Lawley Village Academy
Calculation Policy

Market Drayton Town Schools Calculation Policy (Addition and Subtraction)

EYFS

Objectives:

- **22 – 36 months** – Knows that a group of things changes quantity when something is added or taken away.
- **40 – 60 months** – Uses language 'more' or 'fewer' to compare two sets of objects
- **40 – 60 months** – Finds one more or less than a group of objects up to five then ten.
- **40 – 60 months** - In practical activities and discussions uses the vocabulary related to addition and subtraction.
- **ELG** – Using quantities and objects, they add and subtract two single digit numbers and count on or back to find the answer.

NB -

- <u>Use 'take away' when you are taking away objects from sets practically.</u>
- <u>When reading number sentences with 'minus' signs use the vocabulary 'subtract' rather than 'take away'.</u>
- <u>Also see exemplification of ELG11 for more activity ideas.</u>
- <u>Also refer to the Numbers and Patterns progression document</u>

Progression of teaching: (subtracting/counting back)

- **Songs involving counting back** *(VIDEO EY1)*

- **Physically jumping/counting back on number track** *(VIDEO EY2)*

(Lots of practical work to subtract two single digit numbers. Recording will be mainly pictorial.)
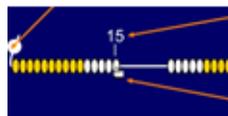- **Taking away with objects arranged randomly** (*VIDEO EY3*)

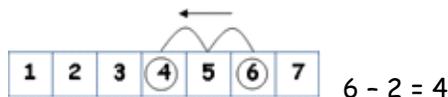*I had 8 sweets, but I gave 3 away to my friend. How many do I have left?*

(also using straws)

  – 5 – 2 = 3

- **Subtraction with objects arranged in a line** *(VIDEO EY4)*

- **Subtraction with cubes arranged in lines of 5's** *(VIDEO EY 5)*
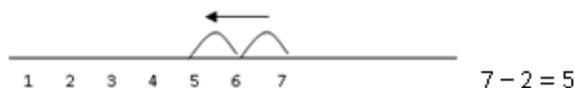
- **ITP number facts (counting back)**

- **Subtraction using number track and compare bears** *(VIDEO EY6)g*

- **Children may use a number track to record subtractions**

  6 – 2 = 4

- **Subtraction using a number line** *(VIDEO EY7)*
(*Beginning with single digit – single digit and moving onto teens number – single digit*)

  7 – 2 = 5

- **Using a hundred square to aid subtraction** *(beginning to use numbers to 20 – also see Year 1 section)*
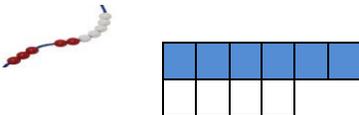
Addition progression of teaching:

- **Practical comparison of two groups of objects**

e.g. There are 6 girls and 4 boys playing outside. How many children are playing altogether?
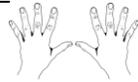
(Line pupils up to show the total, progress to representing with small world toys, cubes etc)

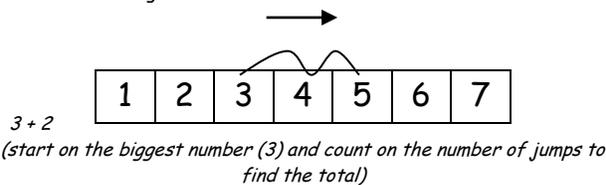- **Finding totals of small world toys (elephants and bears) how many altogether?**

- **Representing 'how many altogether' questions with a variety of counting equipment (see above too) CLIC ADDITION STEP 4**

There are three cakes with cherries and 2 cakes without. How many children can have a cake?

