

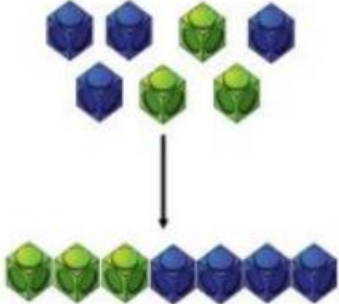
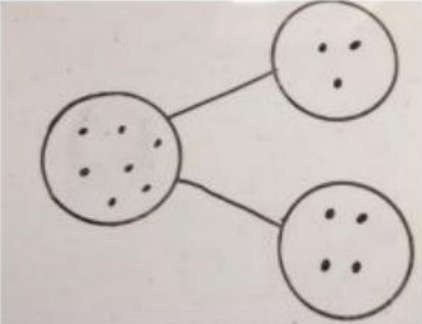
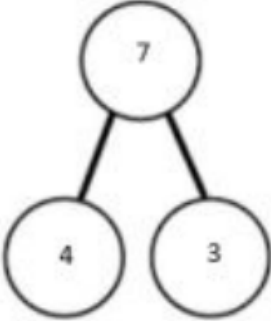

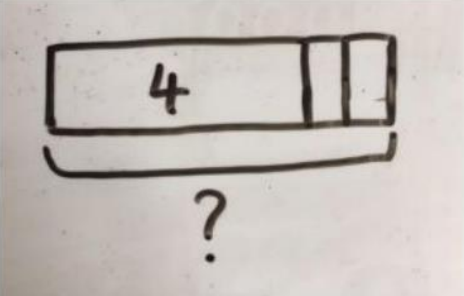



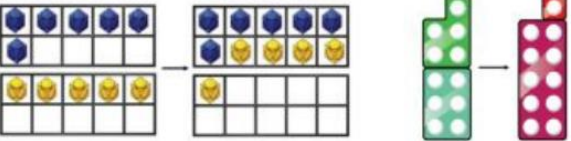
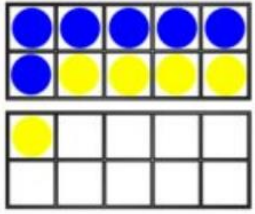
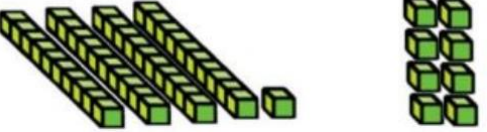
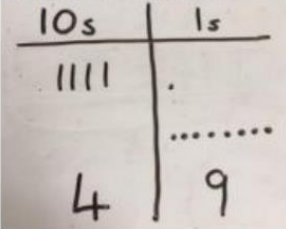
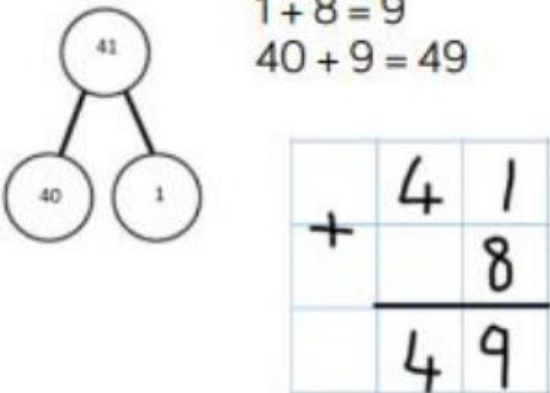
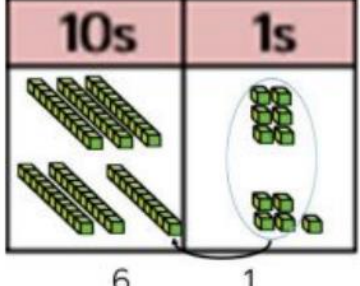
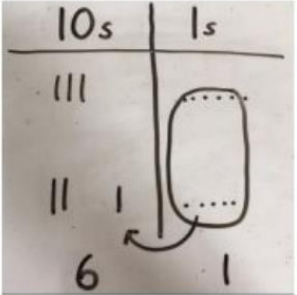
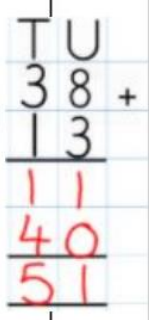
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Addition

