

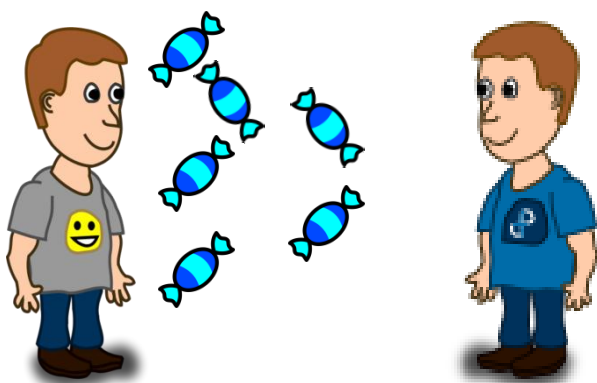
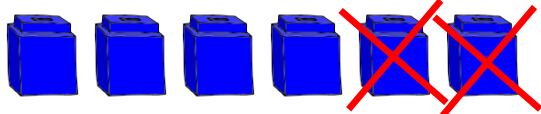
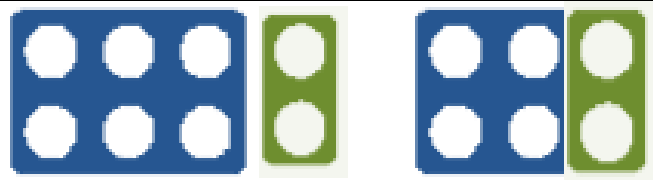

Progression in Calculation – Subtraction

Methods should be introduced with the support of resources that enable pictorial representation and so develop conceptual understanding.

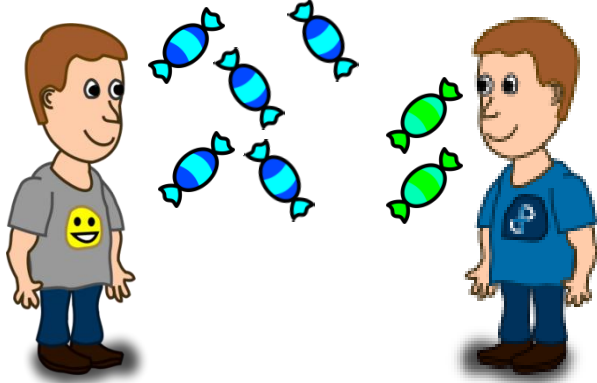
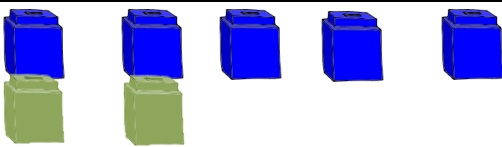
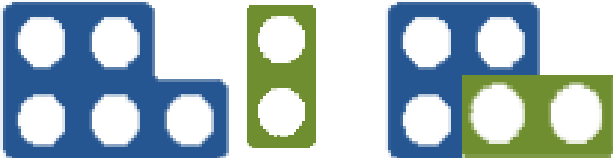

Before recording, it is essential that pupils have experience of subtracting (subtraction and comparison) using practical apparatus.

This can then be represented pictorially.

eg 1. Tom has 6 sweets, James takes 2 sweets. How many does Tom have left?

<p>subtraction – decreasing one quantity</p> 	  
---	--

eg 2. Tom has 5 sweets and James has 2 sweets. How many more sweets does Tom have?

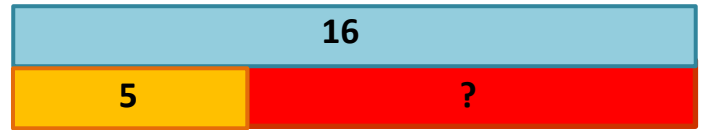
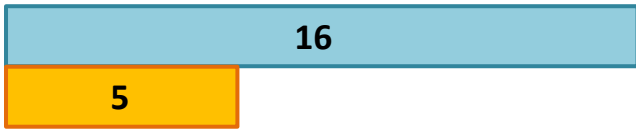
<p>Comparison – finding the difference</p> 	  
--	--

Once this conceptual understanding is in place, pupils should start developing mental methods. These should then be supported by written methods. Every new step must be supported by concrete resources, then pictorial representations before becoming abstract calculations.

