Overview of Subtraction at Hanley St Luke's

- Children at Hanley St Luke's are immersed in a number of different subtraction calculation strategies according to their needs and abilities. The overall aim is to ensure that children will use both written and mental methods to solve problems, choosing their own 'best fit' method. The journey is towards column subtraction and 'borrowing' in written methods, and confidence/ accuracy when mentally subtracting.

- Children working at P levels will use visual pictures and objects to 'take away' and answer questions such as 'How many are left?', 'What is the difference between..?' 'Can you take 1 away?' and so on. They should understand subtraction as 'take away' and find a 'difference' by counting up.

- The mental methods that lead to column subtraction generally involve counting back in single digit numbers, leading onto counting back in multiples of 10, possibly using a number square. Children find subtraction difficult particularly when they are introduced to column methods at an early stage when they are not ready for it. With continued practice and reinforcement, children will become very comfortable using counting on methods on a number line which will provide a solid base to move on to more difficult concepts.

## Taking away groups of objects and pictures

Children physically take away items from groups of objects i.e. teddy bears, numicon, counters or other sorting objects. They would then move on to subtracting with pictures through drawing, matching and cut and paste activities. Encourage the use of correct vocabulary with questions such as: What am I left with if I take 1 away? How many are left? Can you make a display/ draw a picture to show this number sentence?
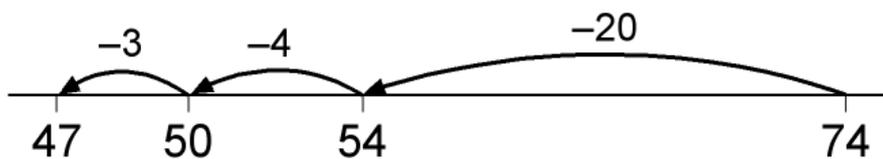
Counting backwards using line the number line.

This should be the first stage as children can see that the number is getting less as they count back.

Example 1: 15 - 7 = 8
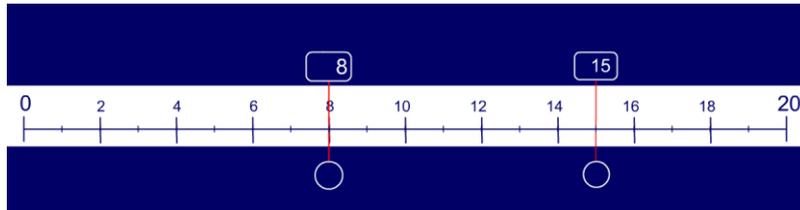
Example 2: 74 - 27 = 47

The steps backwards may be recorded in any order, the number line works from the **right**, in reverse to the addition number line which works from the left to ensure the children see the number is getting smaller.

