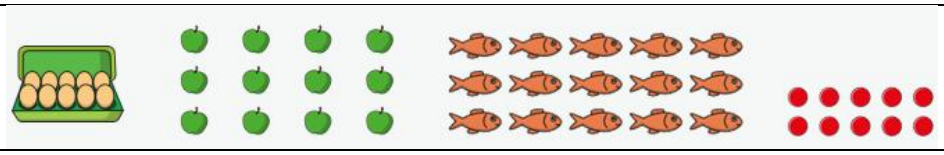
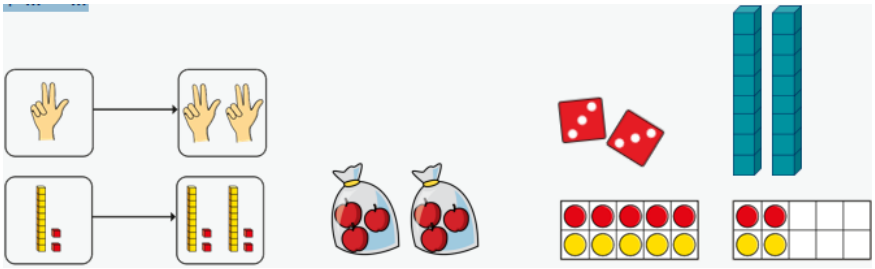
3 ones − 5 ones
(I need to exchange 1 ten for 10 ones)
13 ones − 5 ones = 8 ones
3 tens − 2 tens = 1 ten
1 ten and 8 ones = 18</td>
</tr>
<tr>
<td>Missing numbers

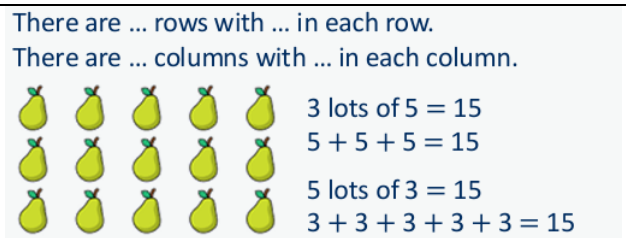
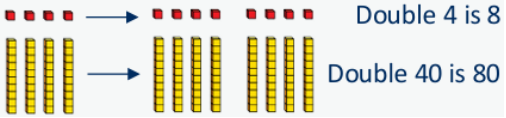
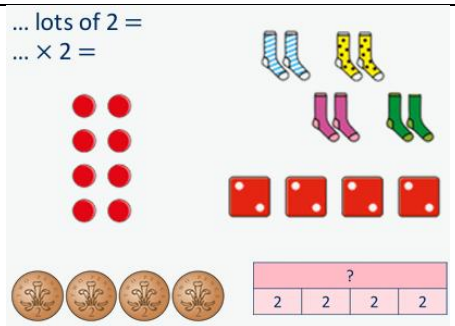
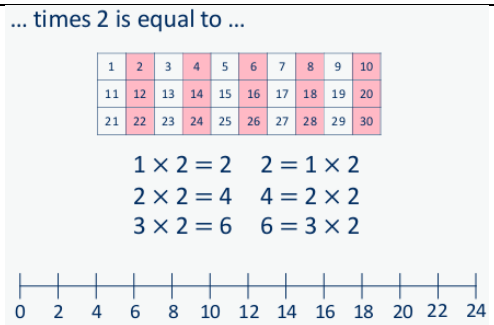
Solve missing number problems and use the inverse to check.</td>
<td>How many do you need to subtract to make …?
 
</td>
<td>If … is a whole and … is a part, then … is the other part.
 
