Brooke Weston Trust calculation policy, KS1

Using the Power Maths Calculation Policy as a base, BWT have developed a KS1 maths policy that recognises the need for a concrete, pictorial and abstract approach to maths. It is aligned with the National Curriculum and ensures consistency in progression through the subject. We encourage teachers to use this document when planning for small steps through the curriculum and delivering practical and well-sequenced lessons in the classroom.

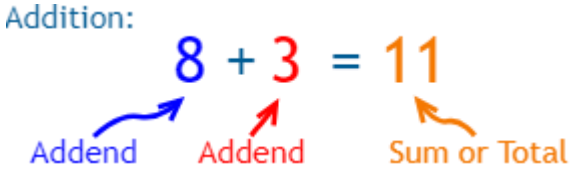
KEY STAGE 1

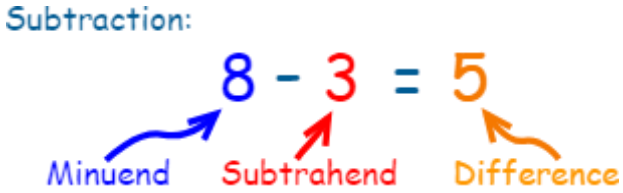
Addition and subtraction:
Children first learn to:

- connect addition and subtraction calculations with counting on and counting back
- an understanding of parts and wholes
- an understanding of 10s and 1s – moving onto an understanding of unitising 10s
- to develop efficient and effective calculation strategies based on known number bonds
- an increasing awareness of place value

Addition and subtraction should be linked.

In Year 2, they will start to see calculations presented in a column format, introduced using a concrete and pictorial approach.

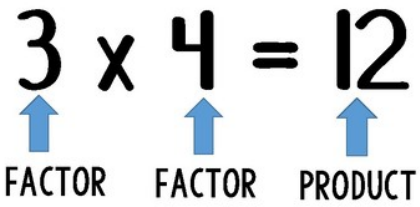


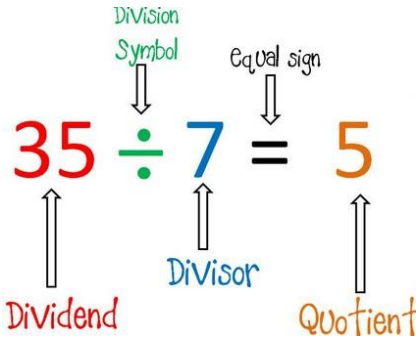


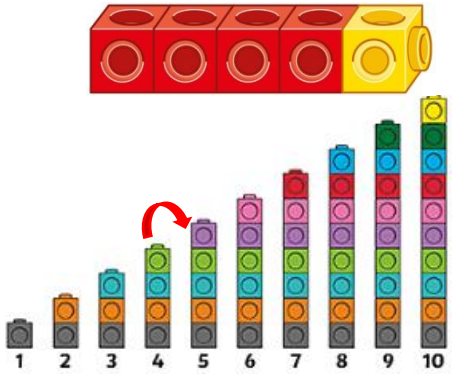
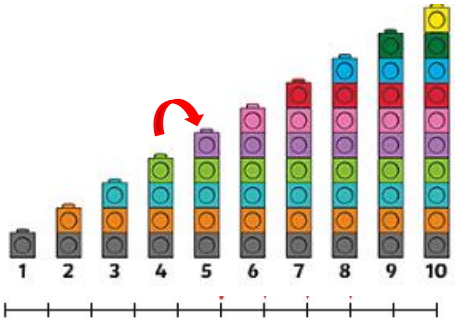
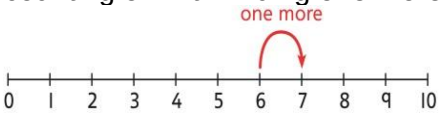
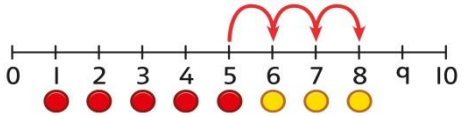
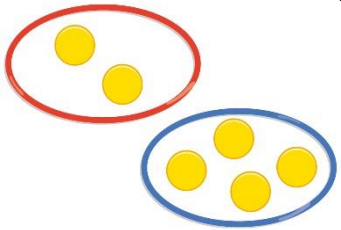
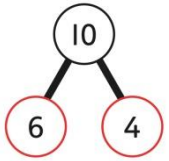
Multiplication and division:
Children develop an awareness of:

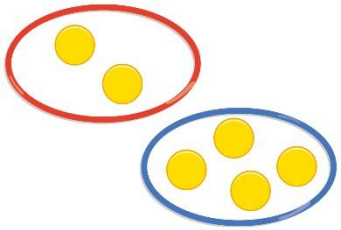
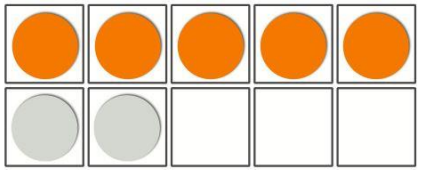
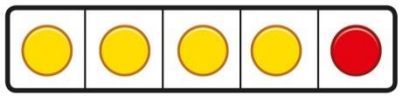
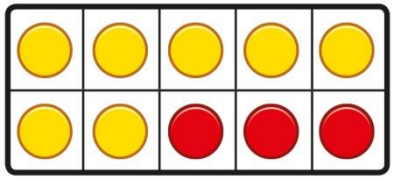
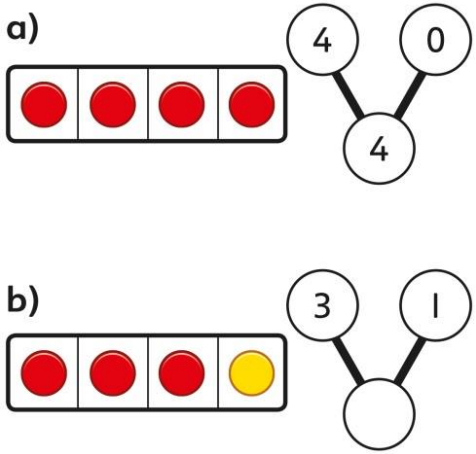
- equal groups and link this with counting in equal steps, starting with 2s, 5s and 10s
- multiplication and division should be related to repeated addition and repeated subtraction
- Children begin to recall some key multiplication facts, including doubles, and an understanding of the 2, 5 and 10 times-tables and how they are related to counting.

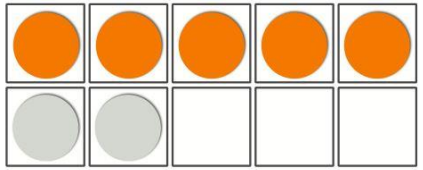
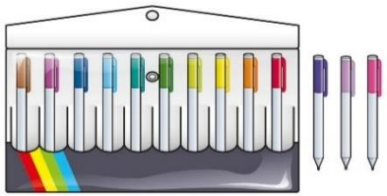
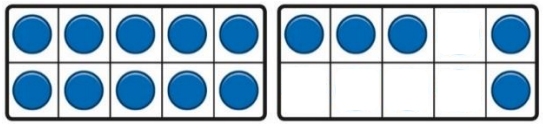
In Year 2, introduce mathematical language and symbols for multiplication and division.