- Children may use a number track to record addition by counting on.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

3 + 2
(start on the biggest number (3) and count on the number of jumps to find the total)

- **Addition using a number line by counting on (with numbers drawn on first moving to children drawing their own. CLIC ADDITION STEP 9**

1 2 3 4 5 6
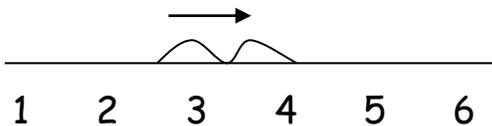
- **What numbers when they are added together make x?**

(4 + 5 = 9)

- **Addition using money**

*(start on largest number (5) and count up to 7 to give the answer of 2)*

Subtraction progression of teaching: (counting on/finding the difference)

- **Practical comparison of two groups of objects**

e.g. There are 6 girls and 4 boys playing outside. How many more girls are there than boys?

(Line pupils up to show difference, progress to representing with small world toys, cubes etc)

- **Comparing small world toys (elephants and bears) how many more? (VIDEO EY12)**

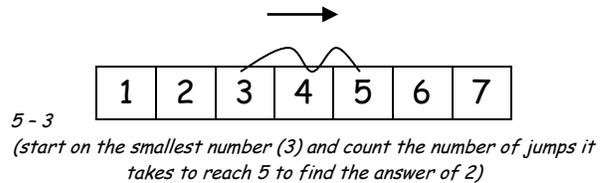- **Representing 'how many more' questions with equipment. How many more cubes? (VIDEO EY13)**
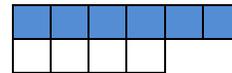
CLIC SUBTRACTION STEP 5
There are 5 friends having tea. They would like a cake each. They only have 3 cakes. How many more cakes do they need?

- **Children may use a number track to record subtractions by counting on. How many more using a number track (VIDEO EY14)**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

5 – 3
(start on the smallest number (3) and count the number of jumps it takes to reach 5 to find the answer of 2)

CLIC SUBTRACTION STEP 9
- **Subtractions using a number line by counting on.**

1 2 3 4 5 6
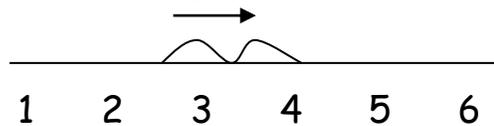
- **Finding the difference between two numbers by comparing two numicon plates**

(9 – 4 = 5)

- **Subtraction by counting on using money**

(start on largest number (5) and count up to 7 to give the answer of 2)

- **Using a hundred square to aid addition** *(beginning to use numbers to 20 – also see Year 1 section)*

  (4 + 3 = 7)

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

- **Using a hundred square to aid subtraction** *(beginning to use numbers to 20 – also see Year 1 section)*

  (7 – 4 = 3)

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

Year 1

Statutory Requirements – Pupils should be taught to:

read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs

represent and use number bonds and related addition and subtraction facts within 20

add and subtract one-digit and two-digit numbers to 20, including zero

solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ – 9.

Finding 10 more or 10 less than a number (local curriculum)

NB –

- <u>Children should be crossing through 10s boundaries in their subtractions</u>
- <u>Children may still need to experience some counting back but should rely on completing subtraction calculations by counting on</u>
- <u>Children understand the operation of subtraction as 'take away', 'difference' and 'how many more to make' and will be taught to count on from the smallest number to find their answer.</u>
- <u>Children need to begin to move away from relying on counting in 1s and move onto groups of 2s, 5s and 10s.</u>
- <u>Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 – 7 = 9; 7 = 16 – 9). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.</u>
- <u>Pupils combine and increase numbers, counting forwards and backwards.</u>
- <u>They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.</u>

- **Using known number facts to calculate. Children can find number bonds using a mobile phone keypad and spotting the pattern in the pairs of numbers totalling 10.**

<u>CLIC LEARN ITS STEP 4</u>

- Once secure with bonds to 10 calculate bonds to numbers between 1 and 10, then 20. **CLIC ADDITION STEP 12**
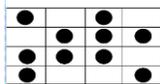
- **Counting 14 cubes or beadstring in 1s in line and adding in 1s** *(then starting from the smallest number and counting on)*

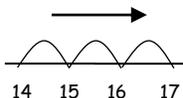- **Counting 14 cubes or beadstring in 5 s and adding in 1's**

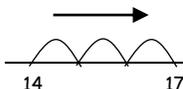14 + 3   or other counting equipment e.g. straws

- **Counting on in 1s on graduated number line**
e.g. I have 14 sweets and my friend has 3. How many do we have altogether? Model counting on from 14 to 17.