</td>
<td>… can be partitioned into … and …
 
</td>
</tr>
</table>

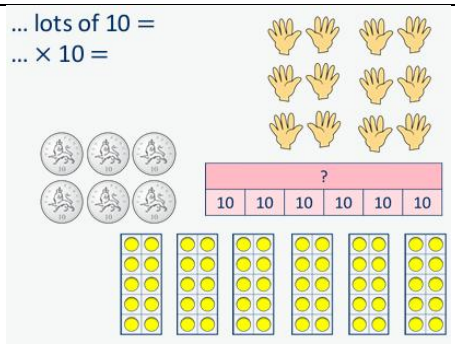
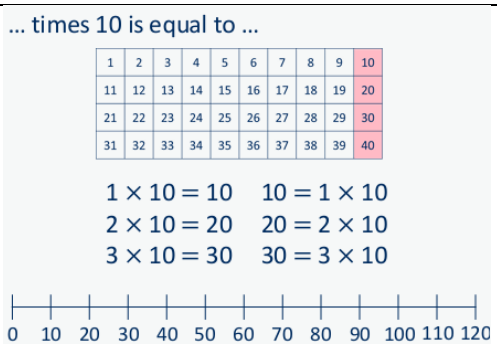
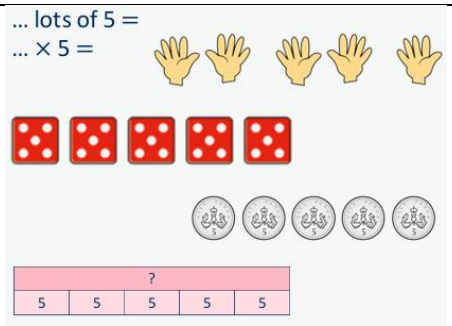
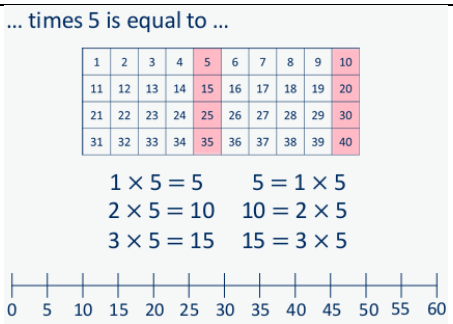
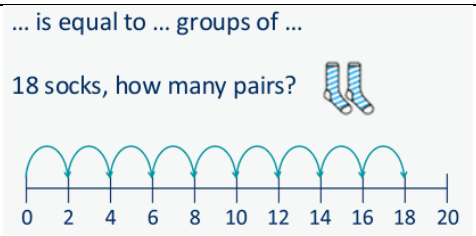
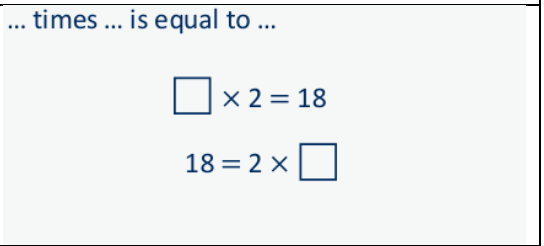
Multiplication

Reception	• Have a deep understanding of numbers to 10, including the composition of each number. • Subitise (recognise without counting) numbers to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some up to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Progression of skills	**Key Representations**
Double to 10 Prompt children to notice that double means twice as many and to notice that there are two equal groups.	Double is … is … … is double … 
Make equal groups Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.	There are … groups of … There are … altogether. 

Year 1	• Count in multiples of twos, fives and tens. • Solve one-step problems involving multiplication, using concrete objects, pictorial representations and arrays with the support of the teacher.		
Progression of skills	**Key Representations**		
Count in 2s, 5s and 10s Begin by counting objects that naturally come in 2s, 5s and 10s, for example pairs of socks or fingers.	There are … equal groups of … There are … altogether. 	Continue to colour in ...s What do you notice? 	Complete the number track/number line by counting in …s. 
Add equal groups (repeated addition) Children should be able to write a repeated addition to represent equal groups and to draw pictures or use objects to represent a repeated addition.	There are … groups of … There are … altogether.  10 + 10 + 10 = 30 5 + 5 + 5 + 5 = 20	What is the same? What is different? 2+ 2 + 2 = 5 + 5 + 5 = 10 + 10 + 10 =	
Make arrays	There are … rows of … There are … altogether. There are … columns of … There are … altogether		

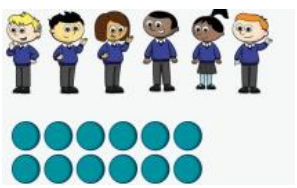
Children use their knowledge of adding equal groups to arrange objects in columns and rows.	
Make doubles Children understand that doubles are two equal groups. Children may begin to explore doubles beyond 20 using base 10	Double … is … … + … = … 