Key Language: sum, total, parts and wholes, plus, add, altogether, more, 'is equal to', 'is the same as'

Year	Concrete	Pictorial	Abstract
EYFS/ Year 1	<p>Combining two parts to make a whole (Use resources e.g. eggs, shells, bear, cars ect...)</p> 	<p>Children represent the cubes using dots or crosses. They could put each part into a part whole model.</p> 	<p>$4 + 3 = 7$ Four is a part, 3 is a part and the whole is 7.</p> 
Year 1	<p>Counting on using number lines, Numicon or cubes.</p> 	<p>A bar model which encourages children to count on rather than count all.</p> 	<p>The abstract number line: What is 2 more than 4? What is the sum of 2 and 4? What is the total of 4 and 2? $4 + 2$</p> 

Year	Concrete	Pictorial	Abstract
Year 1	Regrouping to make 10. Use ten frames and counters/ cubes or using numicon. $6 + 5$ 	Children draw the ten frame and counters/ cubes. 	Children develop an understanding of equality e.g. $6 + \square = 11$ $6 + 5 = 5 + \square$ $6 + 5 = \square + 4$
Year 2	$10 + 0$ using base 10. Continue to develop understanding of partitioning and place value. $41 + 8$ 	Children represent the base 10 e.g. lines for tens and dots for ones. 	$41 + 8$ 
Year 2	$10 + 10$ using base 10. Continue to develop understanding of partitioning and place value. $36 + 25$ 	Children to represent the base 10 in a place value chart. 	Draw corresponding base 10. Add ones. Record. Add tens. Record under. Ones and Tens. Record. 

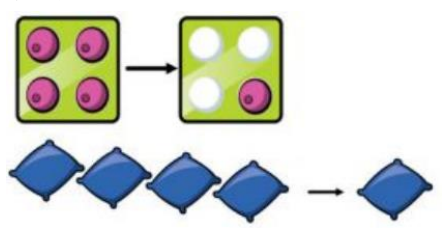
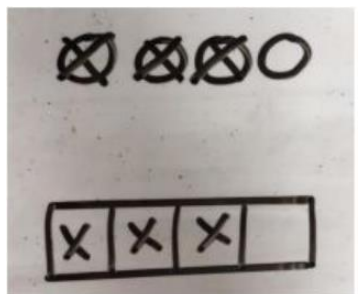
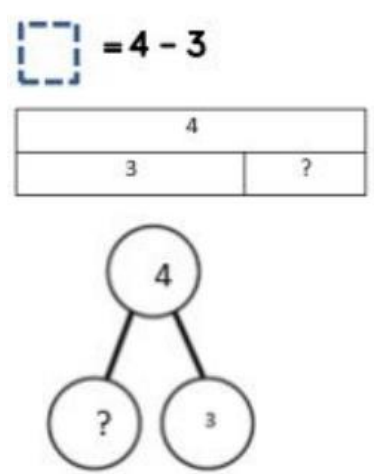
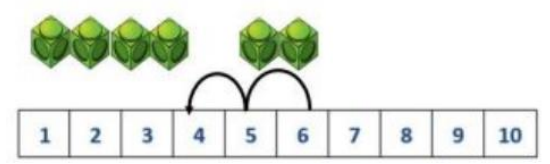
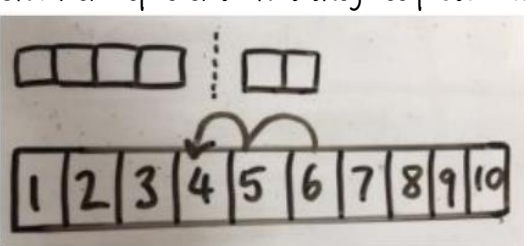
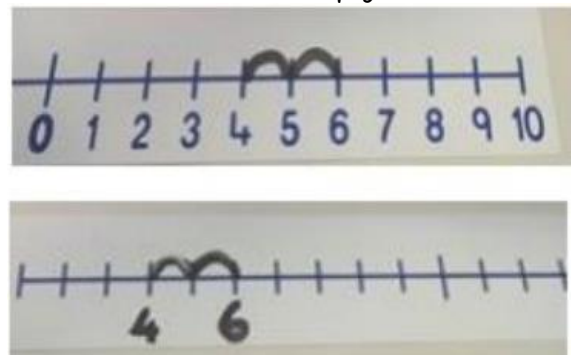