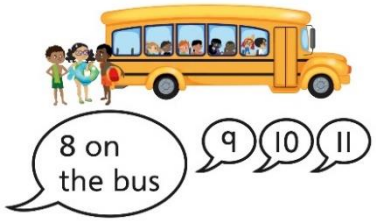
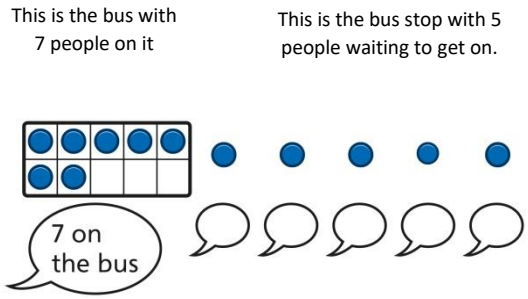
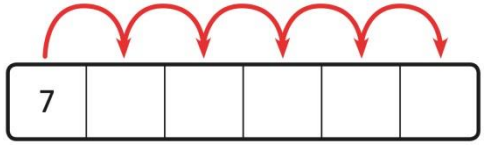


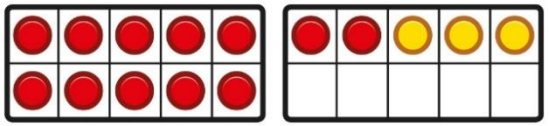
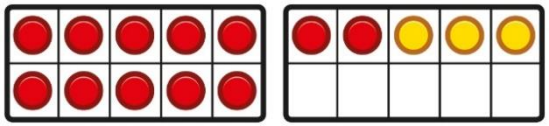
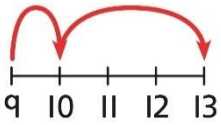


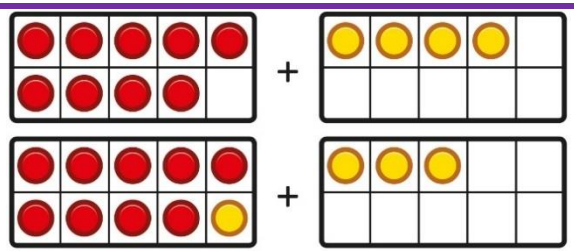
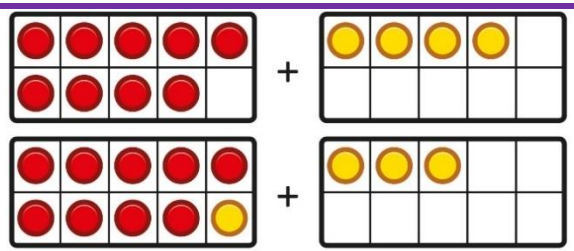
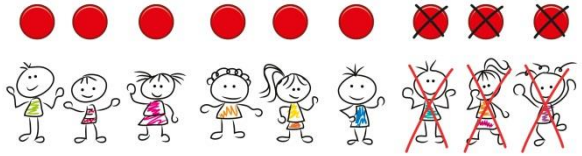
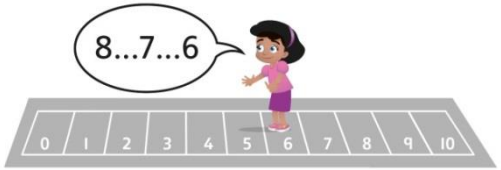
Year 1 Ensure that concrete resources that have been used in the teaching of the concept are continued in the pictorial phase for consistency e.g. concrete multilink cubes, then move on to pictures of multilink cubes.			
	Concrete	**Pictorial**	**Abstract**
Year 1 **Addition** One more One less Count Ones	**Counting and adding more** Children add one more person or object to a group to find one more. Later, this should also be represented using multilink cubes or counters.  	**Counting and adding more** Children add one more cube or counter to a group to represent one more.  *One more than 4 is 5*  	**Counting and adding more** Use a number line to understand how to link counting on with finding one more.  *1 more than 6 is 7* *7 is one more than 6.* Learn to link counting on with adding more than one.  *5 + 3 = 8*
	Understanding part-part-whole relationships Sort people and objects into parts and understand the relationship with the whole. 	**Understanding part-part-whole relationship** Children draw to represent the parts and understand the relationship with the whole.  *The parts are 2 and 4. The whole is 6.*	**Understanding part-part-whole relationship** Use a part-whole model to represent the numbers.  

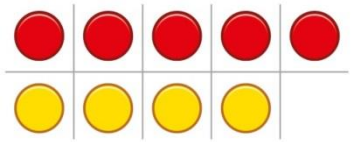
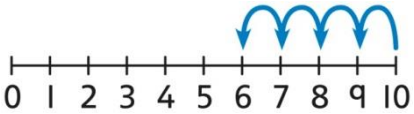
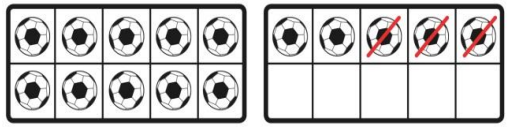
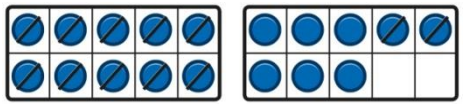
	Later, this should also be made using counters or cubes.  *The parts are 2 and 4. The whole is 6.* Introduce vocabulary addend and sum 'In this part our addend is 2. In this part our addend is 4. Altogether, in our whole, our sum is 6.'		*6 + 4 = 10* *10 = 6 + 4*
	Knowing and finding number bonds <u>within</u> 10 Break apart a group and put back together to find and form number bonds.  *3 + 4 = 7* *One addend is 3. The other addend is 4. The sum is 7.* 	**Knowing and finding number bonds <u>within</u> 10** Use five and ten frames to represent key number bonds.  *5 = 4 + 1* *"Here, our sum is 5. What are our addends?"*  *10 = 7 + 3*	**Knowing and finding number bonds <u>within</u> 10** Use a part-whole model alongside other representations to find number bonds. Make sure to include examples where one of the parts is zero. 

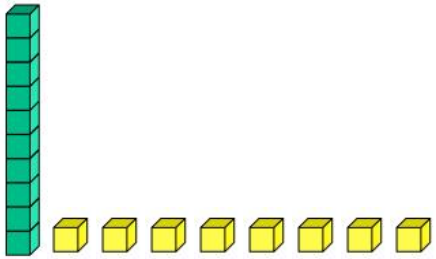
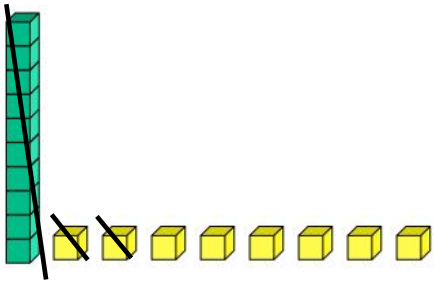
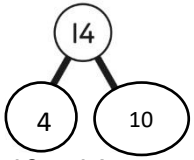
	Place counters on tens frame (depending on the number bond within 10 you are teaching) *7 = 5 + 2* Refer to all combinations **within** a number: 0 + 7 = 7 1 + 6 = 7 2 + 5 = 7 3 + 4 = 7 4 + 3 = 7 5 + 2 = 7 6 + 1 = 7 7 + 0 = 7	5 + 2 = 7 	*4 + 0 = 4* *3 + 1 = 4*
	Understanding teen numbers as a complete 10 and some more Complete a group of 10 objects and count more.  *13 is 10 and 3 more.* *Later, this should be made with multilink cubes – continuing the staircase model.*	**Understanding teen numbers as a complete 10 and some more** Use a tens frame to support understanding of a complete 10 for teen numbers.   *13 is 10 and 3 more.*	**Understanding teen numbers as a complete 10 and some more**. *1 ten and 3 ones equal 13.* *10 + 3 = 13*

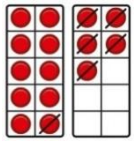
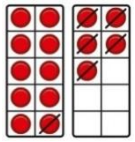
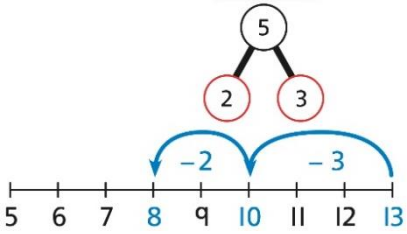
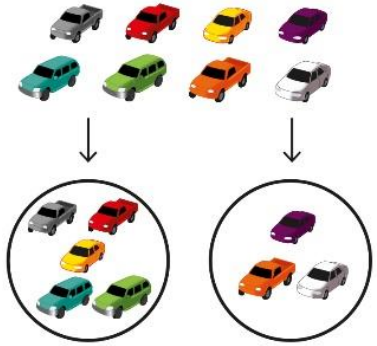
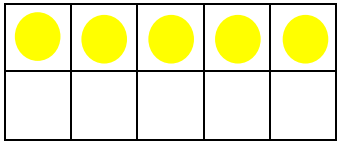
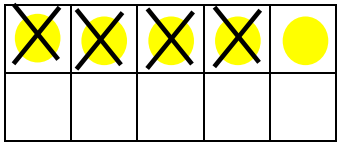
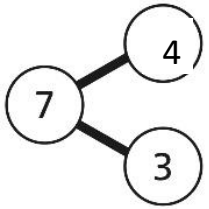
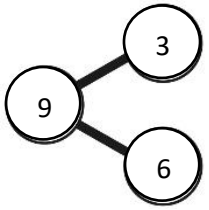
			
	Adding by counting on Children use knowledge of counting to 20 to find a total by counting on using people or objects. 	**Adding by counting on** Children use counters or multilink to support and represent their counting on strategy.  *"Our first addend is 7 – this is the number of people already on the bus. Our second addend is 5. This is the amount of people waiting at the bus stop. Our sum is the number of people on the bus after everybody has been collected."*	**Adding by counting on** Children use number lines or number tracks to support their counting on strategy.  7 + 5 = ☐
	Adding the 1s Children use bead strings to add a teen and 1s. (This could be the first time the children have been exposed to a bead	**Adding the 1s** Teacher provide model of tens frames to show calculations to add a teen and 1s.	**Adding the 1s** Children recognise that a teen is made from a 10 and some 1s and use their knowledge of addition within 10 to work efficiently.