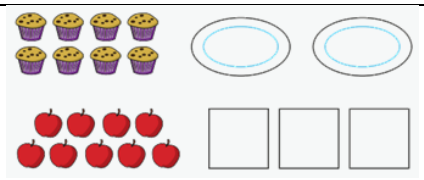
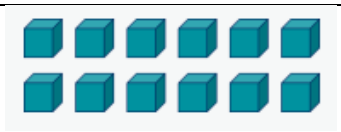
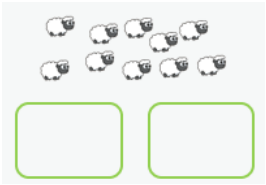
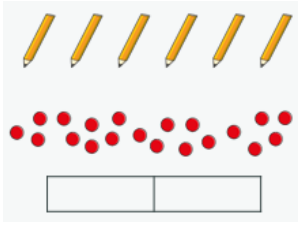
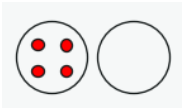
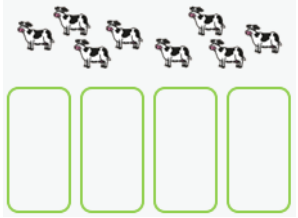
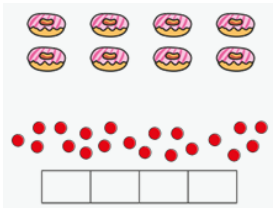
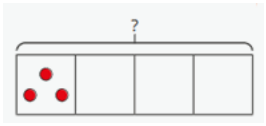
Year 2	•Recall and use multiplication facts, both in order and at random, for the 2, 5 and 10 multiplication tables. • Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs. • Show that multiplication of two numbers can be done in any order (commutative).
Progression of skills	**Key Representations**
Link repeated addition and multiplication Encourage children to make the link between repeated addition and multiplication.	There are … equal groups with … in each group. There are … altogether. 
Use arrays Encourage children to see that multiplication is commutative.	There are … rows with … in each row. There are … columns with … in each column.  I can see … × … and … ×… $3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$
Double Encourage children to make links with related facts.	Double … is …  Double … is … so double … is … 
The 2 times-table Encourage daily counting in multiples both forwards and back. Recite the whole number statement for any given multiple of 2. E.g. 5 x 2 = 10 Notice that all multiples of 2 are even numbers.	… lots of 2 = … × 2 =  … times 2 is equal to … 

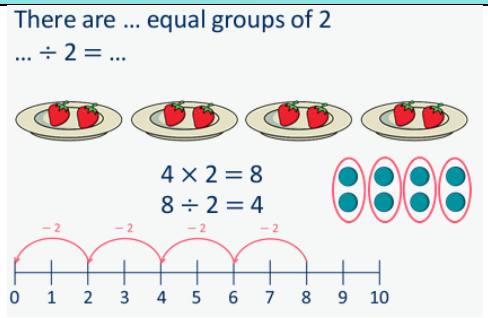
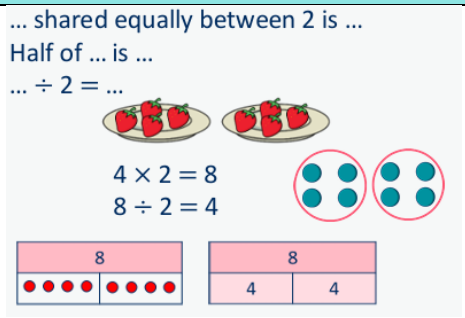
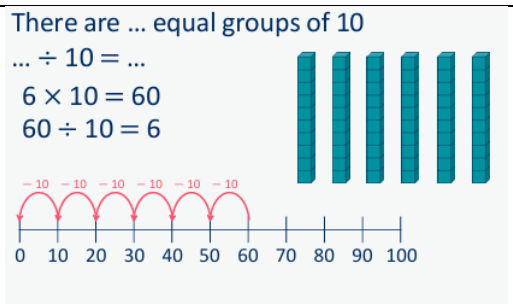
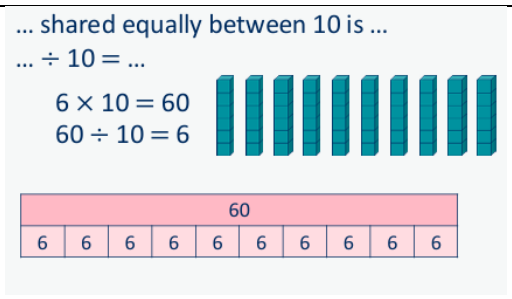
The 10 times-table Encourage daily counting in multiples both forwards and back. Recite the whole number statement for any given multiple of 10. E.g. 4 x 10 = 40 Notice the pattern in the numbers.		
The 5 times-table Encourage daily counting in multiples both forwards and back. Recite the whole number statement for any given multiple of 5. E.g. 7 x 5 = 45 Notice the pattern in the numbers.		
Missing numbers Make links to known facts.		

