PROGRESSION IN WRITTEN ADDITION

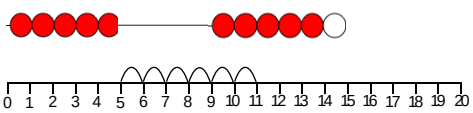
Pre-learning 1

Practical and informal written methods using concrete objects and pictorial representations

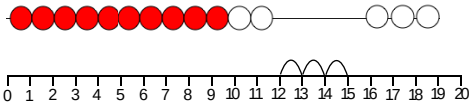
Practical addition
(see Models and Images poster)

Add one-digit and two-digit numbers to 20, including zero:

5 + 6 = 11



12 + 3 = 15



Number sentences presented in different ways:

17 + 3 = 20

20 = 17 + 3

17 + ☐ = 20

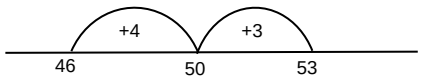
☐ + 3 = 20

Pre-learning 2

TU+U, TU+T & TU+TU using concrete objects, pictorial representations and mentally

Two-digit + ones
(model on a bead string, number line and hundred square)

46 + 7 = 46 + 4 + 3
= 53



Two-digit + tens
(model on a bead string, number line and hundred square)

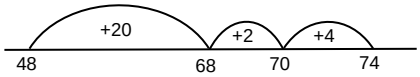
Counting on in tens from different starting points:
3, 13, 23, 33, 43, 53, …
47, 57, 67, 77, 87, …

3 + 50 = 53
47 + 40 = 87

Two-digit + two-digit
(model on a bead string, number line and using base ten blocks)

Partition the smaller number, add the tens, add the units:

48 + 26 = 48 + 20 + 6
= 68 + 6
= 74



Column addition
(model using base ten blocks)

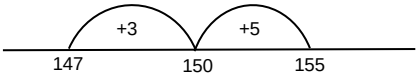
35 + 58 = 30 + 5
+ 50 + 8
80 + 13 = 93

Y3

HTU+U, HTU+T, HTU+H & HTU+TU using concrete objects, pictorial representations and mentally, leading to a written method for HTU+HTU

Three-digit + ones
(model on a number line and using base ten blocks)

147 + 8 = 147 + 3 + 5
= 155



Three-digit + tens or hundreds
(model on a number line and using base ten blocks)

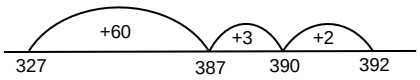
Counting on in tens or hundreds:
163, 173, 183, 193, 203, 213, …
435, 535, 635, 735, …

163 + 50 = 213
435 + 300 = 735

Three-digit + two-digit (including money)
(model on a number line and using base ten blocks or coins)

Partition the smaller number, add the tens, add the units:

327 + 65 = 327 + 60 + 5
= 387 + 5
= 392



Three-digit + three-digit column addition
(model using base ten blocks)

465 + 258 = 400 + 60 + 5
+ 200 + 50 + 8
600 + 110 + 13 = 723

Y4

Column written method for HTU+HTU & ThHTU+ThHTU

Column addition
(model using base ten blocks)

789 + 642 = 789
+ 642
1431
1 1

Leading to larger numbers:

1456 + 1738 = 1456
+ 1738
3194
1 1

Money
(model using base ten blocks and coins)

£4.21 + £3.87 = 4.21
+ 3.87
£8.08
1

Mental calculations

Make decisions about when it is appropriate to calculate mentally (with jottings if necessary).

647 + 230 = 647 + 200 + 30
= 877

3536 + 1300 = 3536 + 1000 + 300
= 4836

Y5

Column written method for numbers with more than 4 digits and decimals

Column addition

68742 + 9449 = 68742
+ 9449
78191
1 1 1

Decimals

68.74 + 4.708 = 68.74
+ 4.708
73.448
1 1

Mental calculations

Make decisions about when it is appropriate to calculate mentally (with jottings if necessary).

14037 + 640 = 14037 + 600 + 40
= 14677

23565 + 15000 = 23565 + 10000 + 5000
= 38565

Y6

Column written method for numbers with more than 4 digits and decimals

Practise the formal written method of columnar addition with larger numbers and decimals with differing numbers of decimal places.