St Anne's Catholic Primary School Nantwich
Calculation Policy for ADDITION and SUBTRACTION

Year 1 Approaches to written methods: ADDITION

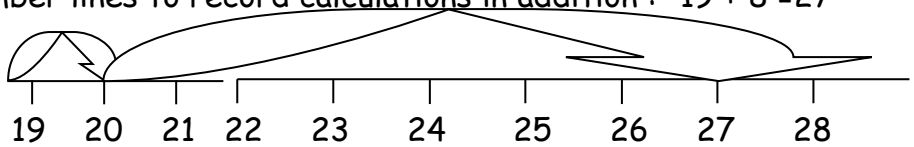
AIMS

Use of number tracks and marked number lines to support calculations.
Begin to understand the add, subtract and equals signs and record mental calculations in a number sentence :

4 + 3=7
7 – 3=4
Begin to recognise symbols such as   to stand for an unknown number.

Top

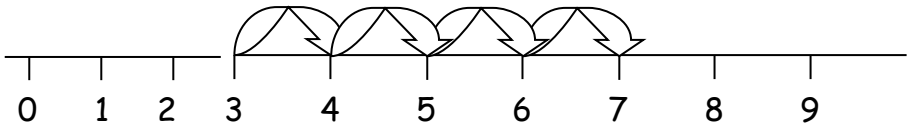
Use **marked** number lines to record calculations in addition :- 19 + 8 =27



19 + 1 + 7 = 27

Upper Middle

Use **marked** number lines and number tracks to support with mental calculations ie : 3 + 4 =7



Lower Middle

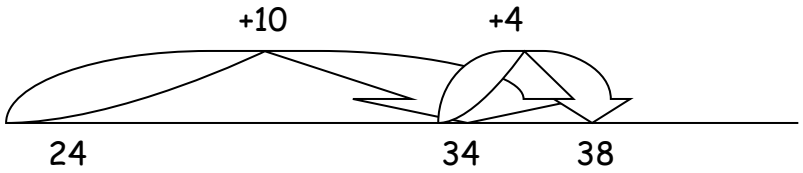
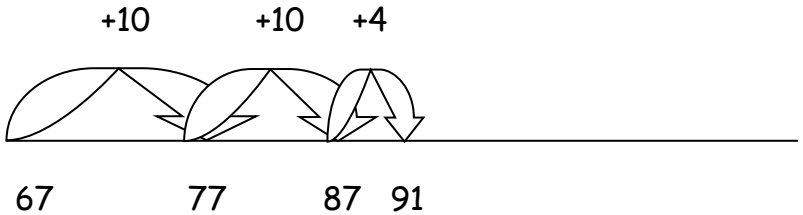
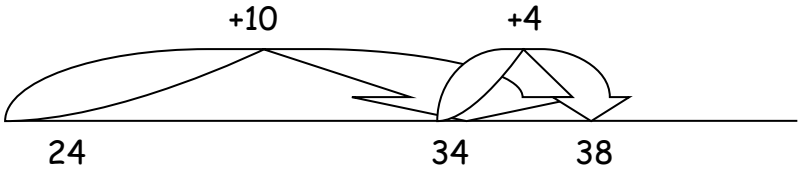
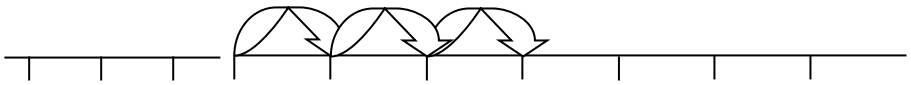
Using visual representations and practical equipment such as number tracks and counters/ cubes to solve simple calculations in addition

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Special Needs

Using number tracks and practical equipment to recognise and order numbers and find the value of 1 more than.