14 15 16 17

- **Counting on in 1s and drawing own number line**
e.g. Children should use a number line to show addition by jumping along the number line.

14   17

- **Counting 14 cubes in 1s in line and subtracting in 1s** *(VIDEO YR102)* *(then starting from the smallest number and counting on)*
- **Counting 14 cubes in 5 s and subtracting in 1's** *(VIDEO YR103 / YR104)*

<u>CLIC SUBTRACTION STEP 12</u>

14 – 5   or other counting equipment e.g. straws

- **Count 14 onto bead string in 1s and subtract in 1s** *(VIDEO YR105)*
(then working on counting on to find the difference (VIDEO YR114))
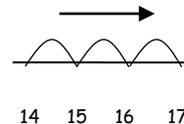- **Count 14 onto bead string in 10s and 1s then subtract in 1s** *(VIDEO YR106)*
(then working on counting on to find the difference (VIDEO YR115))
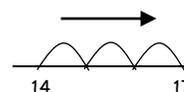
- **Counting on in 1s on graduated number line**
e.g. I have 14 sweets and my friend has 17. How many more does my friend have? (model counting on from 14 to 17 relating to inverse operation, 14 + 3 = 17)

14 15 16 17

- **Counting on in 1s and drawing own number line** *(VIDEO YR117)*
e.g. Children should use a number line to show subtractions as finding the difference.

14   17

- **Finding the difference using bead strings and number lines together** *(VIDEO YR116)*

- **Using known number facts to calculate** *(VIDEO YR111)*

Then we know that 4 + 3 = 7 so 14 + 3 = 17

- **Horizontal recording as number sentences, using + and =.** Using ⬚ or △ symbols to stand for an unknown number, e.g. 4 + ⬚ = 7.

- **Inverse – relating addition and subtraction (3+4=7, 7-3=4)** *(VIDEO YR113)*

e.g. Joe wants to buy a Lego set. He has saved £18 so far and his mum gives him £3 more. How did the Lego set cost altogether?

- **Using numicon plates to find totals of two or three single digit numbers.**

- **Addition by counting on supported by 100 square** (two digit number add a one digit number)
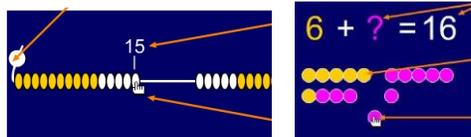

- **Solving real life problems involving measures**

e.g. A sunflower grew 12 cm in the first week and then 5 cm in the second week. How tall is the sunflower?

12cm + 5 cm = 17cm

- ITPs such as counting on/back and number facts

- **Horizontal recording as number sentences, using - and =.** Using ⬚ or △ symbols to stand for an unknown number, e.g. 7 - ⬚ = 4.

- **Inverse – relating addition and subtraction (3+4=7, 7-3=4)** *(VIDEO YR113)*

e.g. Joe wants to buy a Lego set for £21. He has saved £18 so far. How much more does he need to save to buy it?

- **ITP difference** (to aid subtraction) or practical equipment such as Numicon

 or
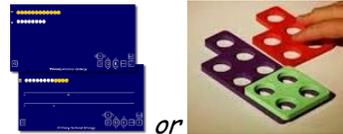
- **Subtraction by counting on supported by 100 square** (two digit number subtract a one digit number)

- **Solving real life problems involving measures**

e.g. How much taller is sunflower a than sunflower b?

14cm – 9 cm = 5cm

OR

'There are 37 bean bags. Kim takes 10. How many are left?'

