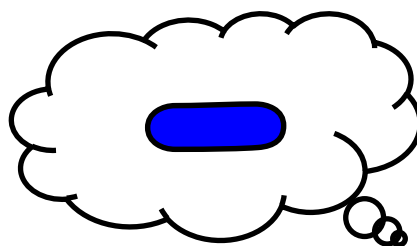


Progression in Teaching Subtraction

Mental Skills

- Recognise the size and position of numbers
- Count back in ones and tens
- Know number facts for all numbers to 20
- Subtract multiples of 10 from any number
- Partition and recombine numbers (only partition the number to be subtracted)
- Bridge through 10



Models and Images

Place value apparatus

Place value cards

Number tracks

Numbered number lines

Marked but unnumbered lines

Hundred square

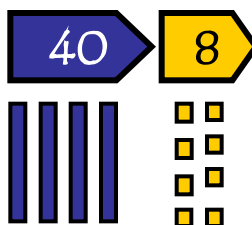
Empty number lines.

Counting stick

Bead strings

Models and Images Charts

ITPs - Number Facts, Counting on and back in ones and tens, Difference



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



Key Vocabulary

Subtract

Take away

Minus

Count back

Less


Fewer

Difference between

count back take away
fewer subtract
minus less
difference between

Begin to count backwards in familiar contexts such as number rhymes or stories

Five fat sausages frying in a pan ...



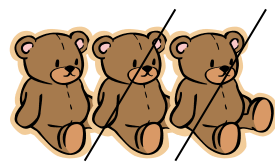
Ten green bottles hanging on the wall ...



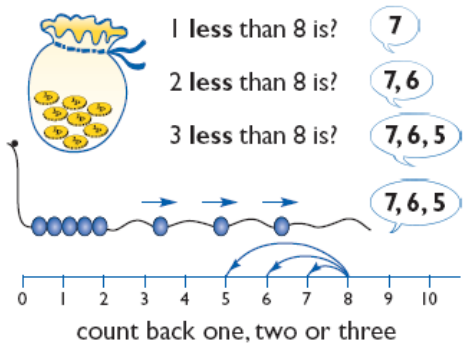
10, 9, 8, 7, ...

Continue the count back in ones from any given number

Begin to relate subtraction to 'taking away'



Three teddies take away two teddies leaves one teddy



1 less than 8 is? 7

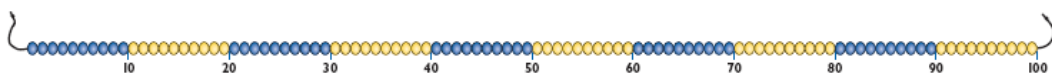
2 less than 8 is? 7, 6

3 less than 8 is? 7, 6, 5

7, 6, 5

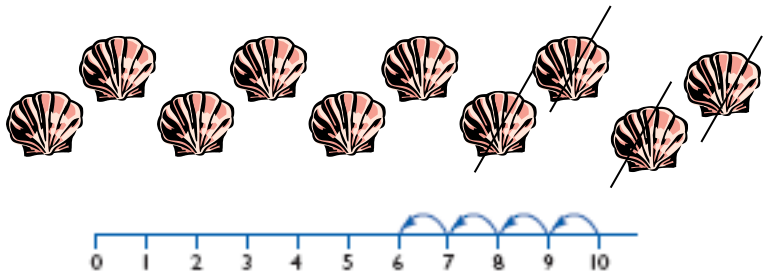
count back one, two or three

Find one less than a number



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

Count back in tens

If I take away four shells there are six left

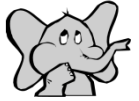
Count backwards along a number line to 'take away'

Begin to use the - and = signs to record mental calculations in a number sentence

Maria had six sweets and she ate four. How many did she have left?



?



$$6 - 4 = 2$$



$$6 + ? = 10$$

$$10 - 6 = ?$$

$$? + 6 = 10$$

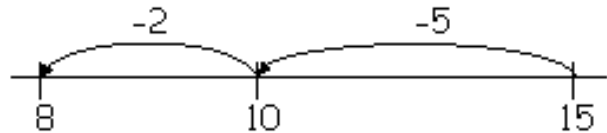
$$10 - 4 = 6$$

$20 = 12 + 8$	$8 + 12 = 20$
$20 - 8 = 12$	$20 - 12 = 8$

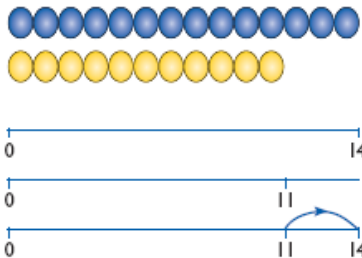
Know by heart subtraction facts for numbers up to 10 and 20

$$15 - 7 = 8$$

Subtract single digit numbers often bridging through 10



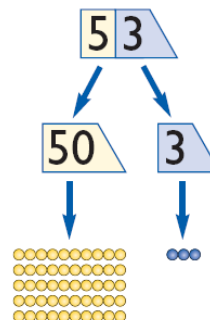
The difference is?