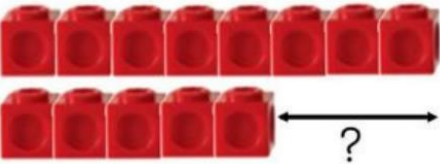
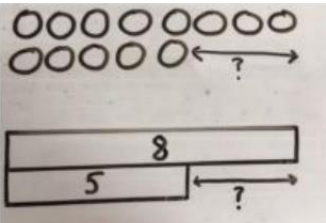
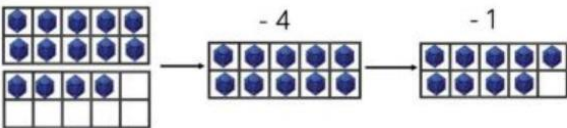
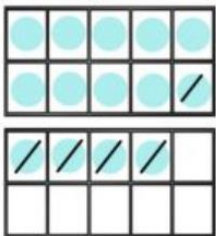
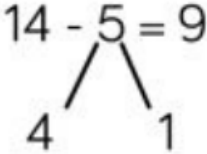
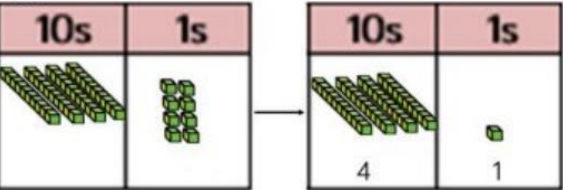
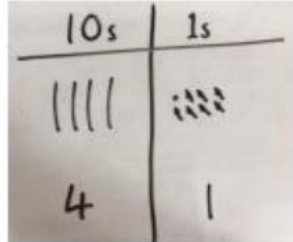
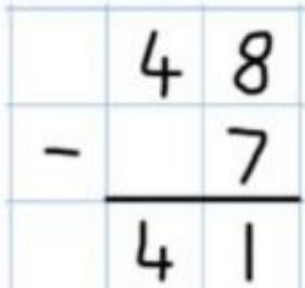
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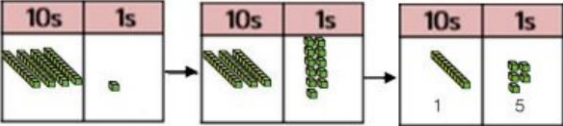
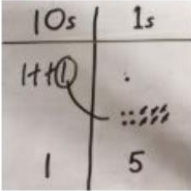
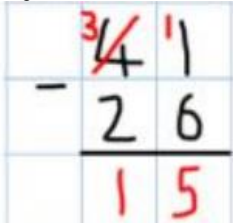
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Subtraction

Key Language: take away, less than, the difference, subtract, minus, fewer, decrease.

Year	Concrete	Pictorial	Abstract
EYFS/ Year 1	<p>Physically taking away and removing objects from a whole (ten frames, numicon, cubes and other items).</p> <p>$4 - 3 = 1$</p> 	<p>Children to draw the concrete resources and cross out the correct amount. The bar model can also be used.</p> 	<p>$4 - 3 =$</p> 
EYFS/ Year 1	<p>Counting back (using number lines or number tracks) Children start with 6 and count back 2.</p> <p>$6 - 2 = 4$</p> 	<p>Children represent what they see pictorially</p> 	<p>Children to represent the calculation on the number line or track and show their jumps. Children should use an empty number line.</p> 

