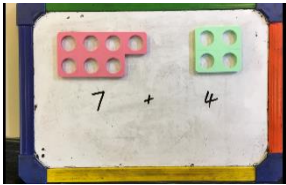


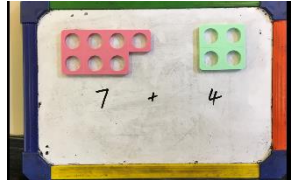
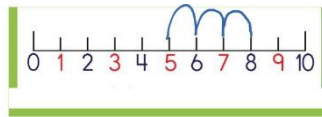
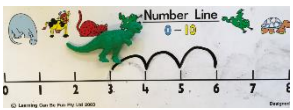
Concrete

Addition

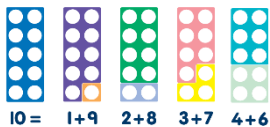
Combining two parts to make a whole: part whole model.



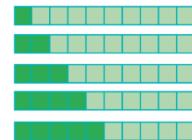
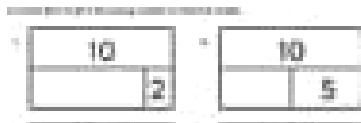
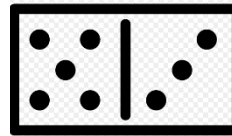
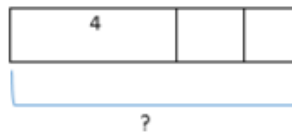
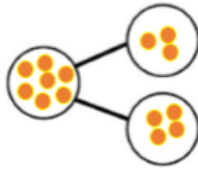
Starting at the bigger number and counting on.



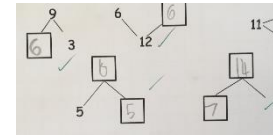
Regrouping to make/ bridge 10.



Pictorial

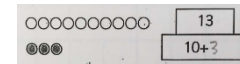
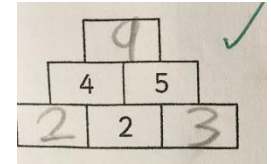
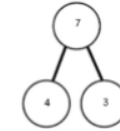


Abstract



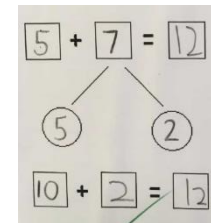
$3 + 2 = 5$

$4 + 3 = 7$ (four is a part, 3 is a part and the whole is seven)



$7 + 2 =$

$3 + 5 = 5 + 3$



$3 + [] = 10$

$[] + 4 = 10$

Children to develop an understanding of

equality e.g $6 + \square = 11$ and

$6 + 5 = 5 + \square$

$6 + 5 = \square + 4$

Subtraction

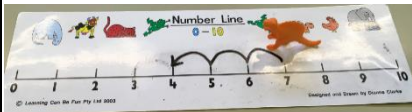
Taking away ones

Physically taking away and removing objects from a whole (use various objects too) rather than crossing out—children will physically remove the objects

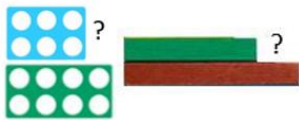
$$4 - 3 = 1$$



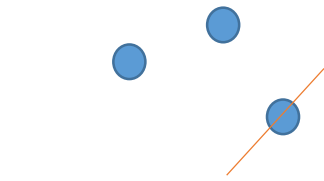
Counting backwards



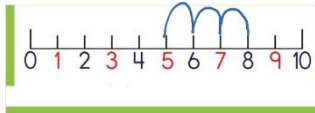
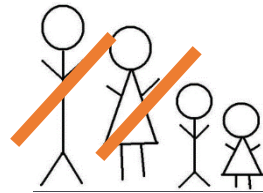
Find the difference



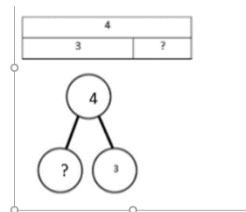
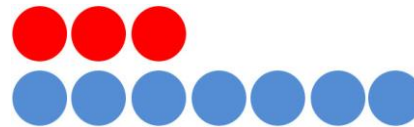
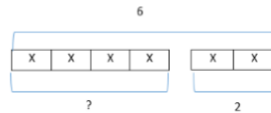
Part whole model



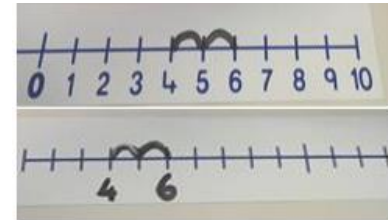
Use of the bar model:



Children to represent what they see pictorially e.g.

