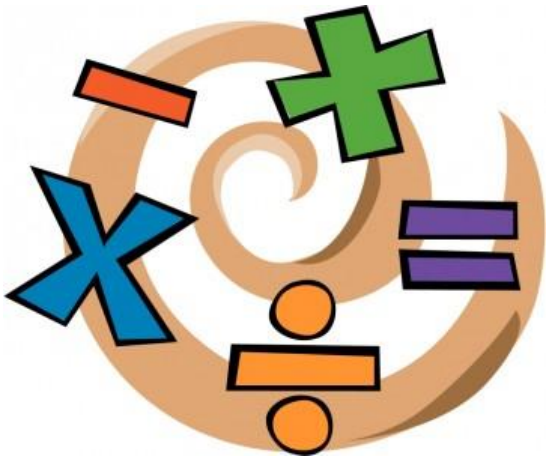
Building Dreams and
Inspiring Futures Federation

WOODVALE
PRIMARY ACADEMY

Primary Phase Approach to Subtraction

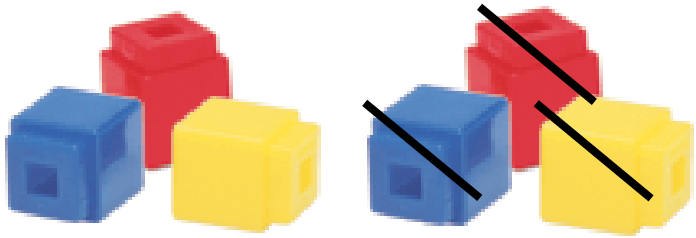


Teacher's Guide

Subtraction

Before children are ready to use Numicon and number tracks etc., they will need practical methods to solve simple subtractions. This may be using a range of objects or drawing pictures to support them.

6—3 = 3



At this stage children will physically take away the objects to count how many are left.

Step 1 Counting back U - U
"Taking Away"

7—4 = 3

Children create the first number using Numicon. They take the Numicon piece for the amount they are subtracting and place this on top. Children should be able to recognise the shape left and check with a Numicon piece.

Step 2 Counting back TU - U
"Taking Away"

15 - 7 =

Same as previously, making the two digit number first and cover with the piece you are taking away.

Step 3 Using Hundred Square

· Counting back TU-U
· Counting back TU—T
· Counting back TU - TU

"Taking Away"

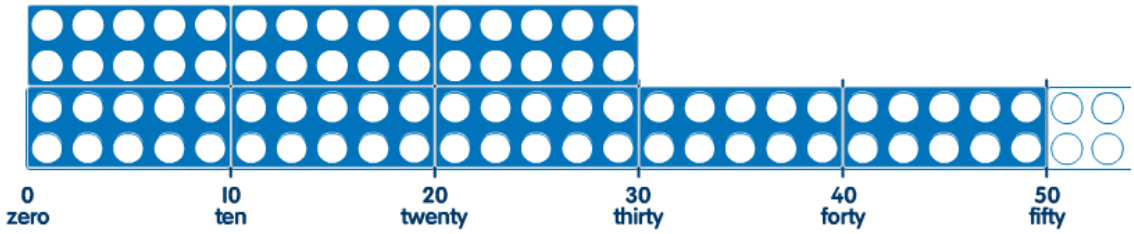
55 - 23 = 32

This can be taught using a 100 square to count back.
Find the starting number and jump up twice to represent two tens. Then jump back 3 spaces to represent the units.

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

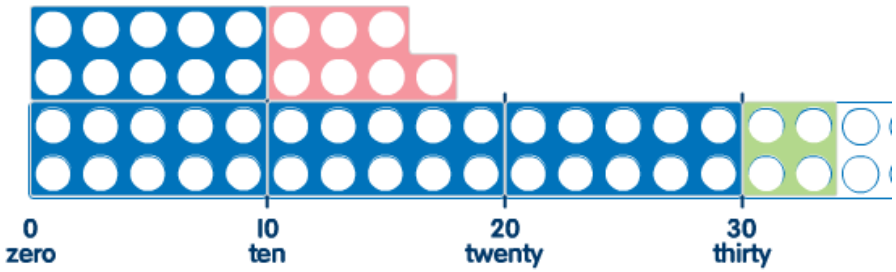
Step 4 Subtracting by counting on using Numicon
"More than/Less Than"

Set the scene for children.... Rosie has 50p and Isla has 30p. How much more does Rosie have? Children are to make the different amounts and place Isla's amount above Rosie's. Children will then be able to count on to get to Rosie's amount, finding the answer 20p.