Division

Reception	• Have a deep understanding of numbers to 10, including the composition of each number. • Subitise (recognise without counting) numbers to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some up to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Progression of skills	**Key Representations**
Sharing Provide practical activities such as sharing items during snack time. Encourage children to check whether items have been shared fairly (equally).	There are … altogether. They are shared equally between .. groups. 
Grouping Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that a group has the same amount.	There are … groups of … There are … altogether. 

Year 1	• Count in multiples of twos, fives and tens. • Solve one-step problems involving multiplication, using concrete objects, pictorial representations and arrays with the support of the teacher.		
Progression of skills	**Key Representations**		
Make equal groups - grouping Encourage children to physically move objects into equal groups. They can also circle equal groups when using pictures.	There are … altogether. How many groups of … can you make? 	Circle groups of 2 There are … groups of 2 	Take … cubes. Make equal groups.  There are … groups of …
Make equal groups – sharing	… have been shared equally between… There are … on/in each …	Take … cubes. Share them between …	

Encourage children to check that the objects have been shared fairly and each group is the same.			 12 shared between … is …
Find a half Start with practical opportunities to share a quantity into 2 groups. Progress to circling half of the objects in a picture and then to finding the whole from a given half.	To find half, I need to share into 2 equal groups.  There are … in each group.	Half of … is … 	If … is half, what is the whole?  4 is half of …
Find a quarter Start with practical opportunities to share a quantity into 4 groups. Progress to using pictures or bar models to find a quarter and then to finding the whole from a given quarter.	To find a quarter, I need to share into 4 equal groups.  There are … in each group.	A quarter of … is … 	If … is one quarter, what is the whole?  3 is one quarter of …

Year 2	• Recall and use division facts for the 2, 5 and 10 multiplication tables. • Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs. • Recognise, find, name and write fractions 1 , 1 , 2 and of a quantity.
Progression of skills	**Key Representations**
Divide by 2 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts and halving.	 
Divide by 10 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	 

Divide by 5 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are … equal groups of 5 … ÷ 5 = … 6 × 5 = 30 30 ÷ 5 = 6 0 5 10 15 20 25 30 35 40 45 50	… shared equally between 5 is … … ÷ 5 = … 6 × 5 = 30 30 ÷ 5 = 6 30
Missing numbers Bar models are useful to show the link between multiplication and division.	… divided by 2/5/10 is equal to … ? 10 10 ☐ ÷ 2 = 10 ? 10 10 10 10 10 ☐ ÷ 5 = 10 ? 10 10 10 10 10 10 10 10 10 10 ☐ ÷ 10 = 10	
Unit fractions In Y2 the focus is on finding 1 2 , 1 and 1 Bar models are useful to show the link between division and finding a fraction.	The objects have been shared fairly into … groups. 1/☐ of … is …	There are … equal parts. There is … part circled. 1/☐ is circled.
Non-unit fractions In Y2 the focus is on finding 2 and Prompt children to notice that 2 is equivalent to 1 2	The objects have been shared fairly into … groups. ☐/☐ of … is …	There are … equal parts. There are … parts circled. ☐/☐ is circled.