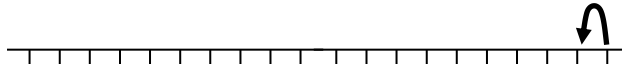
The difference between 11 and 14 is 3.
 $14 - 11 = 3$
 $11 + \square = 14$

Begin to find the difference by counting up from the smallest number

Begin to partition numbers in order to take away



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

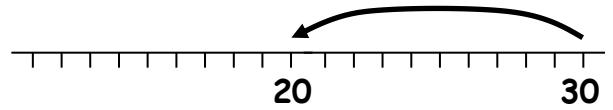


$$45 - 1$$

Subtract 1 from a two-digit number

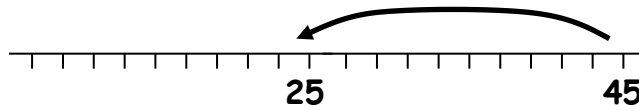
Subtract 10 from a two-digit number

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

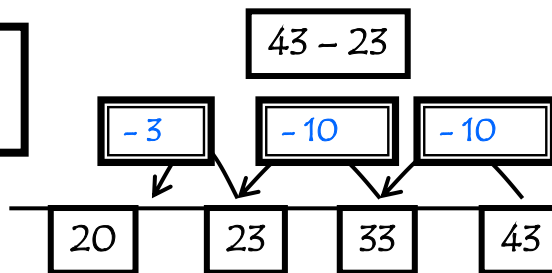


Subtract multiples of 10 from any number

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



Partition the number to be subtracted (no exchanging)



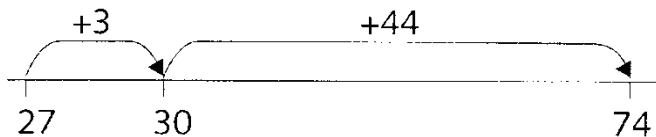
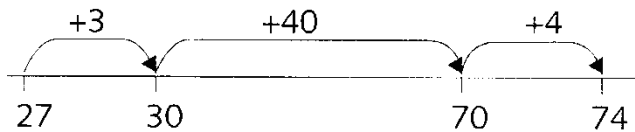
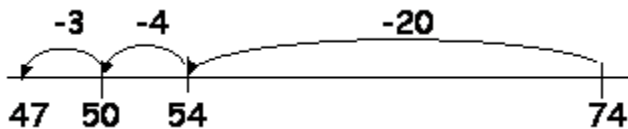
$$43 - 20 = 23$$

$$23 - 3 = 20$$

Decide whether to count on or count back

$$74 - 27 = 47$$

Now where's the answer?



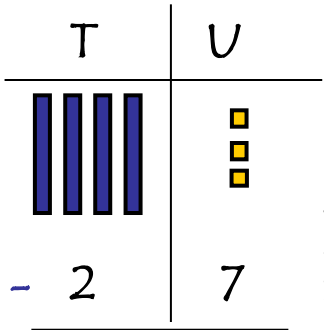
Partitioning number to be subtracted - with exchanging (links to counting back on number line)

$$43 - 27 = 16$$



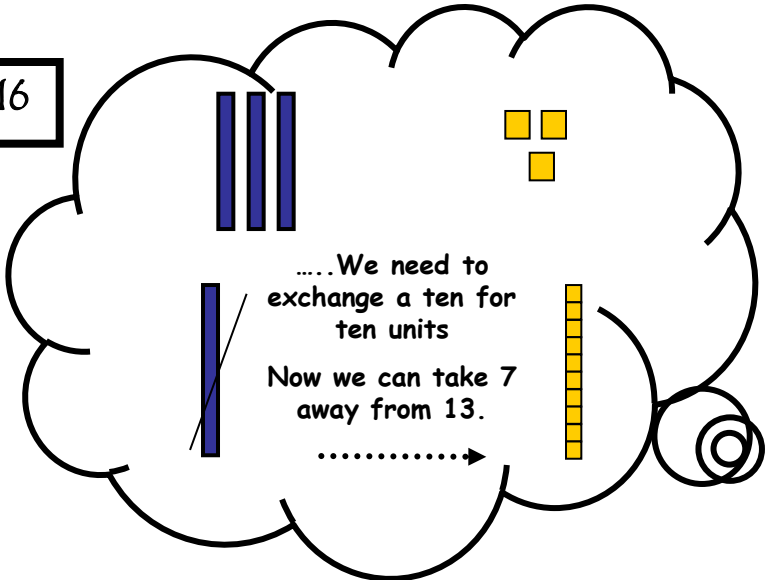
$$43 - 20 = 23$$

$$23 - 7 = 16$$



$$43 - 27 = 16$$

Taking 7 away from 3 is **IMPOSSIBLE!**
So....



T	U
30	
40	¹ 3
- 20	7
10	+ 6

Expanded column subtraction method

It is important that the children have a good understanding of place value and partitioning using practical resources such as Dienes (hundreds, ten sticks and unit cubes), counters and visual images to support calculations. The expanded method enables children to see what happens to numbers in compact column subtraction.

Compact column subtraction

The previous stages reinforce what happens to numbers when they are subtracted using more formal written methods. It is important that the children have a good understanding of place value and partitioning.

$$\begin{array}{r}
 3 \\
 \cancel{4}^1 3 \\
 - 27 \\
 \hline
 16
 \end{array}$$