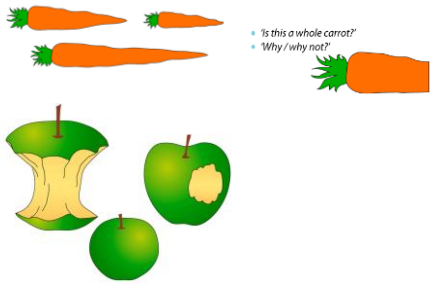
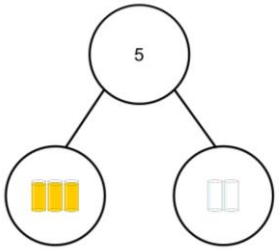
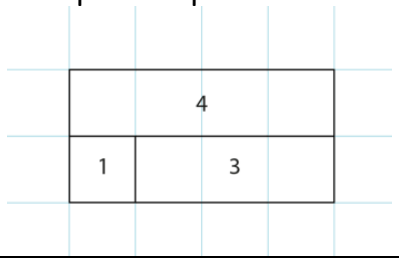
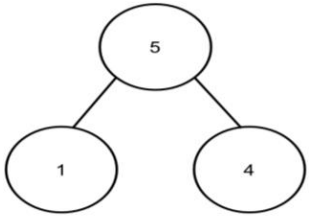
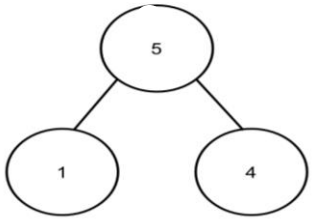
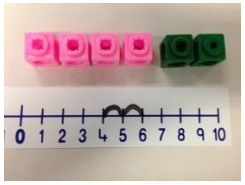
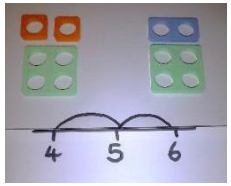
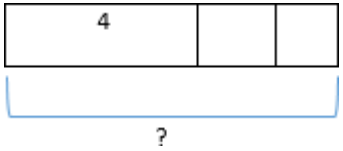
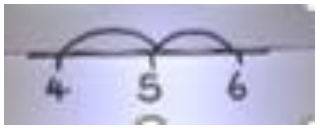
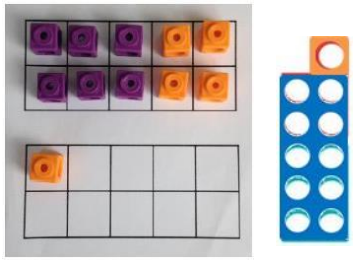
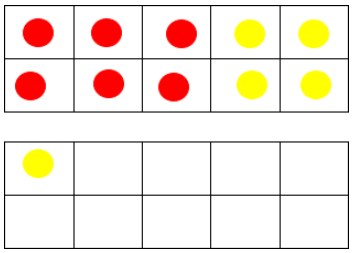
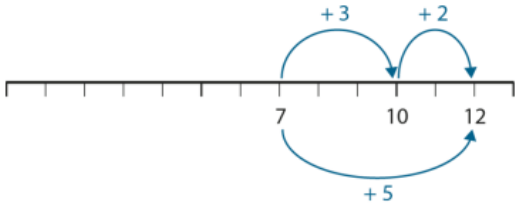
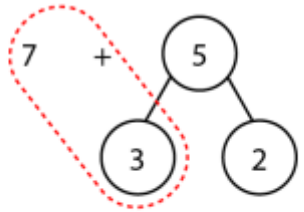
Maths Calculation Policy – Addition

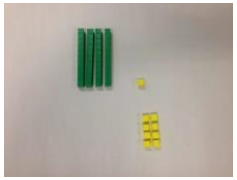
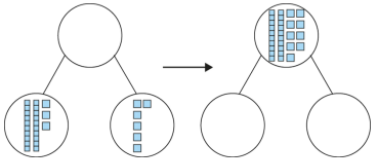
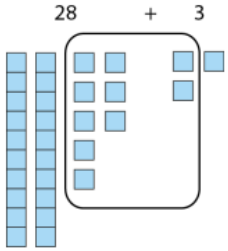
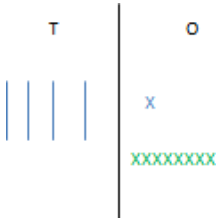
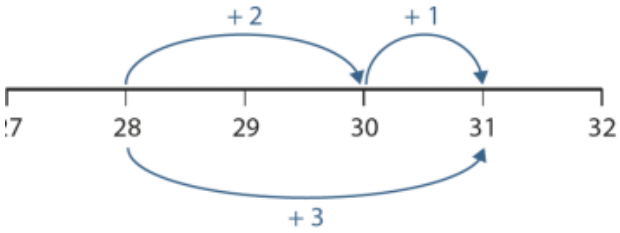
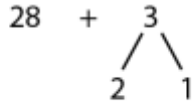
This document shows the models, pictures and calculation methods we use at Stottesdon C o E Primary School.