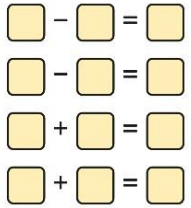
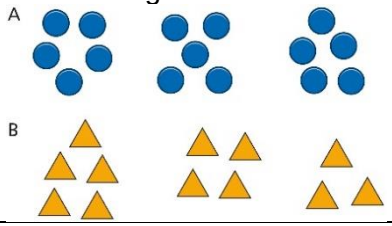
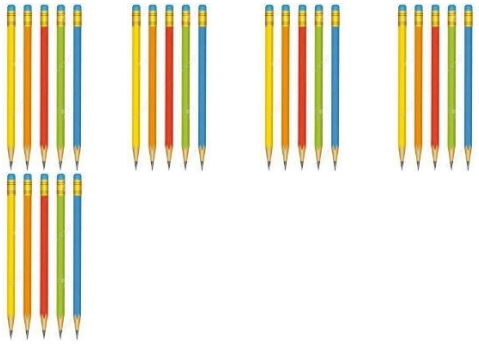
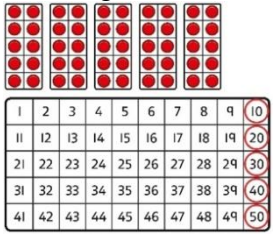
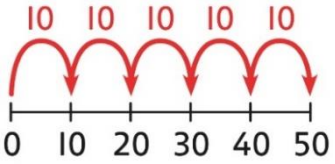
	string – please model its use). Bead strings exposing tens are the best resource to use for this.   *2 + 3 = 5* *12 + 3 = 15*  Place counters on a tens frame to add teens and 1s.	Children will also use this model/template to draw on.  *2 + 3 = 5* *12 + 3 = 15*	*3 + 5 = 8* *So, 13 + 5 = 18*
	Bridging the 10 using number bonds Children place counters/objects on a tens frame to represent the addends. Each addend should be a different colour.	**Bridging the 10 using number bonds** Children use counters to complete a tens frame and understand how they can add using knowledge of number bonds to 10.	**Bridging the 10 using number bonds** Use a part-whole model and a number line to support the calculation.  *9 + 4 = 13* *is the same as*

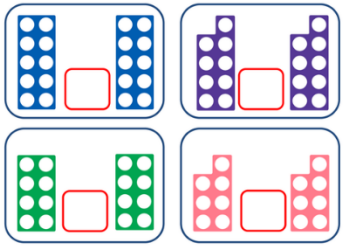
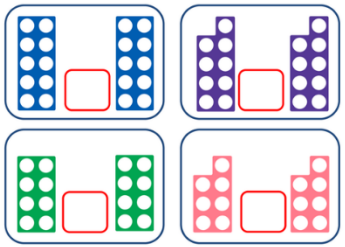
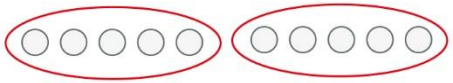
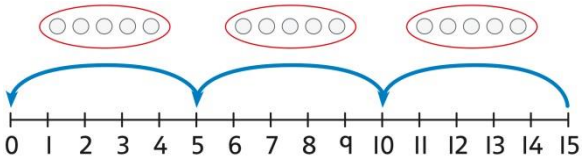
	 *9 add 1 makes 10.* *So, 9 add 4 is 10 and 3 more.*	 .	*9 + 1 + 3 = 13*
Year 1 **Subtraction**	**Counting back and taking away** Children arrange objects and take away/subtract to find how many are left.  *1 less than 5 is 4.* *5 subtract 1 is 4*. Later, children can explore this using multi-link cubes. 	**Counting back and taking away** Children draw and cross out or use counters to represent objects from a problem.   9 – ☐ = ☐ There are ☐ children left.	**Counting back and taking away** Children count back to take away and use a number line (possibly on the playground) or number track to support the method.  *9 − 3 = 6* Model to the children how to find patterns e.g. 9 – 0 = 9 9 – 1 = 8 9 – 2 = 7 and so on

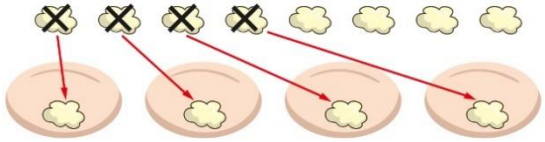
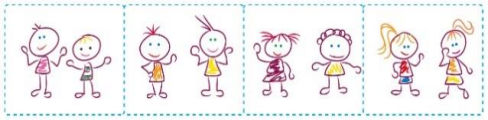
	Finding the difference Arrange two groups so that the difference between the groups can be worked out.  *8 is 2 more than 6.* *6 is 2 less than 8.* *The difference between 8 and 6 is 2.* This could also be done with multi-link cubes or real life objects	**Finding the difference** Represent objects using sketches or counters to support finding the difference.  *5 − 4 = 1* *The difference between 5 and 4 is 1.*	**Finding the difference** Children understand 'find the difference' as subtraction.  *10 − 4 = 6* *The difference between 10 and 6 is 4.*
	Subtraction within 20 Understand when and how to subtract 1s efficiently. Use a bead string to subtract 1s efficiently.  *5 − 3 = 2* *15 − 3 = 12*	**Subtraction within 20** Understand when and how to subtract 1s efficiently.  *5 − 3 = 2* *15 − 3 = 12*	**Subtraction within 20** Understand how to use knowledge of bonds within 10 to subtract efficiently. *5 − 3 = 2* *15 − 3 = 12*
	Subtracting 10s and 1s For example: 18 − 12 Subtract 12 by first subtracting the 2, then subtract the 10. (Ensure you do it this way round in order to maintain consistency with formal subtraction later in the calculation policy)	**Subtracting 10s and 1s** For example: 18 − 12 Use ten frames to represent the efficient method of subtracting 12. 	**Subtracting 10s and 1s** Use a part-whole model to support the calculation. In this case, the part/whole model represents the partitioning of the subtrahend (14). 19 – 14 = ?

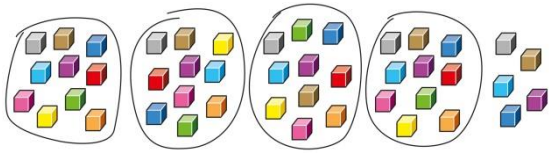
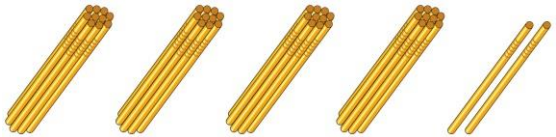
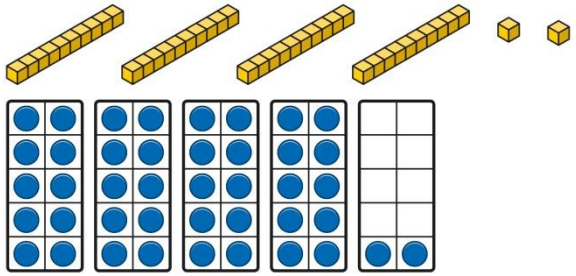
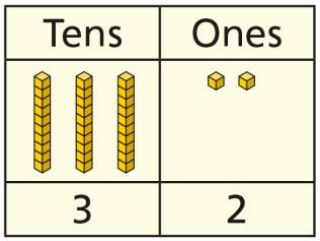
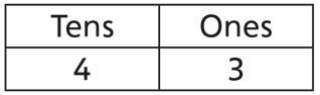
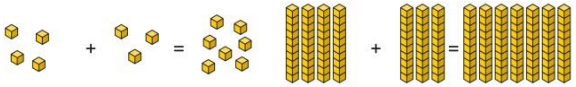
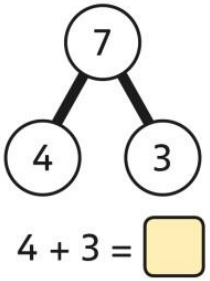
	 1. 18 is our whole. Our whole is known as the minuend. Please gather 18 using the dienes cubes. (How many tens do we need/how many ones do we need?) 2. 12 is our subtrahend. We need to take 12 cubes away. 3. First take away 2 ones. 4. Next take away a ten 5. We have 6 cubes left. This is the difference between the minuend and the subtrahend. 	*First subtract the 2, then subtract 10.*	 *19 − 14* *19 − 4 = 15* *15 − 10 = 5* *So, 19 − 14 = 5*
	Subtraction bridging 10 using number bonds For example: 15 − 6	**Subtraction bridging 10 using number bonds** For example: 15 − 6	**Subtraction bridging 10 using number bonds** Use a number line and a part-whole model to support the method. *13 − 5*