Year 2 Approaches to written methods: ADDITION

AIMS	To use empty and marked number lines to record calculation strategies in addition and begin to record mental calculations using partitioning and recombining skills. 24 + 14 = (20 + 10) + (4 + 4) = 38 
Top	To use **empty** and **marked** number lines to record calculation strategies in addition and begin to record mental calculations using partitioning and recombining skills working with 2 digit numbers and extend to crossing the tens barrier.  67 + 24 = 91
Upper Middle	To use **empty** and **marked** number lines to record calculation strategies in addition and begin to record mental calculations using partitioning and recombining skills without crossing the tens barrier. 24 + 14 = (20 + 10) + (4 + 4) = 38 
Lower Middle	Use **marked** number lines and number tracks to support with mental calculations ie : 4 + 3 =7 

	1 2 3 4 5 6 7 8 9 10
Special Needs	Using visual representations and practical equipment such as number tracks and counters/ cubes to solve simple calculations in addition. Record using own pictorial representations. **1 2 3 4 5 6 7 8 9 10** **3 + 2 = 5** 

Year 3 Approaches to written methods: ADDITION

AIMS

Most children to use informal pencil and paper methods to add HTU and TU. **FRAMEWORK Section 5 P.43**
Using the number line (**Method 1)** to count on in multiples of 100, 10 and 1 and then progressing to adding the most significant digit first (**Method 2)**

Method 1

86 + 57 = 86 + 50 + 7

+50 +7

86 136 143

[allow children to choose most appropriate jumps along the number line]

Method 2

86 + 57 = (80 + 50) + (6 + 7)
= 130 + 13
= 143

86
+57
130
13
143

Top	TU + TU	HTU + TU	progressing to Method 2 adding most significant digit first.
Upper Middle	TU + TU	HTU + TU	progressing to Method 2 adding most significant digit first
Lower Middle	TU + TU		progressing to Method 2 adding most significant digit first
Special Needs	Using number line only		

Year 4 Approaches to written methods: ADDITION

AIMS	Use pencil and paper methods to support, record or explain calculations. Where calculations are set out in columns use place value correctly (units under units, tens under tens etc) Where appropriate begin to develop a standard written method[See framework Section 6 P.48 Method C]
Top	Use Method 2 (from Year 3) moving on to adding most and then least significant digits first. Then progressing to exchanging units, then tens, then both [See framework Section 6 P.48 Method C] : 358 + 73 = 300 + 120 + 11 = 431 625 + 48 = 673 (exchange units) 783 + 42 = 825 (exchange tens) 367 + 85 = 452 (exchange both)
Upper Middle	Use Method 2 (from Year 3) Progressing from adding most significant digits first, to then adding least significant digits first. Then move to exchanging units then tens (not both).
Lower Middle	Use Method 2 (from Year 3). Progressing from adding most significant digits first, to then adding least significant digits first.
Special Needs	TU + TU using Method 2 (from Year 3)

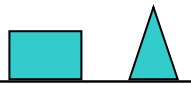
Year 5 Approaches to written methods: ADDITION	
AIMS	Use pencil and paper methods to support, record or explain calculations. Where calculations are set out in columns use place value correctly (units under units, tens under tens etc) Continue to develop a standard written method [See framework Section 6 P.49 Method C] and begin to develop this method with lower ability children [See framework Section 6 P.48 Method C]
Top	ThHTU + ThHTU using standard written method with exchanging. Introduce the process with any number of digits and decimals.
Upper Middle	HTU + HTU exchanging all digits. Progressing to ThHTU + ThHTU. Introduce process with decimals (to 1 d.p. moving to 2 d.p.) e.g. 1) 5.2 + 3.4 no exchanging of tenths e.g. 2) 32.5 Km + 54.6 Km exchanging tenths e.g. 3) £6.72 + £8.56 + £2.33 exchanging of both tenths and hundredths
Lower Middle	HTU + HTU adding most significant digits first. Progress to exchanging.
Special Needs	Use Method 2. Progressing from adding most significant digits first, to then adding least significant digits first: HTU + HTU (Introduce exchanging)