Addition

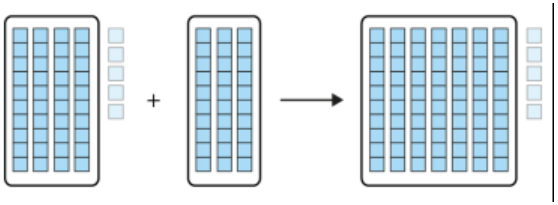
Key language which should be used: sum, total, parts and wholes, plus, add altogether, more than, is equal to, is the same as, addends

Concrete	Pictorial	Abstract
Concept of part/whole. (what is a part/not a part? and what is a whole/not a whole?) 	 Using squared paper can help introduce the bar model to represent parts and whole. 	 
Counting on using number lines by using cubes or numicon  	A bar model which encourages the children to count on  Maths stories - First, there are four horses in field. Next, two more horses come into the field. How many horses are in the field now?	The abstract number line: What is 2 more than 4? What is the sum of 4 and 4? What's the total of 4 and 2? 4 + 2 

Regrouping to make 10 by using ten frames and counters/cubes or using numicon: 6 + 5 	Children to draw the ten frame and counters/cubes  	Children to develop an understanding of equality e.g. 6 + ☐ = 11 and 6 + 5 = 5 + ☐ 6 + 5 = ☐ + 4 Mentally partitioning one of the addends to make a model of ten. Practice adding three one-digit numbers is key as a stepping stone to this strategy.  7 + 3 = 10 10 + 2 = 12

TO + O using base 10. Continue to develop understanding of partitioning, recombining and place value 41 + 8    And bridging ten	Children to represent the concrete using a symbol e.g. lines for tens and dot/crosses for ones. Variation in these symbols should be provided.  Use of a number line to represent when bridging ten.  	When bridging ten, partitioning the second addend.  $28 + 3 = 28 + 2 + 1$ $= 30 + 1$ $= 31$

TO + T using equipment such as base ten



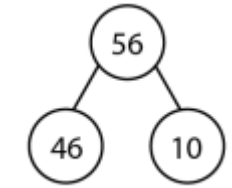
Use of a 100 square Image of a 100 square.

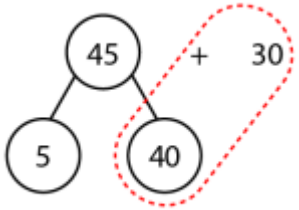
	1	2	3	4	5	6	7	8	9	10
14 + 10 = 24	11	12	13	14	15	16	17	18	19	20
24 + 10 = 34	21	22	23	24	25	26	27	28	29	30
34 + 10 = 44	31	32	33	34	35	36	37	38	39	40
44 + 10 = 54	41	42	43	44	45	46	47	48	49	50
54 + 10 = 64	51	52	53	54	55	56	57	58	59	60
64 + 10 = 74	61	62	63	64	65	66	67	68	69	70
74 + 10 = 84	71	72	73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

24 – 10 = 14
34 – 10 = 24
44 – 10 = 34
54 – 10 = 44
64 – 10 = 54
74 – 10 = 64
84 – 10 = 74
94 – 10 = 84

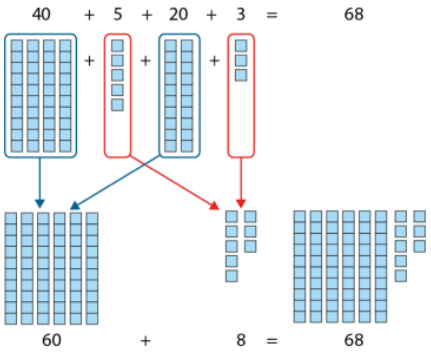
Using known facts and procedural variation.