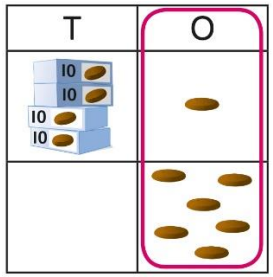
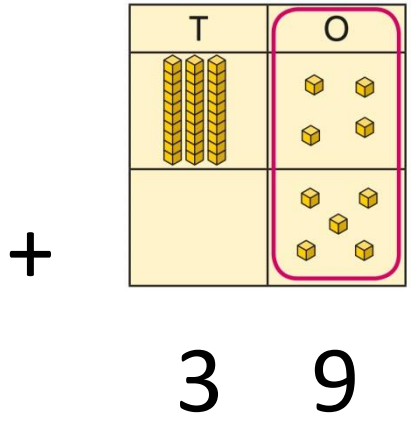
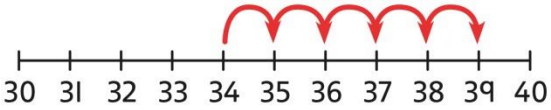
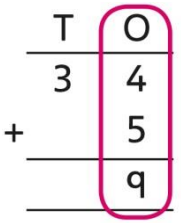
	 *15 − 6* *I took away 5 counters, then 1 more.*	 *15 − 6* *I took away 5 counters, then 1 more.*	
	Finding a missing part, given a whole and a part Children separate a whole into parts and understand how one part can be found by subtraction.  *8 − 5 = ?* 1. 8 is our whole. Our whole is known as the minuend. Please gather 8 cars. 2. 5 is our subtrahend. We need to take 5 cars away. 3. Count what is left. 4. We have 3 cars left. This is the difference between the minuend and the subtrahend.	**Finding a missing part, given a whole and a part** Children represent a whole and a part and understand how to find the missing part by subtraction. Move 4 counters   5 is our whole. Our whole is known as the minuend. Please draw 5 counters. 2. 4 is our subtrahend. We need to cross out 4 counters. 3. Count what is left.	**Finding a missing part, given a whole and a part** Children use a part-whole model to support the subtraction to find a missing part.  **7 - ☐ = 3** **7 - ☐ = 4** **4 + ☐ = 7** **3 + ☐ = 7** Children develop an understanding of the relationship between addition and subtraction facts in a part-whole model. 

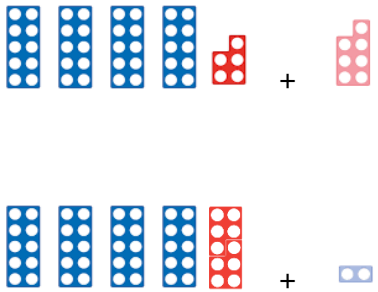
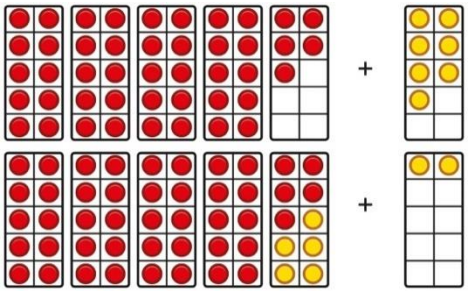
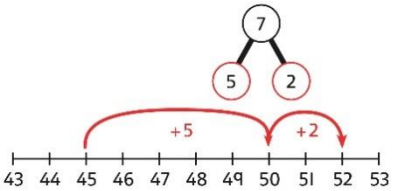
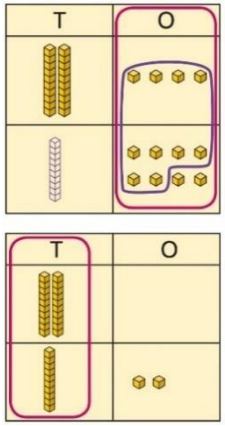
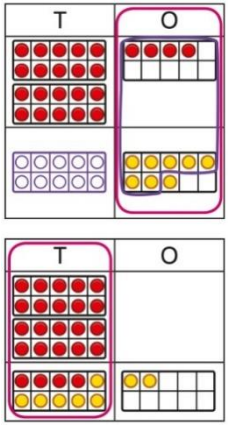
	ADDRESS LINK WITH ADDITION AND SUBTRACTION.	4. We have 1 counter left. This is the difference between the minuend and the subtrahend. n.b If the children struggle to see the subtraction relationship in the pictorial step, bridge this using concrete counters on a tens frame.	
Year 1 Multiplication	**Recognising and making equal groups** Children arrange objects in equal and unequal groups and understand how to recognise whether they are equal. 	**Recognising and making equal groups** Children draw and represent equal and unequal groups. n.b. Refer back to the children's knowledge of subitising from EYFS as a starting point. 	**Describe equal groups using words** *Children orally rehearse stem sentences such as:* *Three equal groups of 4.* *Four equal groups of 3.*
	Finding the total of equal groups by counting in 2s, 5s and 10s  There are 5 pens in each pack … 5…10…15…20…25…30…35…40…	**Finding the total of equal groups by counting in 2s, 5s and 10s** 100 squares and ten frames support counting in 2s, 5s and 10s. 	**Finding the total of equal groups by counting in 2s, 5s and 10s** Use a number line to support repeated addition through counting in 2s, 5s and 10s. 

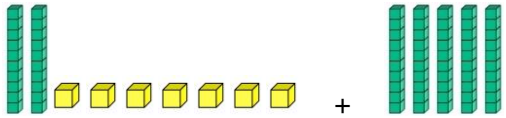
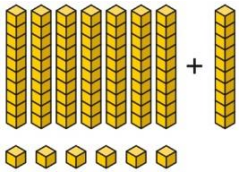
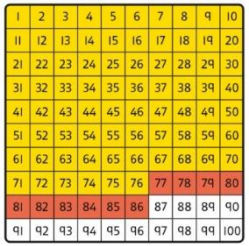
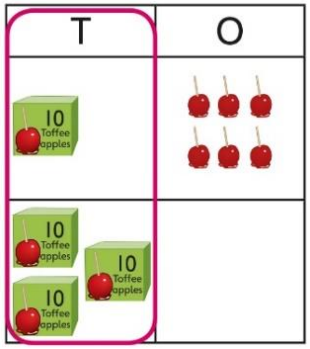
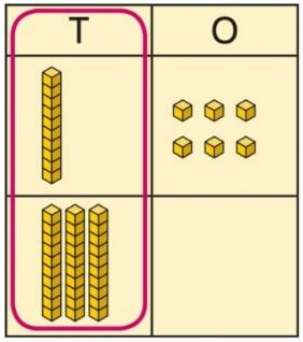
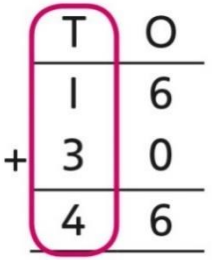
	Use a range of objects to make groups e.g. cars in hoops or multilink cubes in cups		
Doubles	**Make, recall and know doubles to within 20** Encourage the children to use mirrors to see what their selected number doubles to. 	Encourage the children to use mirrors to see what their selected number doubles to. 	Encourage the children to find patterns in lists of doubles: 1 + 1 = 2 2 + 2 = 4 3 + 3 = 6 4 + 4 = 8 5 + 5 = 10 and so on
Year 1 Division	**Grouping** Learn to make equal groups from a whole and find how many equal groups of a certain size can be made. Sort a whole set people and objects into equal groups.  *There are 10 children altogether.* *There are 2 children in each group.* *There are 5 groups.*	**Grouping** Represent a whole and work out how many equal groups.  *There are 10 in total.* *There are 5 in each group.* *There are 2 groups.*	**Grouping** Children may relate this to counting back in steps of 2, 5 or 10. 
	Sharing Share a set of objects into equal parts and work out how many are in each part**.**	**Sharing** Sketch or draw to represent sharing into equal parts. This may be related to fractions. Use this as retrieval in a later fractions unit.	**Sharing** *10 shared into 2 equal groups gives 5 in each group.*