Year 2

Statutory Requirements – Pupils should be taught to:

solve problems with addition and subtraction:

- using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- applying their increasing knowledge of mental and written methods

recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100

add and subtract numbers using concrete objects, pictorial representations, and mentally, including:

- a two-digit number and ones
- a two-digit number and tens
- two two-digit numbers
- adding three one-digit numbers

show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot (family of four)

recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

- Finds multiples of 10 more and 10 less (local curriculum)

NB –

- **Children understand that subtraction cannot be done in any order. They understand that subtraction is the inverse of addition.**
- **Exchange word will provide children with a good foundation for decomposition in future years.**
- **Children will be able to check their calculations by the end of the year using addition to support this e.g. 47 – 23 = 24 check this calculation by completing 24 + 23 = 47**
- **Pupils extend their understanding of the language of addition and subtraction to include sum and difference.**
- **Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using 3 + 7 = 10; 10 – 7 = 3 and 7 = 10 – 3 to calculate 30 + 70 = 100; 100 – 70 = 30 and 70 = 100 – 30. They check their calculations, including by adding**

to check subtraction and adding numbers in a different order to check addition (for example, 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5). This establishes commutativity and associativity of addition.

- Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.
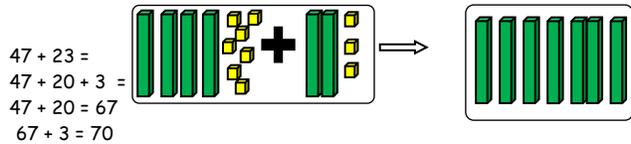

- **Continue with 2 digit + 1 digit (CLIC ADDITION STEP 17) then moving onto 2 digit + 2 digit calculations**

e.g. There are 27 children at a party. 12 more came to the party. How many were at the party altogether?

Practical subtraction using a variety of mathematical equipment such

as straws, beadstrings big base a**nd diennes**
NB – only partitioning one number

47 + 23 =
47 + 20 + 3 =
47 + 20 = 67
67 + 3 = 70

CLIC ADDITION STEP 25

- **Using a hundred square to count on**

- **Children should use a number line to show addition.** They should start from the lower number and count up to the larger number and use their number bonds to support this.

+ 2   + 3   = 5

48   49   50   51   52   53
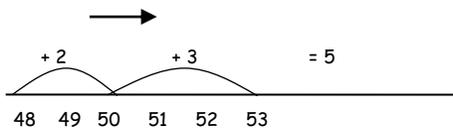
48 + 5 = 53   this means   48 + 2 + 3 = 53

e.g. I have 36p in my purse. I was give 14p more. How much do I now have altogether? (Encourage children to count on in groups of 10)

- **Jumping to the nearest 10 and counting on**

+ 4   + 10   = 14

36   40   50

e.g. In a school, there are 79 boys and 94 girls. How children are there altogether?

+ 6   + 70   + 3   = 18

94   100   170   173

e.g. I have a piece of string 81cm long. If I cut off a piece that is 37cm long, how much will be left?

- **Continue with 2 digit – 1 digit then moving onto 2 digit – 2 digit calculations**

e.g. There are 53 children coming to a party. They can each have a balloon to take home. I have blown up 48 balloons so far. How many more do I need?

Practical subtraction using a variety of mathematical equipment such

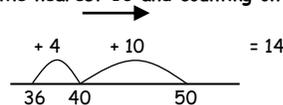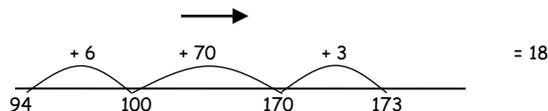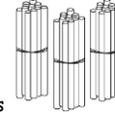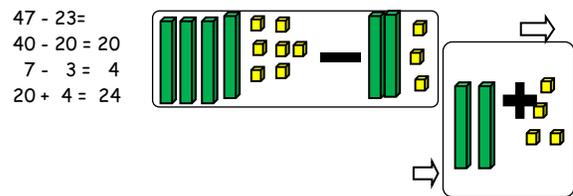as straws, big base and diennes
NB – only partitioning one number

47 - 23=
40 - 20 = 20
 7 - 3 = 4
20 + 4 = 24

CLIC SUBTRACTION STEP 24

- **Begin using a hundred square to count on** *(VIDEO YR210)*

- **Children should use a number line to show subtractions.** They should start from the lower number and count up to the larger number and use their number bonds to support this.