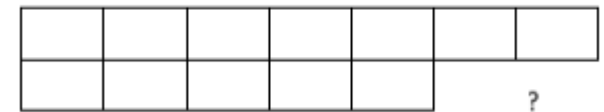


$$3 - 1 = 2$$



$$6 - 2 = 4$$

Use of the bar model



$$4 - 3 =$$

$$\square = 4 - 3$$

Multiplication

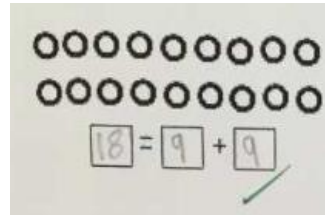
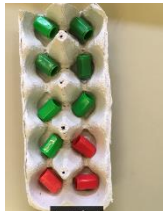
Doubling



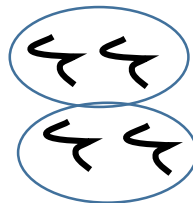
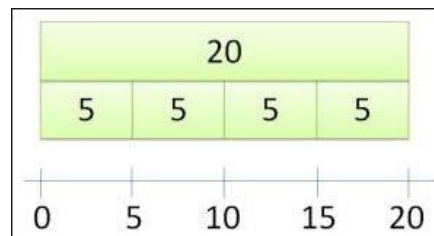
Counting in multiples



Arrays

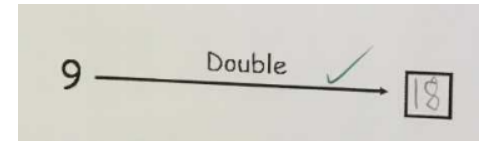


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

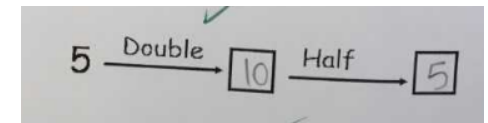


Double 4 =

$4 + 4 =$

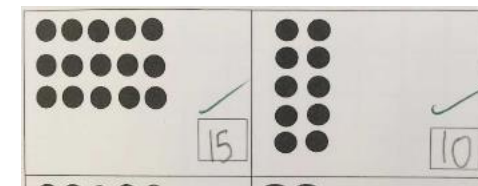


$8 = 4 + \underline{\quad}$



2, 4, 6 __, 10, 12

20, 15, 10, __, 0

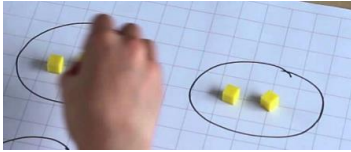
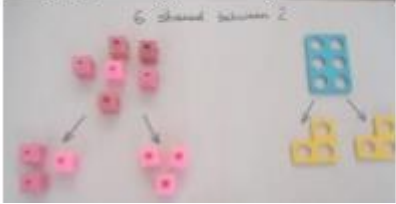


There were 2 branches. Each branch had 5 birds. How many birds altogether?

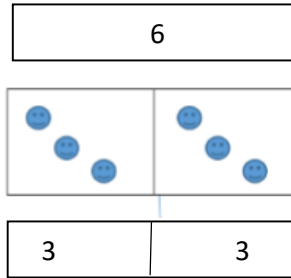
Division

Sharing objects into groups

6 shared between 2 (other concrete objects can also be used e.g. children and hoops, teddy bears, cakes and plates)

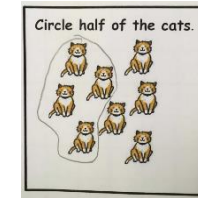
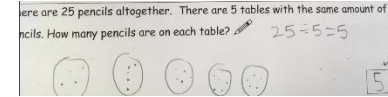


This can also be done in a bar so all 4 operations have a similar structure:



$$6 \div 2 = 3$$

What's the calculation?



Notes: Include photographs of materials / drawings / books. Include diagrams and explanations.