Year 6 Approaches to written methods: ADDITION	
AIMS	Use pencil and paper methods to support, record or explain calculations. Where calculations are set out in columns use place value correctly (units under units, tens under tens etc) Continue to develop a standard written method[See framework Section 6 P.49 Method C] Where appropriate extend this method to any number of digits and decimals. 7648 + 1486 9134
Top	Continuing with exchanging method. ThHTU + ThHTU, then numbers with any number of digits and decimals.
Upper Middle	Continuing with exchanging method ThHTU + ThHTU, then numbers with any number of digits and decimals.
Lower Middle	Continuing with exchanging method ThHTU + ThHTU, then numbers with any number of digits Use process to add decimals.
Special Needs	Continue with exchanging method progressing to ThHTU + ThHTU

Year 1 Approaches to written methods: SUBTRACTION

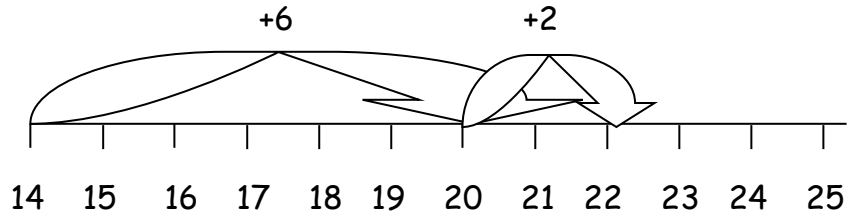
AIMS

Use of number tracks and marked number lines to support calculations.
Begin to understand the add, subtract and equals signs and record mental calculations in a number sentence :

4 + 3=7
7 – 3=4
Begin to recognise symbols such as  to stand for an unknown number.