+ 2   + 3   = 5

48   49   50   51   52   53

48 + 2 + 3 = 53 which means that 53 – 48 = 5 **See** *(VIDEO YR211)*

- **Difference between 48 and 53 drawing own number line** *(VIDEO YR212)*

e.g. I have 50p pocket money. If I spent 36p, how much will I have left? 50 - 36 =

CLIC SUBTRACTION STEP 21

- **Jumping to the nearest 10 and counting on** *(VIDEO YR213)*
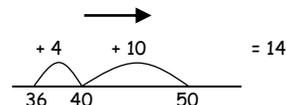
+ 4   + 10   = 14

36   40   50

- Children should use a number line to show subtractions. They should start from the lower number on the number line and count up to the larger number.

e.g. In a school, there are 76 boys and 94 girls. How many more girls are there than boys?

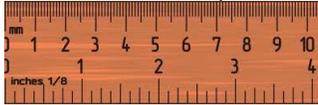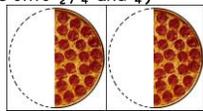+9   + 20   + 8

81   90   110   118
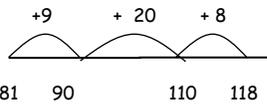
- **Teaching addition using standard measures (length, weight, capacity, time)** e.g. adding two lengths of ribbon together around the Christmas present 27cm + 65 cm

- **Fractions in practical activities and moving onto recording this** e.g. I have a whole pizza and eat half. How much is left? (move onto $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$)

    ($\frac{1}{2}$ + $\frac{1}{2}$ = 1)

- Using money to calculate ie 50p + 23p = ?p

+ 4   + 10   + 4   = 18

76   80   90   94

e.g. I have a piece of string 81cm long. If I cut off a piece that is 77cm long, how much will be left?

+ 3   + 1   = 4

77   80   81

- **Teaching subtraction using standard measures (length, weight, capacity, time)** e.g. difference between 17cm and 22cm   *(VIDEO YR214)*
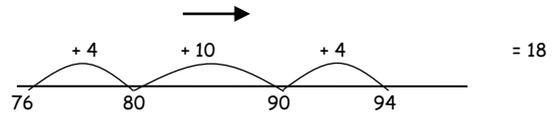
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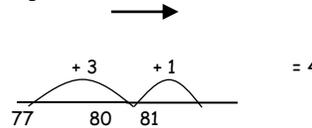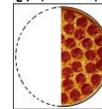
    (1 – $\frac{1}{2}$ = $\frac{1}{2}$)

- Using money to calculate ie 90p – 23p = ?

Year 3

Statutory Requirements – Pupils should be taught to:

add and subtract numbers mentally, including:

- a three-digit number and ones
- a three-digit number and tens
- a three-digit number and hundreds

add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

estimate the answer to a calculation and use inverse operations to check answers

solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7}$ + $\frac{1}{7}$ = $\frac{6}{7}$]

add and subtract amounts of money to give change, using both £ and p in practical contexts

NB –

- Children are encouraged to estimate before calculating
- They will use informal pencil and paper methods to support subtraction. They will begin to use column subtraction for TU – TU, then HTU – TU or HTU – HTU, where the calculation cannot easily be done mentally
- Use vocabulary 'exchanging' rather than 'borrowing'
- Pupils practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100.

