

# Calculation Policy

## Addition

The following calculation policy has been devised to meet requirements of the National Curriculum for the teaching and learning of mathematics and is also designed to give pupils a consistent and smooth progression of learning in calculations across the school.

## Age/stage expectations

The calculation policy is organised according to academic year expectations as set out in the National Curriculum; **however it is vital that pupils are taught according to the stage that they are currently working at**, being moved onto the next level as soon as they are ready, or working at a lower stage until they are secure enough to move on.

# Addition: Early Years

## Counting groups of objects



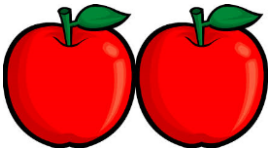
3

and



2

makes 5 altogether



2

and



4

makes 6 altogether

**Key vocabulary:** add, more, plus, and, make, altogether, equals.

### **Key skills for addition in Early Years:**

- I can use the language of 'more' to compare two sets of objects.
- I can find the total number of items in two groups by counting all of them.
- I can say the number that is one more than a given number.
- I can find one more or one less from a group of up to five objects, then ten objects.
- In practical activities and discussion, I am beginning to use the vocabulary involved in adding and subtracting.

### **Early Learning Goal**

- Using quantities and objects, I can add two single-digit numbers and count on to find the answer.

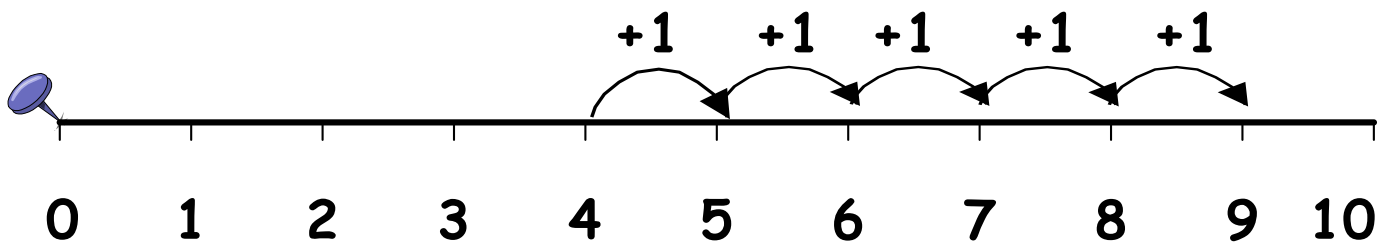
# Addition: Year One

## Counting objects



$$3+4=7$$

## Counting on



$$4+5=9$$

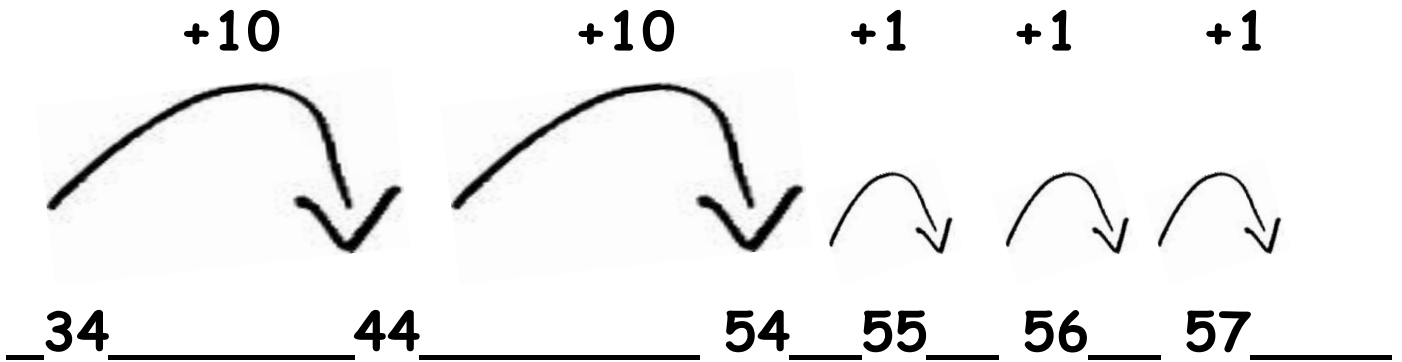
**Key vocabulary:** add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line.