14 + 10 = 24
24 + 10 = 34
34 + 10 = 44

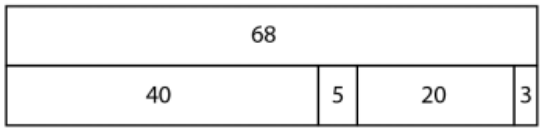


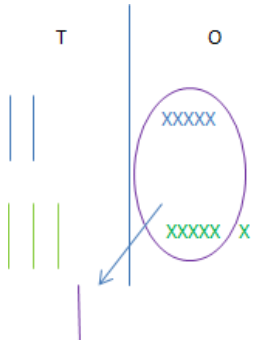


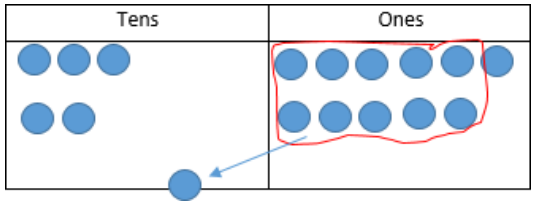
TO + TO using base 10. Continue to develop understanding of partitioning and place value and use this to support addition. Begin with no exchanging. 36 + 25



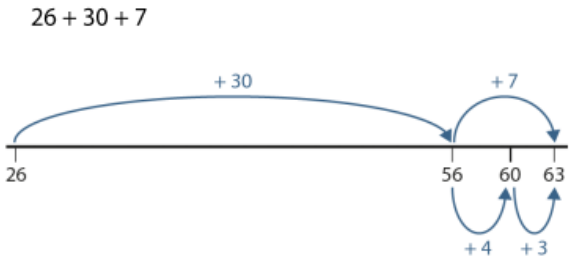
Adding two tens and two ones leading into adding two 2-digit numbers.







Number line leads to just mental partitioning of second addend.



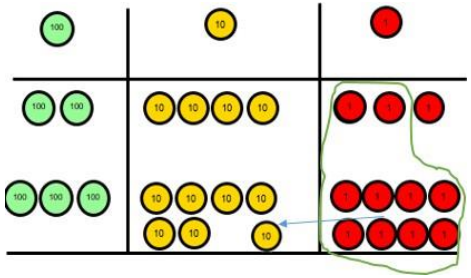
Partitioning both addends	Partitioning one addend
26 + 37 20 6 30 7 20 + 30 = 50 6 + 7 = 13 50 + 13 = 63	26 + 37 30 7 26 + 30 = 56 56 + 7 = 63
so £26 + £37 = £63	

Choosing the most efficient method.

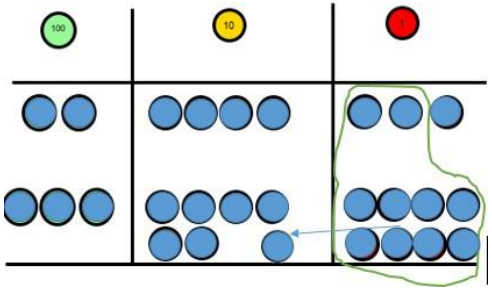
36 +
45
1

81

Use of place value counters to add HTO + TO, HTO + HTO etc. once the children have had practice with this, they should be able to apply it to larger numbers and the abstract



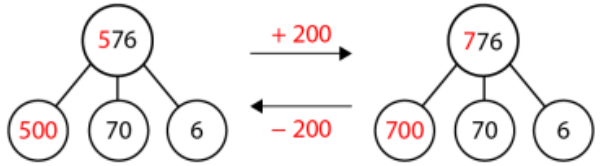
Children to represent the counters e.g. like the image below



If the children are completing a word problem, draw a bar model to represent what it's asking them to do

?	
243	368

When just adding hundreds, tens or ones, then use of a part whole model to aid fluency.



576 + 200 = 776

776 – 200 = 576

Link mental methods to subtraction

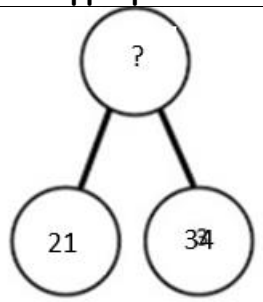
243 +

368

1 1

611

Fluency and variation. Asking different ways to solve addition calculations. Children are encouraged to make the most efficient choices where appropriate.



Sam saved £21 one week and £34 another. How much did he save in total?

21 + 34 = 55 Prove it. (reasoning but children need to be fluent in representing this).

Balancing equations
50 + 5 = 55 = 21 + __

Function machines

16	+ 30 =	
26		
36		

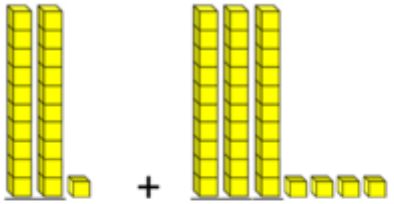
21 + __ = 75 – 20

2	1	+
3	4	
5	5	

Missing number
_____ = 21 + 34

55 = 21 + ____

What is the sum of twenty one and thirty four?



Always use missing digit problems too:

Tens	Ones
	?
?	4