- Pupils use their understanding of place value and partitioning, and practise using columnar addition and subtraction with increasingly large numbers up to three digits to become fluent

- Practical work to add a 2 digit number to a 3 digit number e.g 187 + 51 = (using diennes, straws etc). (Moving to 3 digit + 3 digit)

CLIC ADDITION STEP 26

or

- **Using place value knowledge to begin written calculations** e.g. 187 – 51 =

$$187 + 51 = \quad 180 + 7$$
$$- \quad \underline{50 + 1}$$
$$\underline{230 + 8} \quad = 238$$

- **Extending to**

$$187$$
$$+ \underline{51}$$
$$\underline{238}$$

- **Using money e.g.** I had £2 and I spent £1.56 on seeds for my garden. How much change will I get? (involving conversion of £ to p)

- Similar progression of calculations for 3 + 3 digit numbers e.g.

$$689$$
$$+ \underline{242}$$
$$\underline{931}$$
$$ \small{1\ 1}$$

CLIC ADDITION STEP 27

- **Subtracting fractions with the same denominator and subtracting from a whole number e.g.**

$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$$
$$\frac{3}{7} + \frac{5}{7} = \frac{8}{7}$$

- Practical work to subtract a 2 digit number from a 3 digit number e.g 187 – 51 = (using diennes, straws etc). (Moving to 3 digit – 3 digit)

CLIC SUBTRACTION STEP 27

or

- **Using place value knowledge to begin written calculations** e.g. 187 – 51 =

$$187 - 51 = \quad 180 + 7$$
$$- \quad \underline{50 + 1}$$
$$\underline{130 + 6} \quad = 136$$

- **Extending to**

$$187$$
$$- \underline{51}$$
$$\underline{136}$$

CLIC SUBTRACTION STEP 30

- **Using money e.g.** I had £2 and I spent £1.56 on seeds for my garden. How much change will I get? (involving conversion of £ to p)
- **Moving to 3 digit** – 3 digit using counting on method

Children will still need to record this on a number line, counting up from the smaller number:

e.g. The price of a computer is reduced from £767 to £619. By how much is it reduced?

+ 1   + 80   + 67   = £ 148

619   620   700   767
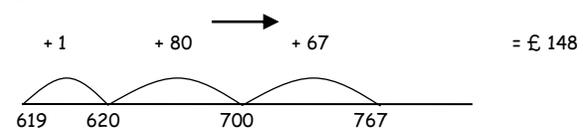
- **Final stage of written method to include some 'exchanging'** e.g. 181 – 57 =

$$181 - 57 = \quad \cancel{180}^{70} + \cancel{1}^{11}$$
$$- \quad \underline{50 + 7}$$
$$\underline{120 + 4} = 124$$

- **Subtracting fractions with the same denominator and subtracting from a whole number e.g.**

$$\frac{4}{5} - \frac{2}{5} = \frac{2}{5}$$
$$1 - \frac{1}{7} = \frac{6}{7}$$
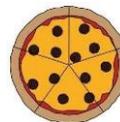
Year 4

Statutory Requirements – Pupils should be taught to:

add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate

estimate and use inverse operations to check answers to a calculation

solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

add and subtract fractions with the same denominator

NB –
- **Children are encouraged to estimate before calculating – they may begin to put an 'E' next to their estimate to show this**
- **They will continue to use informal pencil and paper methods to support subtraction**
- **Children will be refining written methods for subtraction of 2 numbers less than 1000 to begin with and money calculations e.g. £7.85 – £3.49**
- **Children need to progress to using 4 digits when calculating**
- **Pupils continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency**

• Adding 2 three digit numbers using written methods and beginning by estimating	• Subtracting 2 three digit numbers using written methods and beginning by estimating
e.g. There were 563 supporters on the home team and 278 supported the away team, how many were at the football match?	e.g. There were 563 supporters watching a football match. If 278 supported the home team, how many supported the away team?
$563 + 278 \approx 600 + 300 = 900$ (estimate) E	$563 - 278 \approx 600 - 300 = 300$ (estimate) E