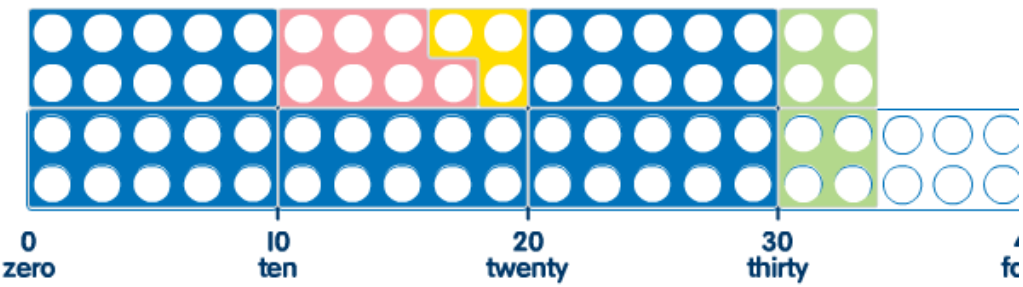


"What is the difference"

Set the scene for children... Lizzie the lizard is 34cm long and Simon the slug is 17cm long. What is the difference in length between them? Children are to make each different amount and place Simon's length above Lizzie's. Children add to the next multiple of 10 (+3) and then to the end number (+14). Children finally combine 14 + 3 to reach 17.



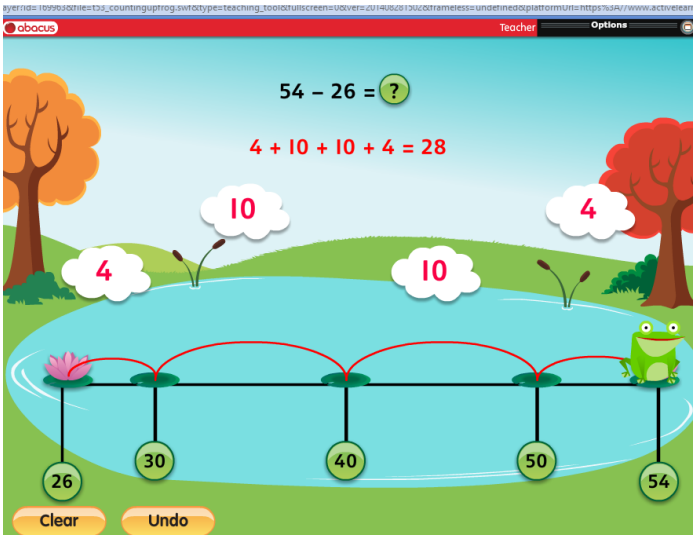
+3 +14



Step 4 Subtracting by counting on using number tracks (Y1,2) number lines (Y3-6)

· Counting on TU-U
· Counting on TU—T
· Counting on TU - TU

Abacus online has some really useful resources for teaching this and starts with 2 digit—2 digit where the answer is a single digit (42—36 = 6) starting at Year 2 Lesson 60.



54—26 = 28

Children start with 26 and add to the next multiple of 10 (jump of 4). *This is explained in abacus by the frog only jumping on lily pads - the multiples of ten.* Then add jumps of tens and units until they reach the final number jump (+24). Finally add the jumps completed 24 + 4 = 28.

It is important that children realise they are <u>not</u> taking away but they are finding the difference, reducing, finding how many more/less or how many are left.

There are many resources on abacus online and in abacus books for examples where the number track is given to children with lily pads on. Children will then move on to drawing their own number lines, use the same process for subtracting more than 2 digit numbers.

Vertical subtraction should not be used prior to Year 4 unless for your top ability.

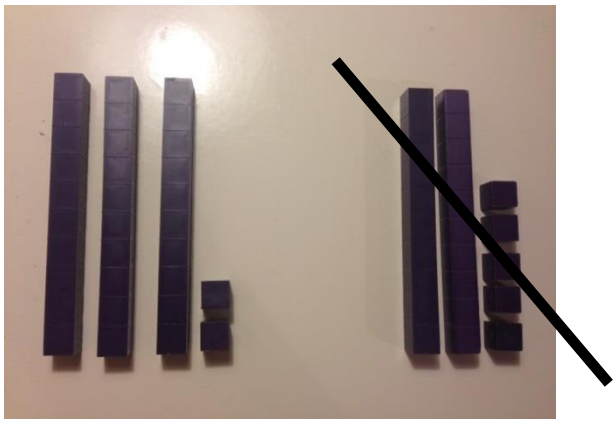
Step 5 Compact vertical subtraction (no carrying)

57 – 25 =

TU
57
-25
32

This needs to be taught alongside using Diennes equipment so children understand the process and can physically see what is happening when exchanging is required.

Children need to make the start number (57). Then physically take away the tens and units (2 tens and 5 units) leaving 32.



Extend to subtracting HTU - TU and HTU - HTU.

Step 6 Compact vertical subtraction with exchanging

52 - 27 =

	T	U
	5	
	~~6~~	2
-	2	7
	3	5

Children need to make the first number using Diennes. They will need to exchange one ten for ten units. From there they can physically take away the second number.
(see example left and below)

Extend to HTU - HTU, ThHTU - HTU and ThHTU - ThHTU.

Once children are secure in any of these methods they will need to be provided with opportunities to apply their learning in context (e.g. money, measure and time).