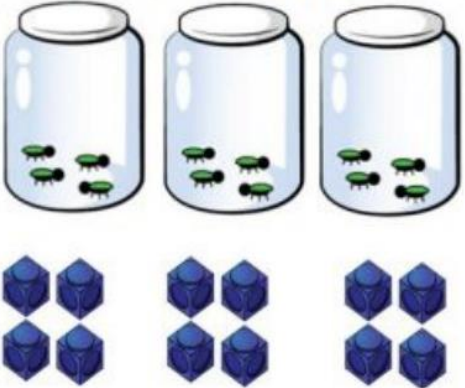
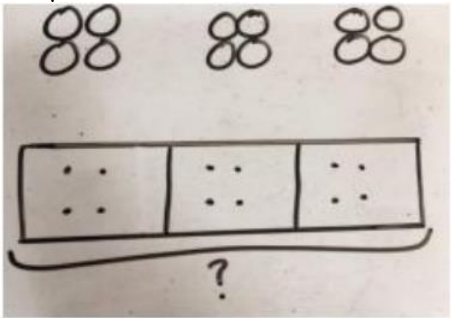
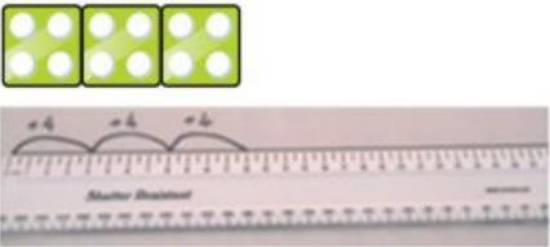
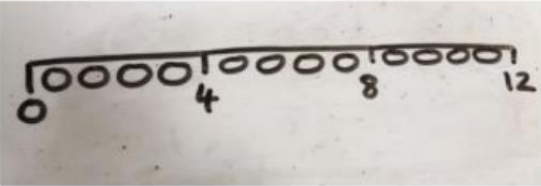
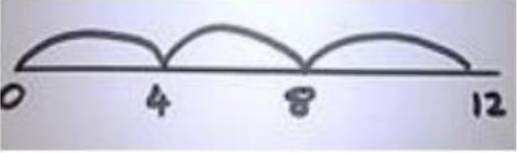
Year	Concrete	Pictorial	Abstract
EYFS/ Year 1	Finding the difference (using cubes, numicon or other objects). Calculate the difference between 8 and 5. 	Children to draw the cubes/ other concrete objects which they have used or use the bar model to illustrate what they need to calculate. 	Find the difference between 8 and 5. $8 - 5$, the difference is <input type="text"/> Children to explore why $9 - 6 = 8 - 5 = 7 - 4$ have the same difference.
Year 1 / Year 2	Making 10 using 10 frames. $14 - 5$ 	Children present the ten frame pictorially and discuss what they did to make 10. 	Children show how they can make 10 by partitioning the subtrahend. $14 - 5 = 9$  $14 - 4 = 10$ $10 - 1 = 9$
Year 2	Column method using base 10. $48 - 7$ 	Children represent the base 10 pictorially. 	Column method or children could count back 7. Draw base 10 to correspond to column method. Cross off the ones. 

Year	Concrete	Pictorial	Abstract
Year 2	<p>Column method using base 10 and having to exchange. 41 - 26</p> 	<p>Represent the base 10 pictorially, remembering to show the exchange. Represent the base 10 pictorially, remembering to show the exchange.</p> 	<p>Formal column method. Draw corresponding base 10, circle the exchange and then show the exchange on the numbers. The children must understand that when they exchange 10 they still have 41. $41 = 30 + 11$</p> 

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Multiplication

Key Language: double, times, multiplied by, the product of, groups of, lots of, equal groups

Year	Concrete	Pictorial	Abstract
EYFS/ Year 1	<p>Repeated grouping/ repeated addition 3×4 $4 + 4 + 4$ There are 3 equal groups, with 4 in each group.</p> 	<p>Children represent the practical resources in the picture and use a bar model.</p> 	<p>$3 \times 4 = 12$</p> <p>$4 + 4 + 4 = 12$</p>
KS1	<p>Number lines to show repeated groups- 3×4</p> 	<p>Represent this pictorially alongside a number line e.g.</p> 	<p>Abstract number line showing three jumps of four. $3 \times 4 = 12$</p> 

Year	Concrete	Pictorial	Abstract
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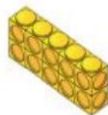
Year
2, 3, 4

Use arrays to illustrate commutativity. Also use counters and other objects.