CLIC ADDITION STEP 30

- Continue with expanded written form:

$$563 + 278 = \quad 500 + 60 + 3$$
$$+ \; \underline{200 + 70 + 8}$$
$$\underline{700 + 130 + 11} = 841$$

- If children are ready, they will be introduced to a more compact form:

$$\begin{array}{r} 563 \\ + \underline{278} \\ \underline{841} \\ {\scriptstyle 1\;1} \end{array}$$

- **Children are introduced to / continue with the compact form:**

e.g. Kate won £6794. Then she was given another £2867. How much money did she have altogether?

$$\begin{array}{r} 6794 \\ + \underline{2867} \\ \underline{9661} \\ {\scriptstyle 1\;1\;1} \end{array}$$

- Continue with expanded written form:

$$563 - 278 = \quad \overset{400}{\cancel{5}}\overset{150}{0}0 + \overset{13}{6}0^1 + 3$$
$$- \; \underline{200 + 70 + 8}$$
$$\underline{200 + 80 + 5} = 285$$

- If children are ready, they will be introduced to a more compact form:

CLIC SUBTRACTION STEP 32

$$\begin{array}{r} 563 \\ - \underline{278} \\ \underline{285} \end{array}$$

- **Children are introduced to / continue with the compact form:**

e.g. Kate won £6794. She spent £4867. How much did she have left?

$$\begin{array}{r} {\scriptstyle 5\;1\;8\;1} \\ \cancel{6}794 \\ - \underline{4867} \\ \underline{1927} \end{array}$$

Year 5

Statutory Requirements – Pupils should be taught to:

add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

add and subtract numbers mentally with increasingly large numbers

use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

add and subtract fractions with the same denominator and denominators that are multiples of the same number

use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

NB –
- **Children are encouraged to continue estimating (E) before calculating**
- **The will continue to use informal pencil and paper methods to support subtraction.**
- **Children are extending written methods to column subtraction of 2 integers less than 10000.**
- **They will also use this method for subtracting 2 decimal numbers with the same or different number of decimal places.**
- **Understand place value and how 0 can be used to hold value when calculating with decimals**
- **Pupils practise using the formal written methods of columnar addition and subtraction with increasingly large numbers to aid fluency.**
- **They practise mental calculations with increasingly large numbers to aid fluency (for example, 12 462 – 2300 = 10 162).**

• With decimals in a context of money	• With decimals
e.g. Ben bought two toys. One cost £14.65 and the other cost £5.72. How much did they cost altogether?	e.g. Ben had £14.65. He bought a toy for £5.72. How much money does he have left?

CLIC ADDITION STEP 36

$$14.65$$
$$+5.72$$
$$\overline{20.37}$$
<small>1   1</small>

- **Addition with decimals**

e.g. I had £10 pocket money this week and still have £7.63 left from last week. How much do I have altogether?

$$10.00$$
$$+\ 7.63$$
$$\overline{17.63}$$

- **Adding numbers with different numbers of decimal places**

e.g 1.63 + 0.5. Children would be encouraged to fill the 0 place holder -

$$1.63$$
$$+\ 0.50$$
$$\overline{\ 2.13}$$
<small>1</small>

- **Addition of fractions with the same denominator but including whole numbers and fractions of numbers**

$$1\frac{1}{5} + \frac{3}{5} = \frac{6}{5} + \frac{3}{5} = \frac{9}{5}$$

CLIC SUBTRACTION STEP 33

<small>13 1</small>
$$\cancel{14.65}$$
$$-5.72$$
$$\overline{\ 8.93}$$

CLIC SUBTRACTION STEP 34

- **Subtraction with decimals**

e.g. If I pay for a CD costing £7.63 with a £10 note, how much change will I receive?