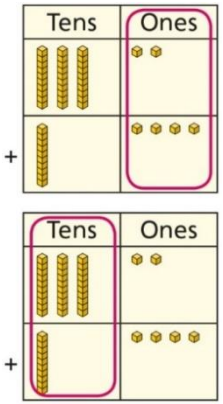
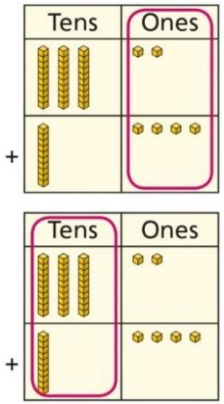
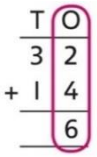
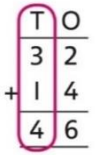
		  	

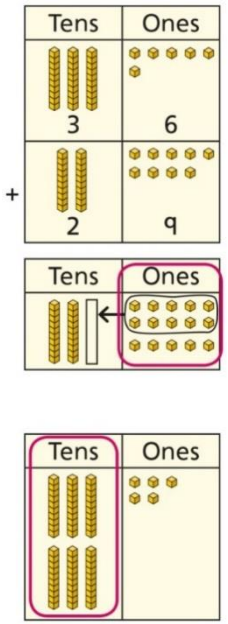
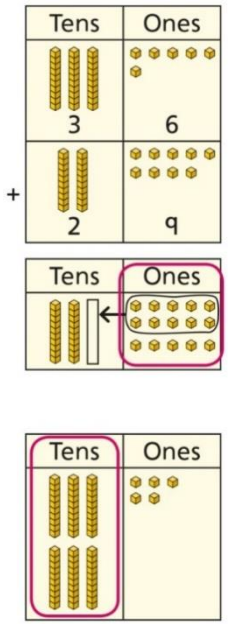
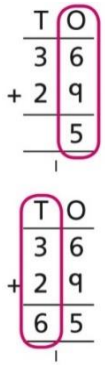
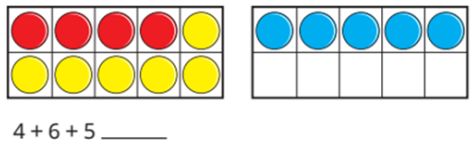
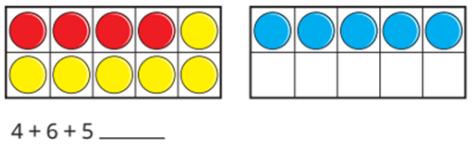
Year 2			
	Concrete	**Pictorial**	**Abstract**
Year 2 Addition			
Understanding 10s and 1s	Group objects into 10s and 1s.  Bundle straws to understand unitising of 10s.  During teaching make it clear that 4 groups of ten is equivalent to 40.	Understand 10s and 1s equipment, and link with visual representations on ten frames.  During teaching make it clear that 4 groups of ten is equivalent to 40.	Represent numbers on a place value grid, using equipment or numerals.   During teaching make it clear that 3 groups of ten is equivalent to 30.
Adding 10s	Use known bonds and unitising to add 10s.  *I know that 4 + 3 = 7.* *So, I know that 4 tens add 3 tens is 7 tens.* *40 + 30 = 70* *One addend is 30.* *The other addend is 40.* *Altogether the sum is 70.*	Use known bonds and unitising to add 10s.  *I know that 4 + 3 = 7.* *So, I know that 4 tens add 3 tens is 7 tens.* *40 + 30 = 70* *One addend is 30.* *The other addend is 40.* *Altogether the sum is 70.*	Use known bonds and unitising to add 10s.  *4 + 3 = 7* *4 tens + 3 tens = 7 tens* *40 + 30 = 70*

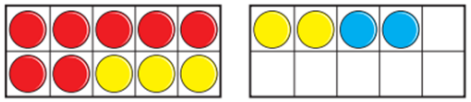
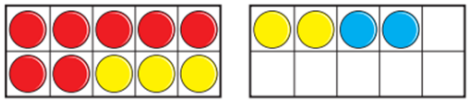
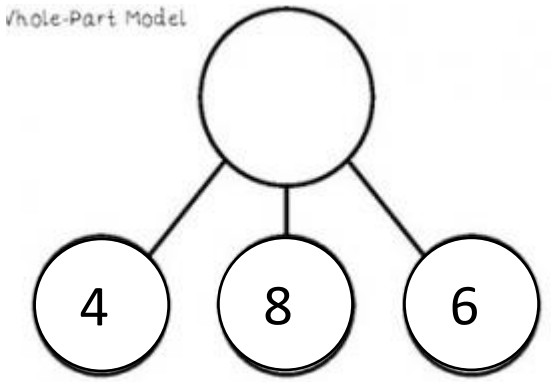
			One addend is 30. *The other addend is 40.* *Altogether the sum is 70.*
Adding a 1-digit number to a 2-digit number not bridging a 10	Add the 1s to find the total. Use known bonds within 10.  *41 is 4 tens and 1 one.* *41 add 6 ones is 4 tens and 7 ones.* This can also be done in a place value grid.  One addend is 41 The other addend is 6 Altogether the sum is 47	Add the 1s.  *34 is 3 tens and 4 ones.* *4 ones and 5 ones are 9 ones.* *The total is 3 tens and 9 ones.* *One addend is 34.* *The other addend is 5.* *Altogether the sum is 39.*  	Add the 1s. Understand the link between counting on and using known number facts. Children should be encouraged to use known number bonds to improve efficiency and accuracy.  This can be represented horizontally or vertically. *34 + 5 = 39* *Children should not start to use column method until they are confident in the concrete and pictorial steps outlined here.* *or*  *One addend is 34.* *The other addend is 5.* *Altogether the sum is 39.*

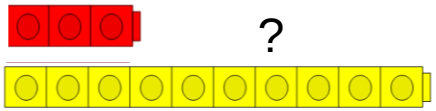
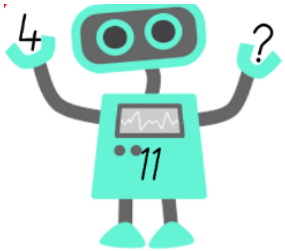
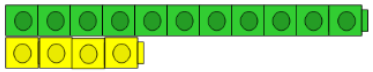
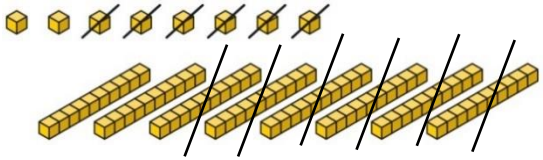
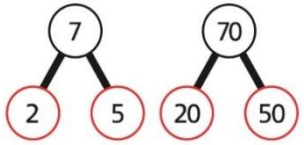
Adding a 1-digit number to a 2-digit number bridging 10	Complete a 10 using number bonds.  *There are 4 tens and 5 ones.* *I need to add 7. I will use 5 to complete a 10, then add 2 more.*	Complete a 10 using number bonds. 	Complete a 10 using number b./onds.  *7 = 5 + 2* *45 + 5 + 2 = 52*
Adding a 1-digit number to a 2-digit number using exchange	Exchange 10 ones for 1 ten.  *One addend is 24.* *The other addend is 8.* *Altogether the sum is 32.*	Exchange 10 ones for 1 ten.  *One addend is 24.* *The other addend is 8.* *Altogether the sum is 32.*	Exchange 10 ones for 1 ten. *Children should not start to use column method for exchange until they are confident in the concrete and pictorial steps outlined here.* 