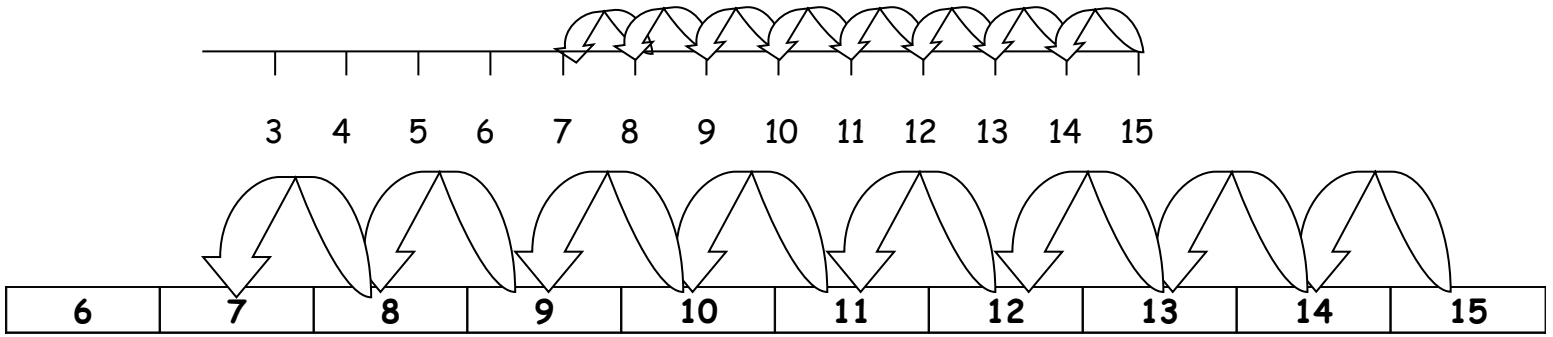
Top

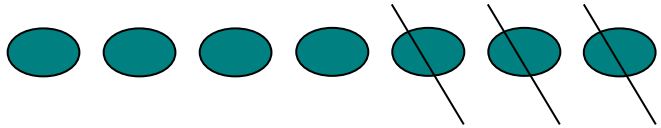
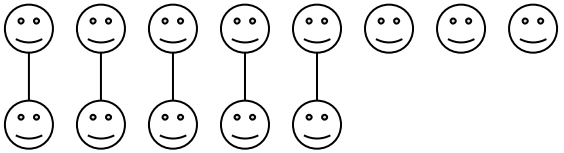
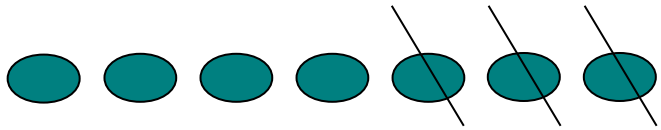
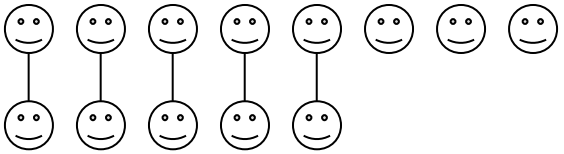
Use marked number lines to record subtraction problems by counting on. For example 22 – 14



Upper Middle

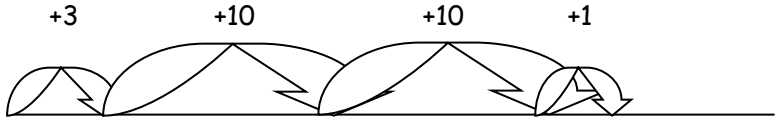
Use of number lines and number tracks to count backwards to solve a problem ie:- 15 - 8



	Using number tracks to solve simple subtraction problems or recording with pictorial representations and numbers. **7 – 3 = 4**  **8-5=3** 
Special Needs	Using number tracks to solve simple subtraction problems or recording with pictorial representations and numbers. **7 – 3 = 4**  **8-5=3** 

Year 2 Approaches to written methods: SUBTRACTION

AIMS	To use empty and marked number lines to record calculation strategies in subtraction and begin to record mental calculations using a counting on method.
Top	Using **empty** number lines to record subtraction calculations by counting on :- 91 - 67