<small>9 9 1</small>
$$\cancel{10.00}$$
$$-\ 7.63$$
$$\overline{\ 2.37}$$

- **Subtracting numbers with different numbers of decimal places**

e.g 1.63 – 0.5. Children would be encouraged to fill the 0 place holder -

$$1.63$$
$$-\ 0.50$$
$$\overline{\ 1.13}$$

- **Subtraction of fractions with the same denominator but including whole numbers and fractions of numbers**

$$1\frac{1}{5} - \frac{3}{5} = \frac{6}{5} - \frac{3}{5} = \frac{3}{5}$$

Year 6-9

Statutory Requirements for Year 6 National Curriculum– Pupils should be taught to

perform mental calculations, including with mixed operations and large numbers

use their knowledge of the order of operations to carry out calculations involving the four operations

solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

solve problems involving addition, subtraction, multiplication and division

use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

NB –
- <u>Pupils may use the approximation symbol to show their estimation before calculating</u>
- <u>Pupils will continue to use informal pencil and paper methods to support subtraction.</u>
- <u>Pupils will use written methods to subtract numbers with any number of digits. They will also be subtracting 2 decimal numbers with up to four digits and either 1 or 2 decimal places e.g 124.9 – 7.35</u>
- <u>Pupils explore the order of operations using brackets e.g. (2+1) x 3 = 9</u>
- <u>Pupils practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of columnar</u>

- addition and subtraction, short and long multiplication, and short and long division.
- They undertake mental calculations with increasingly large numbers and more complex calculations.
- Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.
- Pupils round answers to a specified degree of accuracy, for example, to the nearest 10, 20, 50 etc., but not to a specified number of significant figures.
- Pupils explore the order of operations using brackets; for example, 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9.
- Common factors can be related to finding equivalent fractions.

• Continue with compact form: *e.g. There are 324.9l of oil in the tank. If I add 7.25l more, how much is there altogether?* **CLIC ADDITION STEP 37 ONWARDS** $$324.90$$ $$+ \ \ 7.25$$ $$\overline{332.15}$$ $$_{1\ 1}$$ • **Solve problems involving addition** *e.g. My car fuel tank holds 50.25l of fuel. At the petrol station, I put in 38.67l, which filled it right up. How much petrol was in the tank before?* **Solve problems involving multistep problems including conversion of units (including involving other operations)** • **Subtracting with fractions** Adding using mixed denominators and mixed numbers using the concept of equivalent fractions by ensuring they both have a common denominator $$\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$$ $$\frac{3}{4} + \frac{1}{3} = \frac{9}{12} + \frac{4}{12} = \frac{13}{12}$$ $$1\frac{5}{7} + \frac{1}{4} = \frac{5}{7} = 1\frac{20}{28} + \frac{7}{28} = 1\frac{27}{28}$$	• Continue with compact form: *e.g. There are 324.9l of oil in the tank. If 7.25l are used, how much is left?* $$_{1\ 3\ \ \ 1}$$ $$3\cancel{2}4.\cancel{9}0$$ $$- \ \ 7.25$$ $$\overline{317.65}$$ **CLIC SUBTRACTION STEP 36/37** • **Solve problems involving subtraction** *e.g. My car fuel tank holds 50.25l of fuel. At the petrol station, I put in 38.67l, which filled it right up. How much petrol was in the tank before?* **Solve problems involving multistep problems including conversion of units (including involving other operations)** *e.g. At a cross roads a sign says 1.2km to the town and 600m to the sea. How far apart is the beach and the town?* • **Subtracting with fractions** Subtract using mixed denominators and mixed numbers using the concept of equivalent fractions by ensuring they both have a common denominator $$\frac{1}{2} - \frac{1}{8} = \frac{4}{8} - \frac{1}{8} = \frac{3}{8}$$ $$\frac{3}{4} - \frac{1}{3} = \frac{9}{12} - \frac{4}{12} = \frac{5}{12}$$ $$1\frac{5}{7} - \frac{1}{4} = \frac{5}{7} = \frac{20}{28} - \frac{7}{28} = 1\frac{13}{28}$$

Calculators will be used throughout to check calculates and pupils to understand how to interpret the display appropriately

e.g. 1.2 = £1.20 when dealing with money