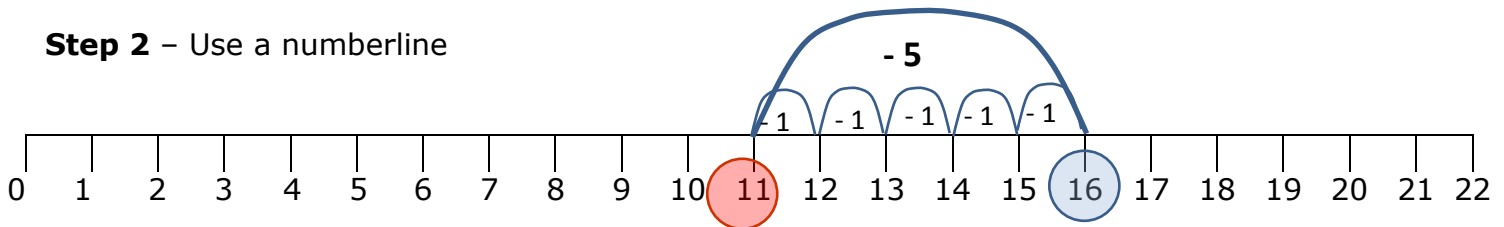
1. Introduction of a numberline

Tom has 16 marbles. He loses 5 in a match, how many does he have now?

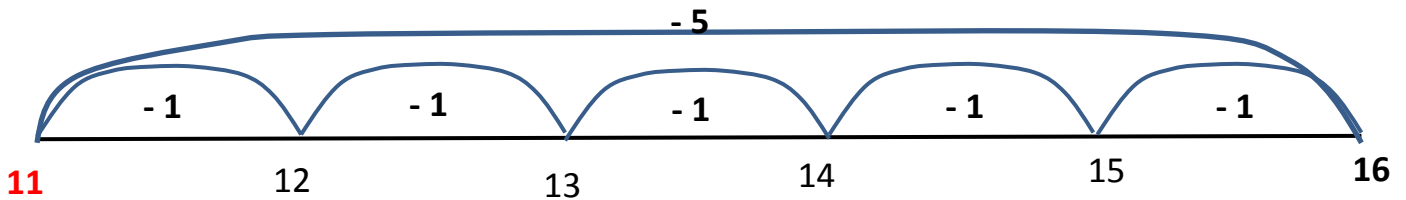
Step 1 – Represent the problem



Step 2 – Use a numberline



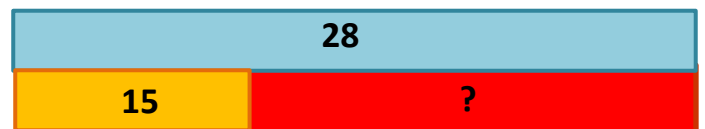
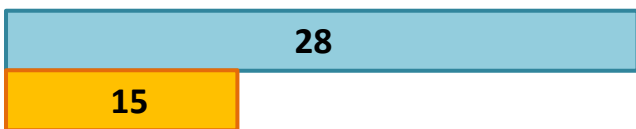
Step 3 – Use a blank numberline



2. Introduction of partitioning

Tom has 28 grapes. He eats 15. How many does he have now?

Step 1 – Represent the problem

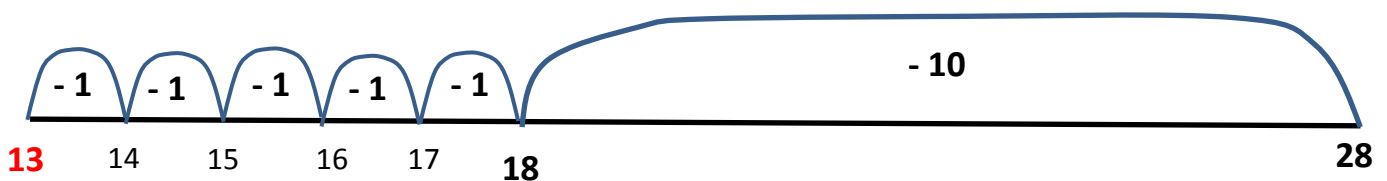


Step 2 – Partition the second number

$15 = 10 + 5$



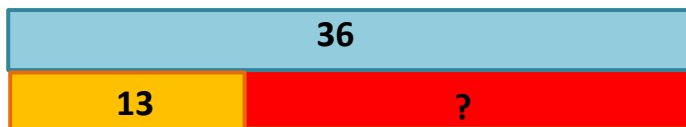
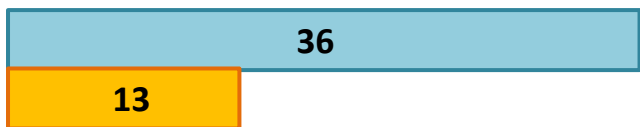
Step 3 – Subtract using a numberline