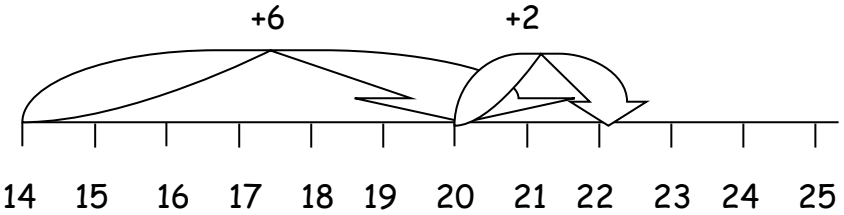


3 + 10 +10 +1 = 24

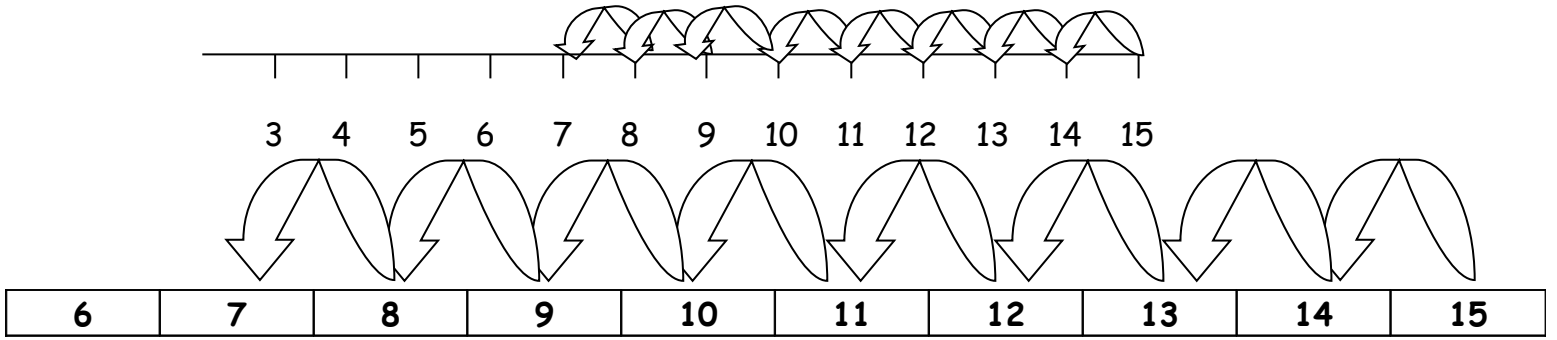
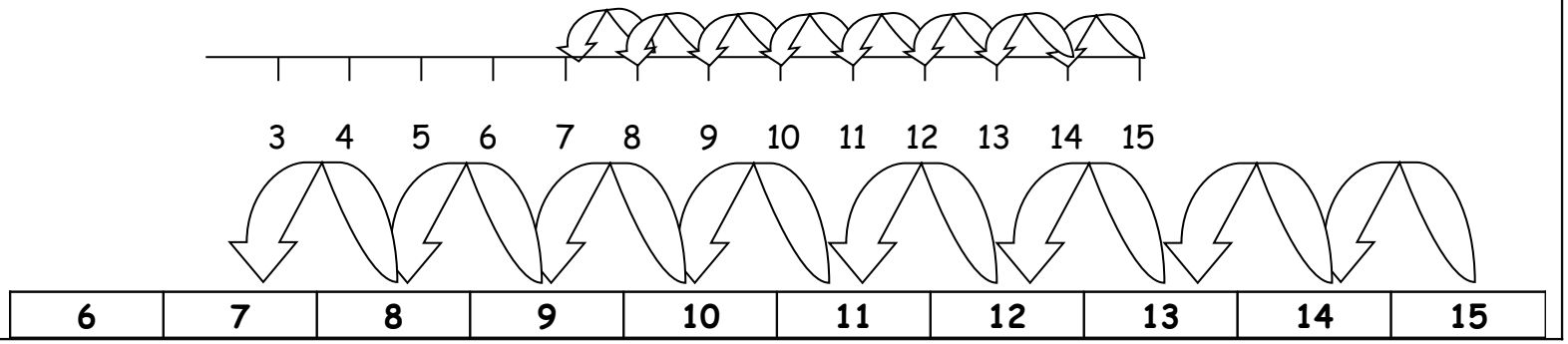
introduce compensatory addition if appropriate: (see Y3)

```
  84
- 56
   4   to 60
  20   to 80
   4   to 84
  28
```

Upper Middle	Use **marked** number lines to record subtraction problems by counting on. For example 22 – 14



22 –14 = 8

Lower Middle	Use of number lines and number tracks to count backwards to solve a problem ie:- 15 - 8 
Special Needs	Use of number lines and number tracks to count backwards to solve a problem ie:- 15 - 8 

Year 3 Approaches to written methods: SUBTRACTION

AIMS

All children will use pencil and paper methods to record partial mental strategies (complementary addition ie. counting up from the smaller to the larger number).

Top

Complementary addition (Framework Section 5 P.45 & Section 6 P.50), recording as follows:-

```
 84
-56
 4   to 60
 20  to 80
 4   to 84
 28
```

language:
count on
count up to
how many more

Upper Middle

Complementary addition (Framework P.45 Section 5), recording as Top group (see above).