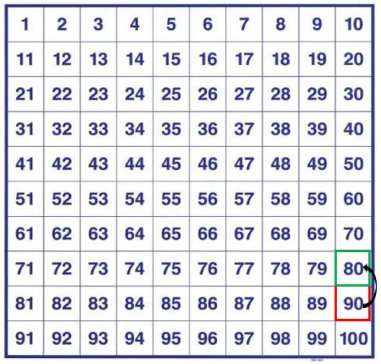
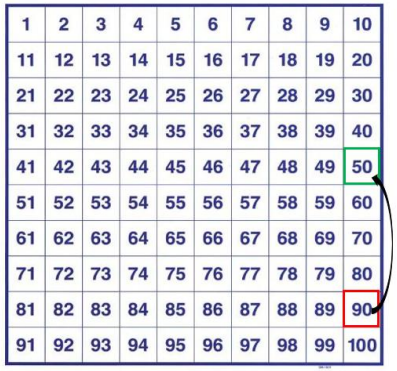
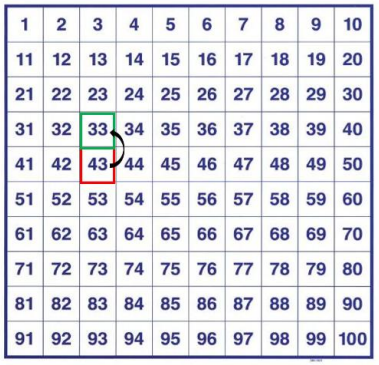
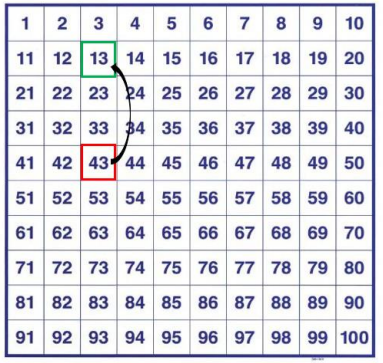
Adding a multiple of 10 to a 2-digit number	Add the 10s and then recombine.  *27 is 2 tens and 7 ones.* *50 is 5 tens.* *There are 7 tens in total and 7 ones.* *So, 27 + 50 is 7 tens and 7 ones.* *Explore pattern finding with the children by physically moving the dienes cubes a ten at a time:* *27 + 10 = 37* *27 + 20 = 47* *27 + 30 = 57* *27 + 40 = 67*	Add the 10s and then recombine.  *66 is 6 tens and 6 ones.* *66 + 10 = 76* A 100 square can support this understanding.  What happens when you move one square down on the hundred square?	Add the 10s and then recombine. *37 + 20 = ?* *30 + 20 = 50* *50 + 7 = 57* *37 + 20 = 57*
Adding a multiple of 10 to a 2-digit number using columns	Add the 10s using a place value grid to support.  	Add the 10s using a place value grid to support.  	Add the 10s represented vertically. Children must understand how the method relates to unitising of 10s and place value.  *1 + 3 = 4*

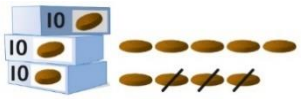
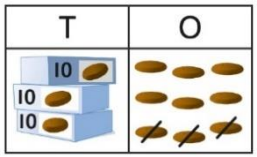
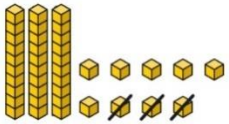
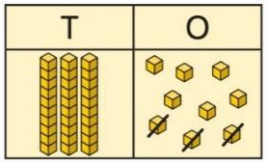
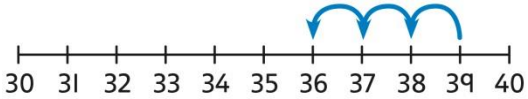
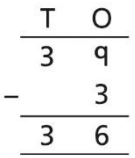
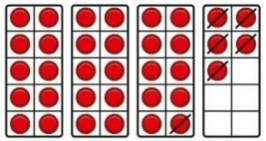
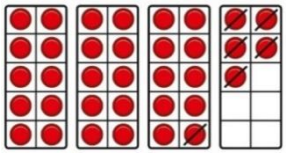
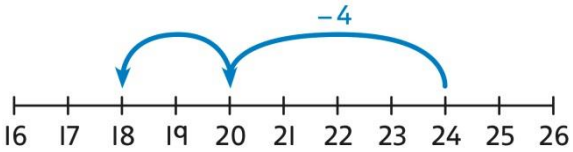
	16 is 1 ten and 6 ones. *30 is 3 tens.* *There are 4 tens and 6 ones in total.*	*16 is 1 ten and 6 ones.* *30 is 3 tens.* *There are 4 tens and 6 ones in total.*	*1 ten + 3 tens = 4 tens* *16 + 30 = 46*
	Review the previous two steps and have a discussion with the children about which method was the most efficient when adding multiples of ten.		
Adding two 2-digit numbers using a place value grid	Add the 1s. Then add the 10s. 1. Gather the first addend 2. Gather the second addend 3. Combine the ones 4. Combine the tens 5. Count the total number of cubes to calculate the sum  	Add the 1s. Then add the 10s. 1. Gather the first addend 2. Gather the second addend 3. Combine the ones 4. Combine the tens 5. Count the total number of cubes to calculate the sum  	Add the 1s. Then add the 10s.  
Adding two 2-digit numbers with exchange	Add the 1s. Exchange 10 ones for a ten. Then add the 10s. 1. Gather the first addend 2. Gather the second addend 3. Combine the ones 4. Make a group of ten ones 5. Exchange for one ten	Add the 1s. Exchange 10 ones for a ten. Then add the 10s. 1. Gather the first addend 2. Gather the second addend 3. Combine the ones 4. Make a group of ten ones 5. Exchange for one ten	Add the 1s. Exchange 10 ones for a ten. Then add the 10s.

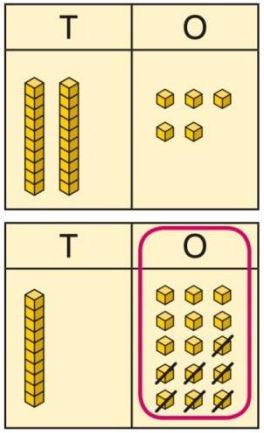
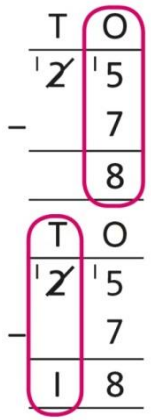
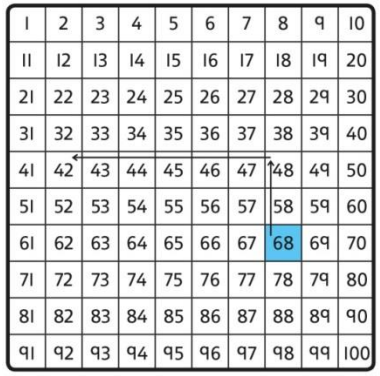
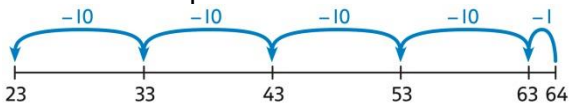
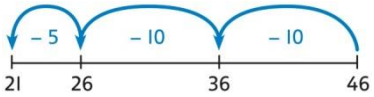
	6. Combine the tens 7. Count the total number of cubes to calculate the sum 	6. Combine the tens 7. Count the total number of cubes to calculate the sum 	
Adding 3 1-digit numbers	Encourage the children to use their knowledge of doubles or number bonds to make adding three single-digit numbers easier. Children should know that addition is Associative (it doesn't matter which order you add the addends, the sum will remain the same) 	Encourage the children to use their knowledge of doubles or number bonds to make adding three single-digit numbers easier. Children should know that addition is Associative (it doesn't matter which order you add the addends, the sum will remain the same) 	Children have increasing confidence at selecting appropriate strategies to add 3 single-digit numbers. E.g. 4 + 8 + 6

	If there are no number bonds to ten or doubles to use, start with the largest addend  7 + 5 + 2 = _____	If there are no number bonds to ten or doubles to use, start with the largest addend  7 + 5 + 2 = _____	
Recalling near doubles	**Make, recall and know near doubles** The children use numicon to find doubles and then add one more on e.g. 6 + 6 = 12  6 + 7 = 13  Explore equations such as 5 + 6 6 + 7 7 + 8 8 + 9	**Make, recall and know near doubles** The children use numicon to find doubles and then add one more on e.g. 6 + 6 = 12  6 + 7 = 13  Explore equations such as 5 + 6 6 + 7 7 + 8 8 + 9	Children should be fluent in their near doubles – this is to make column addition in KS2 easier to access. 5 + 6 = 11 6 + 7 = 13 7 + 8 = 15 8 + 9 = 17