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

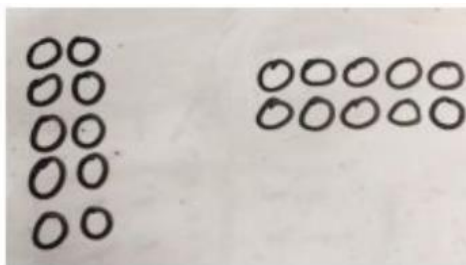


2 lots of 5



5 lots of 2

Children represent the arrays pictorially. Bar model.



12		
4	4	4

Children should use an array to write multiple calculations:

$$10 = 2 \times 5$$

$$5 \times 2 = 10$$

$$2 + 2 + 2 + 2 + 2 = 10$$

$$5 + 5 = 10$$

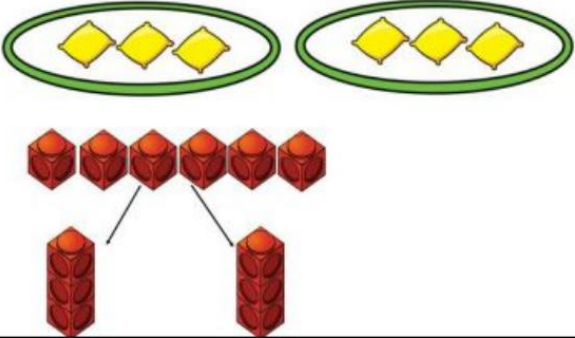
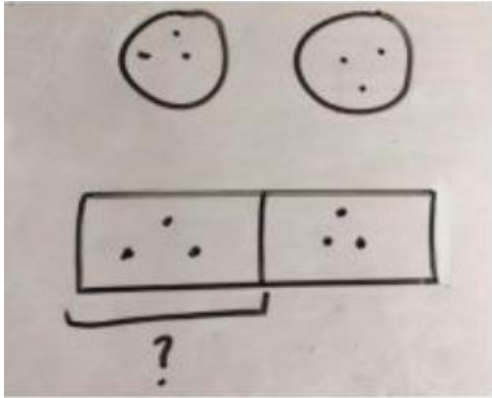

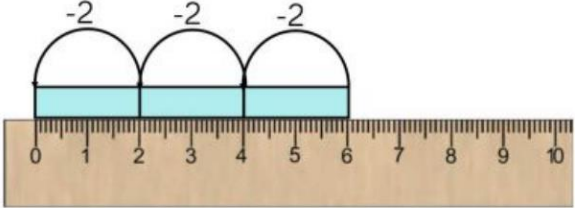
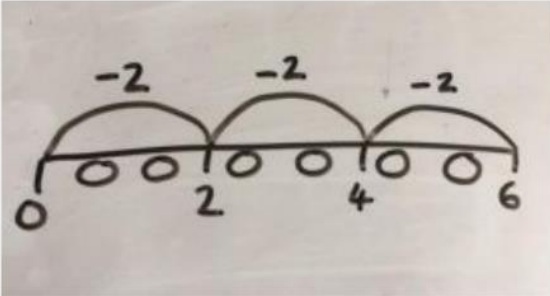


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Division

Key Language: share, group, divide, divided by, half, inverse

Year	Concrete	Pictorial	Abstract
EYFS/ Year 1/ Year 2	<p>Sharing using a range of objects. $6 \div 2$</p> 	<p>Represent the sharing pictorially.</p> 	<p>Children should use their 2 times table facts. $6 \div 2 = 3$</p> 
Year 2	<p>Repeated subtraction using cubes, counters and other manipulatives. $6 \div 2$</p>  <p>3 groups of 2</p>	<p>Children represent repeated subtraction pictorially.</p> 	<p>Abstract number line to represent the equal groups that have been subtracted.</p> 