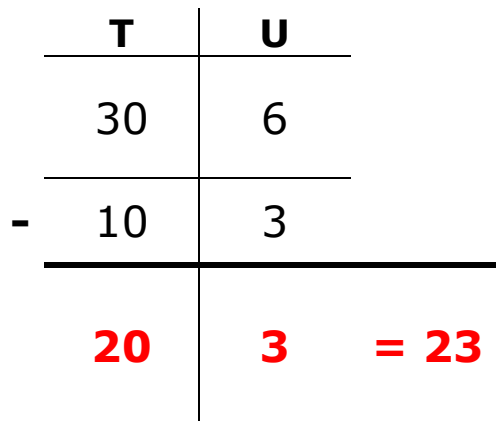
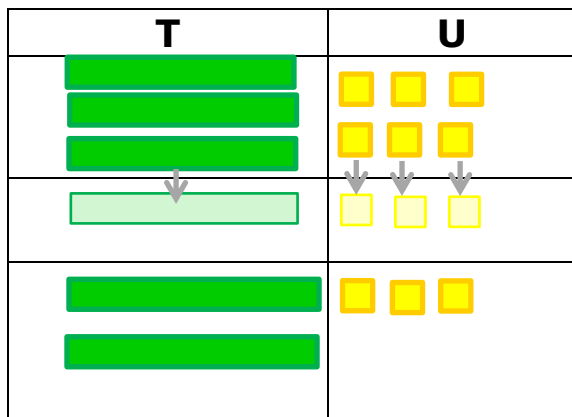
3. Introduction of an expanded written method

Tom has 36 marbles. He loses 13. How many does he have?

Step 1 – Represent the problem



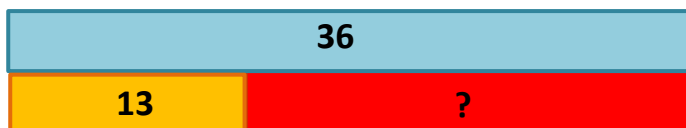
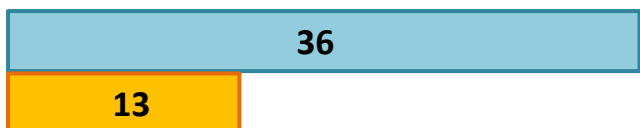
Step 2 – Use Base 10 equipment and partition the numbers. Subtract the units first.



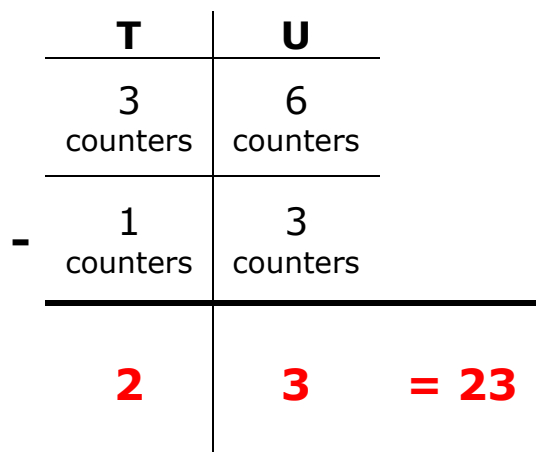
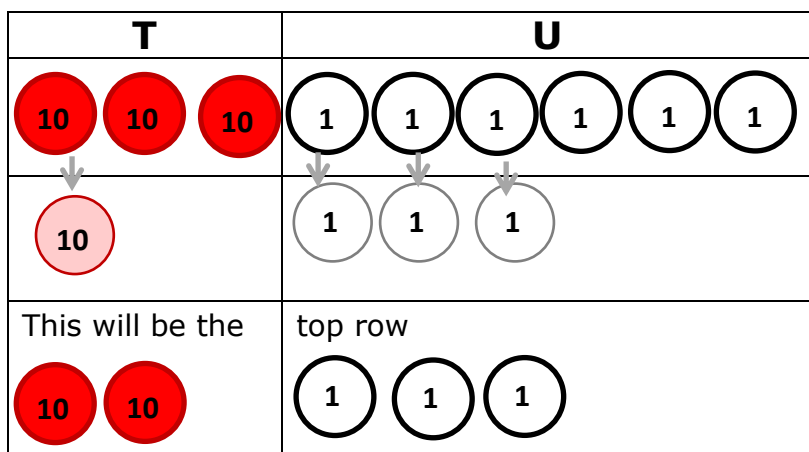
4. Introduction of a compact written method

Tom has 36 marbles. He loses 13. How many does he have?

Step 1 – Represent the problem



Step 2 – Use Place value discs to represent the number of tens, units etc. Add units first.



5. Recording the compact written method

a) without exchange

Tom has 377 pieces of lego. He uses 136 pieces in his model.
How many pieces of lego are left?

	H	T	U
	3	7	7
-	1	3	6
	2	4	1

= 241 pieces of lego

b) with exchange

In his model, Tom has 862 pieces of lego. He uses 328 pieces in a model.
How many pieces are left?

	H	T	U
	8	⁵ 6	¹ 2
-	3	2	8
	5	3	4

= 534 pieces of lego

c) with further exchange

Tom has 806 pieces of lego. He uses 328 pieces to make a model.
How many pieces of lego does he have left?

	H	T	U
	⁷ 8	⁹ 0	¹ 6
-	3	2	8
	4	7	8

= 478 pieces of lego

NB. If questions require subtracting from multiples of 10, 100, 1000 etc, pupils should use a number line to find the difference, rather than using column subtraction.