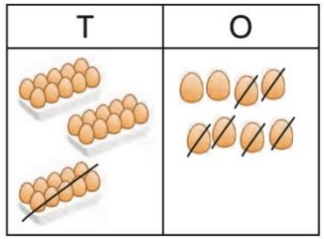
Missing numbers using bar models	3 + ? = 10 	 Can you work out the missing number?  	<table><tr><td colspan="2">20</td></tr><tr><td>13</td><td>?</td></tr></table> 13 + ? = 20 <table><tr><td colspan="2">20</td></tr><tr><td>?</td><td>7</td></tr></table> ? + 7 = 20 Use the children's confidence with the previous steps of the policy to pitch the level of calculation and explore appropriately.
Year 2 Subtraction			
Subtracting multiples of 10	Use known number bonds and unitising to subtract multiples of 10.  *8 subtract 6 is 2.* *So, 8 tens subtract 6 tens is 2 tens.*	Use known number bonds and unitising to subtract multiples of 10. <table><tr><td colspan="2">10 tens</td></tr><tr><td>7 tens</td><td>3 tens</td></tr></table> <table><tr><td colspan="2">100</td></tr><tr><td></td><td>30</td></tr></table> What's the same, What's different? *10 − 3 = 7* *So, 10 tens subtract 3 tens is 7 tens.*	Use known number bonds and unitising to subtract multiples of 10.  *7 tens subtract 5 tens is 2 tens.* *70 − 50 = 20*

Subtracting multiples of ten from a TO number	Step One: 90 – 10 A diff  Step Three: 90 – 40 (subtracting multiples of ten, from multiples of ten)  	Step Two: 43 – 10  Step Four: 43 – 30 (Subtracting multiples of ten from a two-digit number)  	It is important for the children to count each individual square on their hundred square when they are counting back ten. The children will eventually realise that to subtract ten, they just have to move up by one square – only do this once they have had experience of the previous statement. Encourage them to find pattern (relevant to which step they are on) 43 – 10 = 33 43 – 20 = 23 43 – 30 = 13 43 – 40 = 3

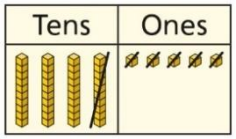
Subtracting a single-digit number	Subtract the 1s. This may be done in or out of a place value grid. (Do this with physical equipment)   	Subtract the 1s. This may be done in or out of a place value grid.   	Subtract the 1s. Understand the link between counting back and subtracting the 1s using known bonds.   *9 − 3 = 6* *39 − 3 = 36*
Subtracting a single-digit number bridging 10	Bridge 10 by using known bonds.  *35 − 6* *I know that 6 is made from 5 and 1.* *I took away 5 counters, then 1 more.*	Bridge 10 by using known bonds.  *35 − 6* *I know that 6 is made from 5 and 1.* *First, I will subtract 5, then 1.*	Bridge 10 by using known bonds.  *24 − 6 = ?* *24 − 4 − 2 = ?* *I know that six is made of four and two.* *I took away four, then two more.*

Subtracting a single-digit number using exchange	Exchange 1 ten for 10 ones. This may be done in or out of a place value grid. (The children will need to physically do this before using the picture) 25 – 7 = 18 	Exchange 1 ten for 10 ones.  *25 − 7 = 18*
Subtracting a 2-digit number	Subtract the 10s and the 1s. This can be represented on a 100 square. 68 – 26 = 42 First, I took away 2 multiples of ten. Next I took away 6 ones. 	Subtract the 10s and the 1s. This can be represented on a number line.  *64 − 41 = ?* *64 − 1 = 63* *63 − 40 = 23* *64 − 41 = 23*  *46 – 25 = ?* *46 − 20 = 26* *26 − 5 = 21* *46 − 25 = 21*

<table>
<tr>
<td>Subtracting a 2-digit number using place value and columns</td>
<td>Subtract the 1s. Then subtract the 10s. This may be done in or out of a place value grid.

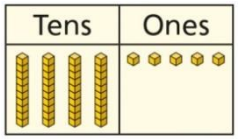
 

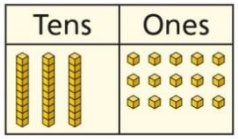
38 − 16 = 22</td>
<td>Subtract the 1s. Then subtract the 10s.

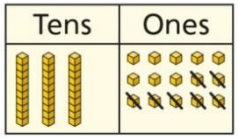
 
</td>
<td>Using column subtraction, subtract the 1s. Then subtract the 10s.

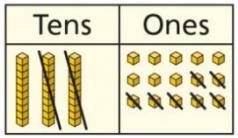
<table>
<tr><td></td><td>T</td><td>O</td></tr>
<tr><td></td><td>4</td><td>5</td></tr>
<tr><td>−</td><td>1</td><td>2</td></tr>
<tr><td></td><td></td><td>3</td></tr>
</table>
<table>
<tr><td></td><td>T</td><td>O</td></tr>
<tr><td></td><td>4</td><td>5</td></tr>
<tr><td>−</td><td>1</td><td>2</td></tr>
<tr><td></td><td>3</td><td>3</td></tr>
</table></td>
</tr>
<tr>
<td>Subtracting a 2-digit number with exchange</td>
<td colspan="2">Exchange 1 ten for 10 ones. Then subtract the 1s. Then subtract the 10s.

45 – 27 = 18

 
</td>
<td>Using column subtraction, exchange 1 ten for 10 ones. Then subtract the 1s. Then subtract the 10s.