Counting backwards using the number square

Example 3: 15-7=8

Example 4: 74-27=47

| 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

Counting on method

The mental method of counting up from the smaller to the larger number can be recorded using number lines. Children usually find it easiest to make the first jump to the next 10. The number of jumps will vary. For some children, they will find it comfortable to make only two jumps along the line. Others will need more. Children usually find it easiest to make the first jump to the next 10.
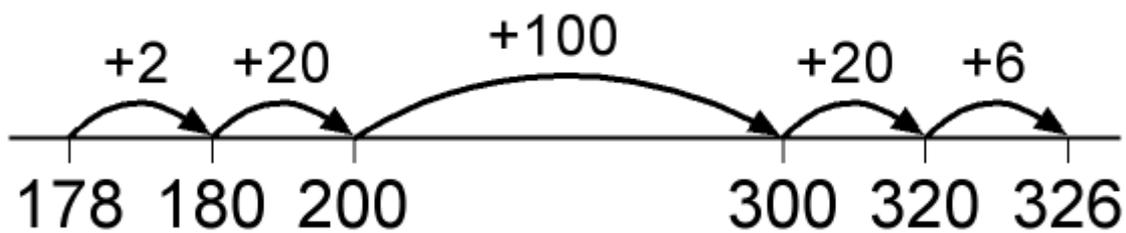
Example 5: 74 - 27=47
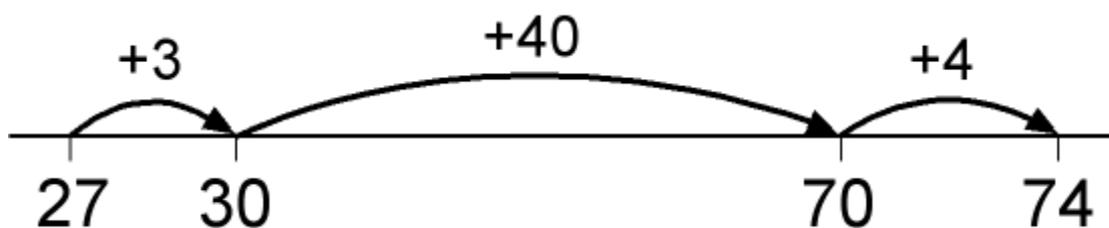
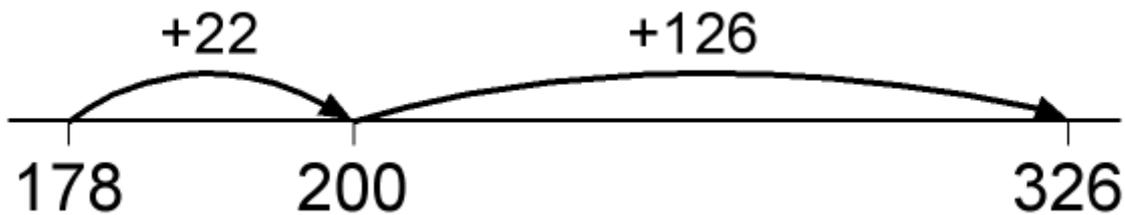Others will need less jumps, especially when they become confident with the method.
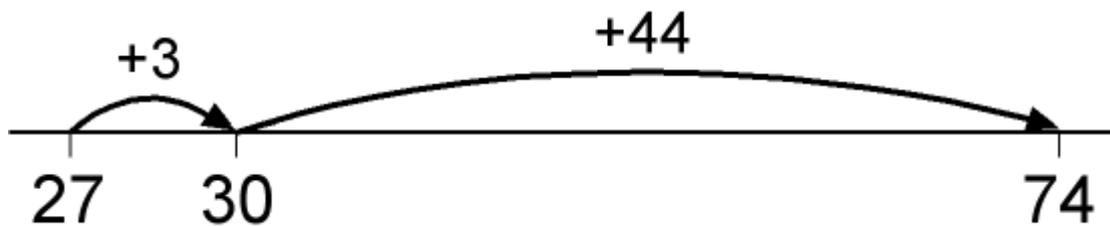
For 3 digit numbers:

Example 6: 326 - 178= 148

leading to:

<u>Compact Column Subtraction</u>

$$
\begin{array}{r}
1\,4 \\
-\ 2 \\
\hline
1\,2
\end{array}
$$

Start on the right hand side and subtract the bottom number from the top number.

Leading to:

14

- 12

2

This will then lead to 'borrowing' or 'taking' numbers from the column previous or 'next door':

5 1

6̶8

- 49

19

Here the six has been crossed out and changed to a 5, the value that we have taken is placed in to the next column, here 8 becomes 18. Ensure children know that you are not always taking 1, but 10, 100 and so on depending on the calculation.

The 'changed' values should always be written above the number in the correct column.

The same rule applies when subtracting larger numbers where 0 is a place holder. In this case you would need to take from the hundreds column, to give to the tens column, to give to the units column.

$$5 \; \not{7} \; 9 \; 1$$

$$\begin{array}{r} 6 \not{0} \not{8} \\ - \underline{1 4 9} \\ 4 5 9 \end{array}$$

These methods can be applied to calculations with **any number of digits** and decimal numbers, including numbers with different number of digits. Also with units such as pounds and pence, grams and kilograms, litres and millilitres etc. E.g. 6456-29=

Missing Number/ Equal sign as a Balance

Children should always be used to seeing subtraction calculations in a variety of different ways, including the understanding of the role of the equals sign as a balance. Missing numbers need to be placed in all possible places.

$9 - 4 = \square$ $\qquad$ $\square = 13 - 4$

$3 - \square = 6$ $\qquad$ $8 = \square - 4$

$\square - 4 = 7$ $\qquad$ $19 = 3 - \square$

$\square - \nabla = 7$ $\qquad$ $7 = \square - \nabla$

Worded Problems

Children should be used to using and applying their subtraction skills in a number of different ways and, where relevant in other areas of the curriculum. They should be able to recognise the vocabulary of subtraction and solve problems using age and ability appropriate methods.

Robert build a tower with 9 floors. Cian took 2 floors off the tower. How many floors were remaining on Robert's tower?

Robin washed five big juicy strawberries and Mary ate two of them. How many strawberries were left?

A water ride has room for 4 people to slide down. If Luca and Ben were the only 2 on the ride, how many empty slides were there?

The farmer let 10 chickens out of the chicken coop in the morning. In the evening only 3 chickens came back! How many chickens did the farmer have to look for?