### Key skills for addition at Year One:

- I know and can use number bonds to 20.
- I can add 1 digit numbers to 20.
- I can add two digit numbers to 20.
- I can solve simple 1-step problems involving addition, using objects, number lines and pictorial representations.

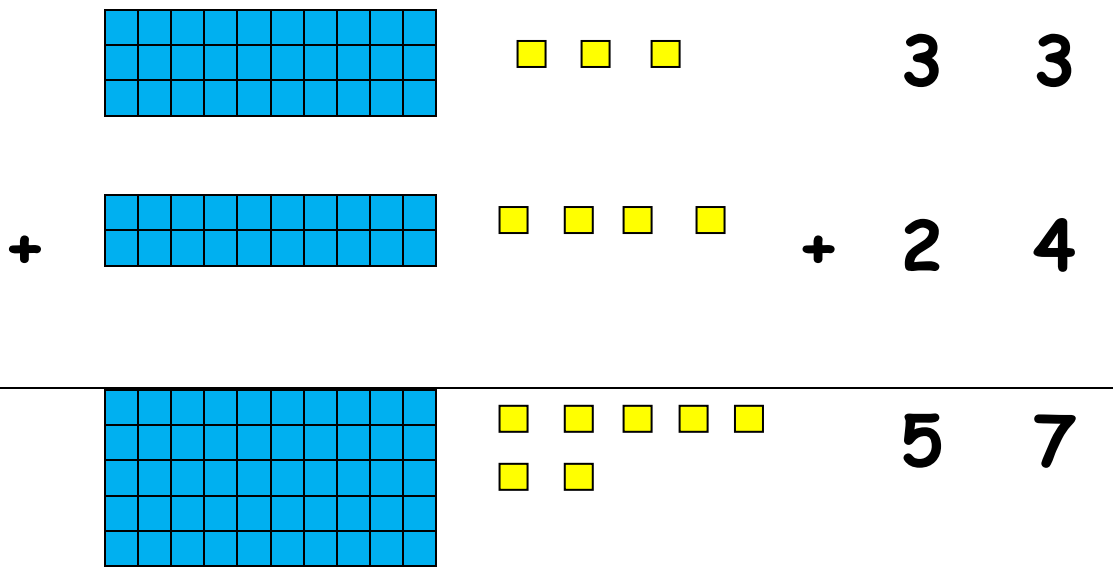
## Addition: Year Two

# Forwards bounce



$$34 + 23 = 57$$

33+24



**Key vocabulary:** add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, addition, column.

**Key skills for addition at Year Two:**

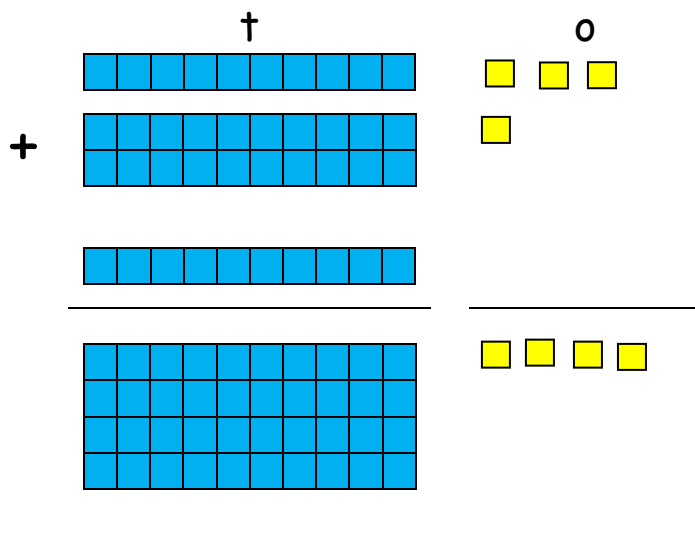
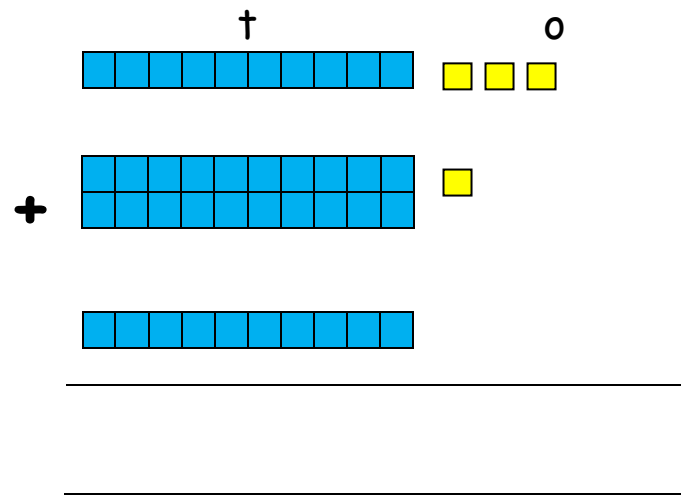
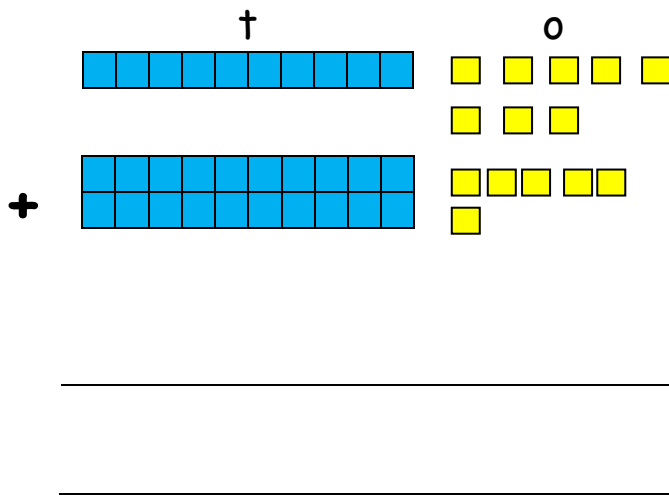
- I can apply written strategies to problems.
- I can recall and use addition facts to 20 and use number facts to 100.