Lower Middle

Complementary addition (Framework P.45 Section 5), recording as follows:-

```
   +4          +20          +4
56    60            80          84
```

```
 84
-56
 4   to 60
 20  to 80
 4   to84
 28
```

Special Needs

Complementary addition (Framework P.45 Section 5), recording as follows:-

84 – 56 = 4 + 20 + 4 = 28

```
   +4          +20          +4
56    60            80          84
```

Year 4 Approaches to written methods: SUBTRACTION

AIMS

All children will be able to use **complementary addition** to be able to subtract TU from HTU recording as:-

```
 184
- 56
   4   to 60
  40   to 100
  84   to 184
 128
```

Develop more efficient steps

```
 184
- 56
  44   to 100
  84   to 184
 128
```

Some more able children will begin to use expanded notation, moving towards **decomposition** (Framework section 5 p45, section 6 p50)

```
 81 = 80 and 1 = 70 and 11
-57 = 50 and 7 = 50 and  7
                 20 and 4 = 24
```

language:
exchanging

Top

Use complementary addition to be able to calculate HTU – HTU.
Progress to using more efficient addition steps.

Use decomposition to be able to calculate HTU – TU and then HTU – HTU

Upper Middle

Use complementary addition to be able to calculate HTU – TU and then HTU – HTU.
Progress to using more efficient addition steps.

Use decomposition to be able to calculate HTU – TU

Lower Middle

Use complementary addition only to be able to calculate HTU – TU and then HTU – HTU

Special

Use complementary addition only to be able to calculate HTU – TU and then HTU – HTU

Needs	

Year 5 Approaches to written methods: SUBTRACTION

AIMS	All children will be able to Use **complementary addition** To be able to subtract HTU From ThHTU recording as:- 754 -286 14 to 300 400 to 700 54 to 754 468 The more able children will be able to develop an efficient method (decomposition) 754 = 700 and 50 and 4 -286 - 200 and 80 and 6 = 700 and 40 and 14 - 200 and 80 and 6 = 600 and 140 and 14 - 200 and 80 and 6 400 and 60 and 8 = 468 leading to adjust from T to U 744 - 286 adjust from H to T 644 - 286 468 language: exchanging (not carrying, borrowing, paying back) *Check calculations using rounding and estimation*
Top	Use complementary addition to be able to calculate Th HTU –Th HTU (see method A P.51 Section 6, Year 5 AND Year 6 examples). use decomposition to calculate HTU – HTU and then Th HTU – Th HTU (see method C P.51 Section 6, Year 5 AND Year 6 examples).
Upper Middle	Use complementary addition to be able to calculate Th HTU –Th HTU (see method A P.51 Section 6, Year 5 examples). Use decomposition to be able to calculate HTU – HTU (see method C P.51 Section 6, Year 5 examples).
Lower Middle	Use complementary addition to be able to calculate Th HTU –Th HTU (see method A P.51 Section 6, Year 5 examples).
Special Needs	Use complementary addition to be able to calculate HTU – HTU and then progressing to Th HTU – HTU (see method A P.51 Section 6, Year 5 examples).

Year 6 Approaches to written methods: SUBTRACTION

AIMS	All children will be able to Use complementary addition To be able to subtract ThHTU from ThHTU recording as:- 6467 -2684 16 (2700) 300 (3000) 3467 (6467) 3783 The more able children will be able to develop an efficient method (decomposition) 6467 - 2684 3783 Use language exchanging, (not carrying, borrowing, paying back)
Top	Use complementary addition to be able to calculate ThHTU –Th HTU and then with any number of digits (see method A P.51 Section 6, Year 6 examples). Use decomposition to be able to calculate ThHTU – ThHTU, then with any number of digits including decimals (see method C P.51 Section 6, Year 6 examples).
Upper Middle	All use complementary addition to be able to calculate ThHTU –Th HTU and then with any number of digits (see method A P.51 Section 6, Year 6 examples). Some may use decomposition to be able to calculate ThHTU – ThHTU, then with any number of digits including decimals (see method C P.51 Section 6, Year 6 examples).
Lower Middle	Use complementary addition to be able to calculate ThHTU –Th HTU, then with any number of digits (see method A P.51 Section 6, Year 6 examples).
Special Needs	Use complementary addition to be able to calculate ThHTU –Th HTU, then with any number of digits (see method A P.51 Section 6, Year 6 examples).