<table>
<tr><td></td><td>T</td><td>O</td></tr>
<tr><td></td><td>4</td><td>5</td></tr>
<tr><td>−</td><td>2</td><td>7</td></tr>
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<tr><td></td><td>T</td><td>O</td></tr>
<tr><td></td><td>3 ~~4~~</td><td>1 5</td></tr>
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<tr><td></td><td>T</td><td>O</td></tr>
<tr><td></td><td>3 ~~4~~</td><td>1 5</td></tr>
<tr><td>−</td><td>2</td><td>7</td></tr>
<tr><td></td><td>1</td><td>8</td></tr>
</table></td>
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<tr>
<td>Year 2 Multiplication</td>
<td></td>
<td></td>
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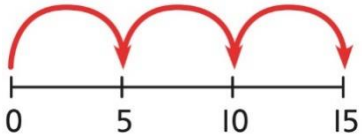
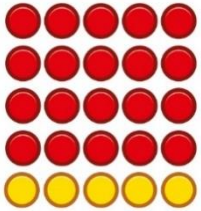
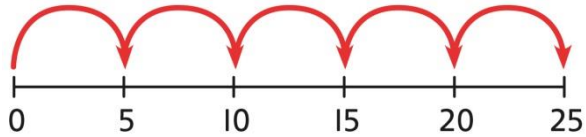
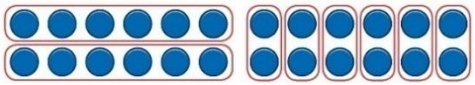
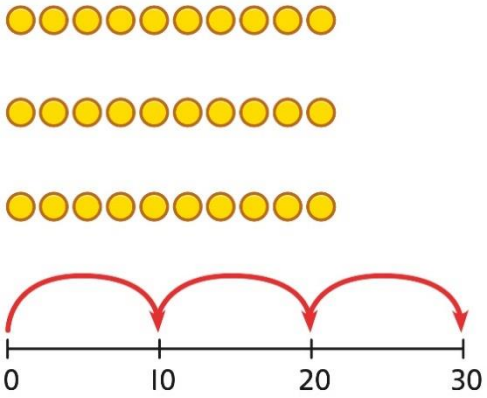
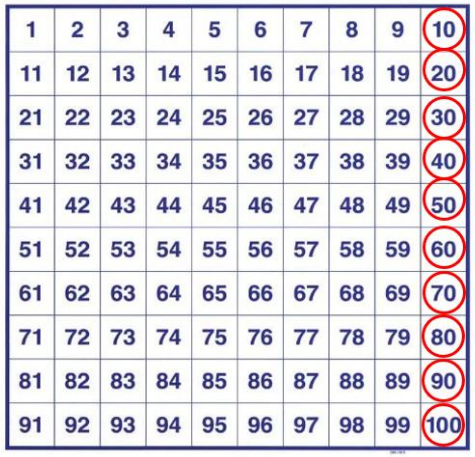
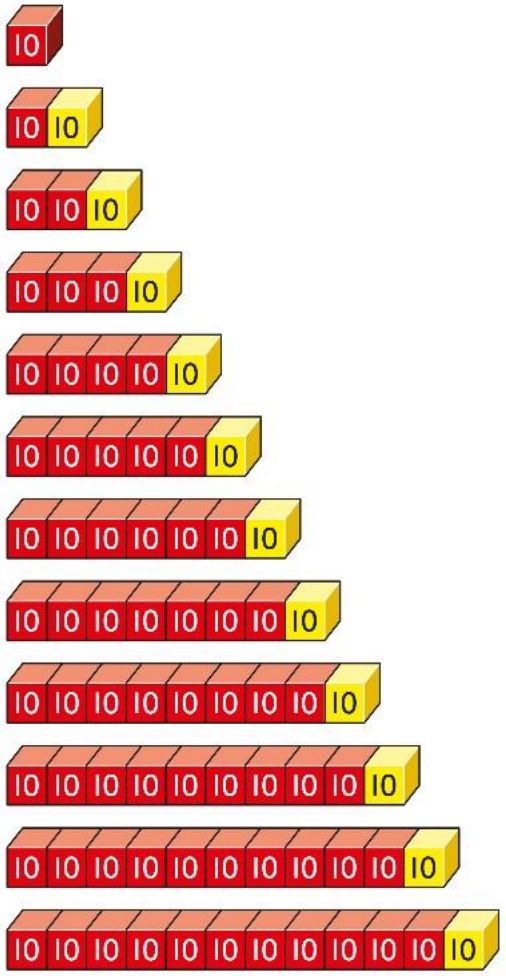
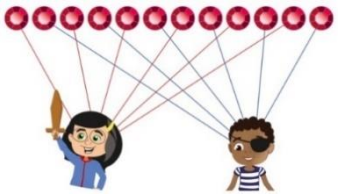
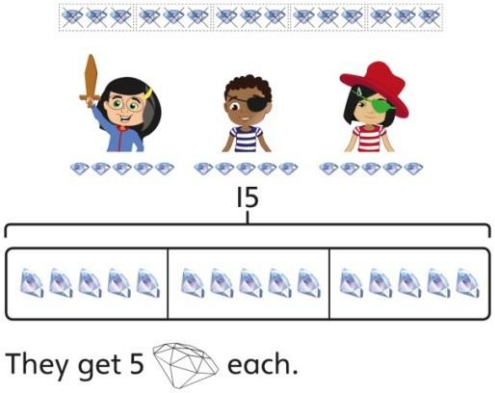
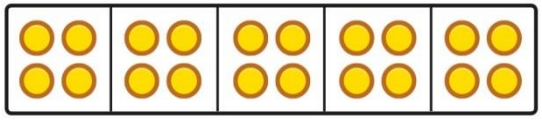
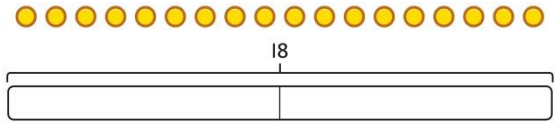
</table>

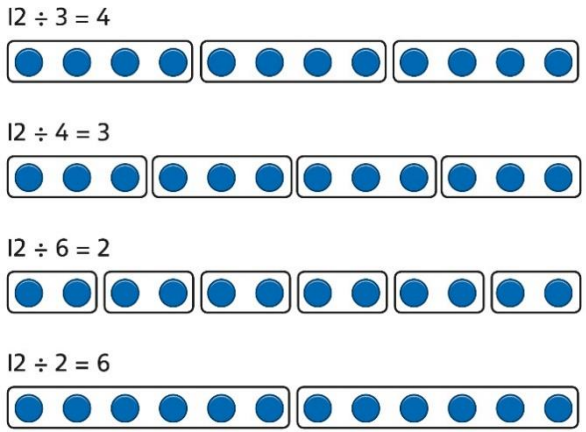
Equal groups and repeated addition	Recognise equal groups and write as repeated addition and as multiplication.  *3 groups of 5 chairs* *15 chairs altogether*	Recognise equal groups using standard objects such as counters and write as repeated addition and multiplication.  *3 groups of 5* *15 in total*	Use a number line and write as repeated addition and as multiplication.  *5 + 5 + 5 = 15* *3 × 5 = 15*
Using arrays to represent multiplication and support understanding	Understand the relationship between arrays, multiplication and repeated addition.  *4 groups of 5*	Understand the relationship between arrays, multiplication and repeated addition.  *4 groups of 5 … 5 groups of 5*	Understand the relationship between arrays, multiplication and repeated addition.  *5 × 5 = 25*
Understanding commutativity	Use arrays to visualise commutativity.  *I can see 6 groups of 3.* *I can see 3 groups of 6.*	Form arrays using counters to visualise commutativity. Rotate the array to show that orientation does not change the multiplication.  *This is 2 groups of 6 and also 6 groups of 2.*	Use arrays to visualise commutativity.  *4 + 4 + 4 + 4 + 4 = 20* *5 + 5 + 5 + 5 = 20* *4 × 5 = 20 and 5 × 4 = 20*

Learning ×2, ×5 and ×10 table facts	Develop an understanding of how to unitise groups of 2, 5 and 10 and learn corresponding times-table facts.  *3 groups of 10 … 10, 20, 30* *3 × 10 = 30*	Understand how to relate counting in unitised groups and repeated addition with knowing key times-table facts.  *10 + 10 + 10 = 30* *3 × 10 = 30* 	Understand how the times-tables increase and contain patterns.  *5 × 10 = 50* *6 × 10 = 60*

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Year 2 Division			
Sharing equally	Start with a whole and share into equal parts, one at a time.  *12 shared equally between 2.* *They get 6 each.* Start to understand how this also relates to grouping. To share equally between 3 people, take a group of 3 and give 1 to each person. Keep going until all the objects have been shared  *15 shared equally between 3.* *They get 5 each.*	Represent the objects shared into equal parts using a bar model.  *20 shared into 5 equal parts.* *There are 4 in each part.*	Use a bar model to support understanding of the division.  *18 ÷ 2 = 9*

<table>
<tr>
<td>Grouping equally</td>
<td>Understand how to make equal groups from a whole.
 
8 divided into 4 equal groups.
There are 2 in each group.

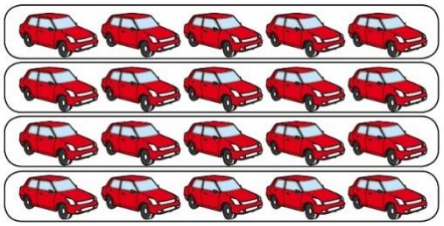
Explore different patterns and options when grouping the children: e.g. split 8 children into 2 equal groups leaves four children in each group.</td>
<td>Understand the relationship between grouping and the division statements.
 
</td>
<td>Understand how to relate division by grouping.

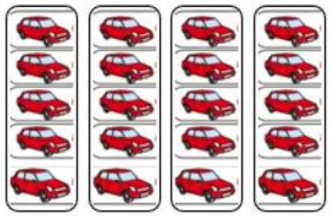
<table>
<tr><td colspan="3">12</td></tr>
<tr><td>4</td><td>4</td><td>4</td></tr>
</table>

12 divided into 3 groups
12 ÷ 3 = 4

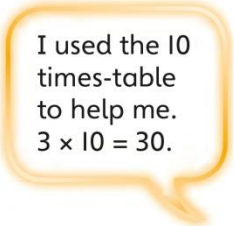
There are 3 groups.
There are 4 in each group.

This can then be explored with 12 ÷ 4 = 3

Then proceed to explore and write other suitable division equations.</td>
</tr>
<tr>
<td>Using known times-tables to solve divisions</td>
<td colspan="2">Understand the relationship between multiplication facts and division.
 
4 groups of 5 cars is 20 cars in total.
20 divided by 4 is 5.

 
5 groups of 4 cars is 20 cars in total.
20 divided by 5 is 4.</td>
<td>Relate times-table knowledge directly to division.

1 × 10 = 10
2 × 10 = 20
3 × 10 = 30
4 × 10 = 40
5 × 10 = 50
6 × 10 = 60
7 × 10 = 70
8 × 10 = 80

I know that 3 groups of 10 makes 30, so I know that 30 divided by 10 is 3.

3 × 10 = 30 so 30 ÷ 10 = 3</td>
</tr>
</table>