- I can add a 2 digit number and ones (e.g.  $27+6$ ) and tens (e.g.  $27+40$ ).
- I can add pairs of 2 digit numbers (e.g.  $27+38$ ).

# Addition: Year Three

## Column Addition

$$\begin{array}{r} \text{t} \quad \text{o} \\ 1 \quad 8 \\ + 2 \quad 6 \\ \hline \end{array}$$

Exchange ones for tens

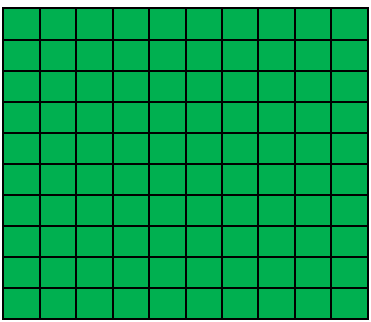


$$\begin{array}{r} \text{t} \quad \text{o} \\ 1 \quad 8 \\ 2 \quad 6 \\ 1 \quad \quad \\ \hline 4 \quad 4 \end{array}$$

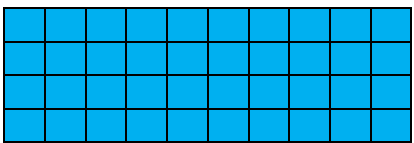
# Column Addition

|   | h     | t | o |
|---|-------|---|---|
|   | 1     | 4 | 2 |
| + |       | 7 | 3 |
|   | <hr/> |   |   |
|   | <hr/> |   |   |

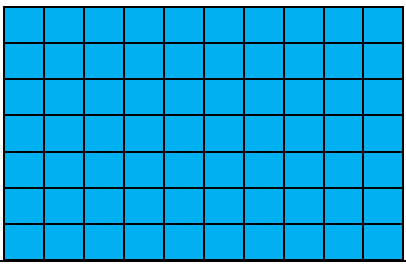
h



t



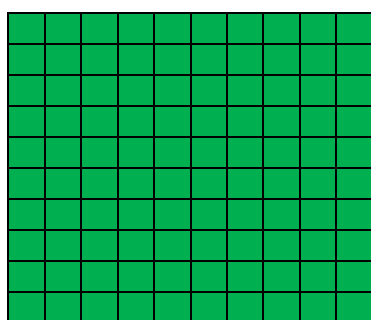
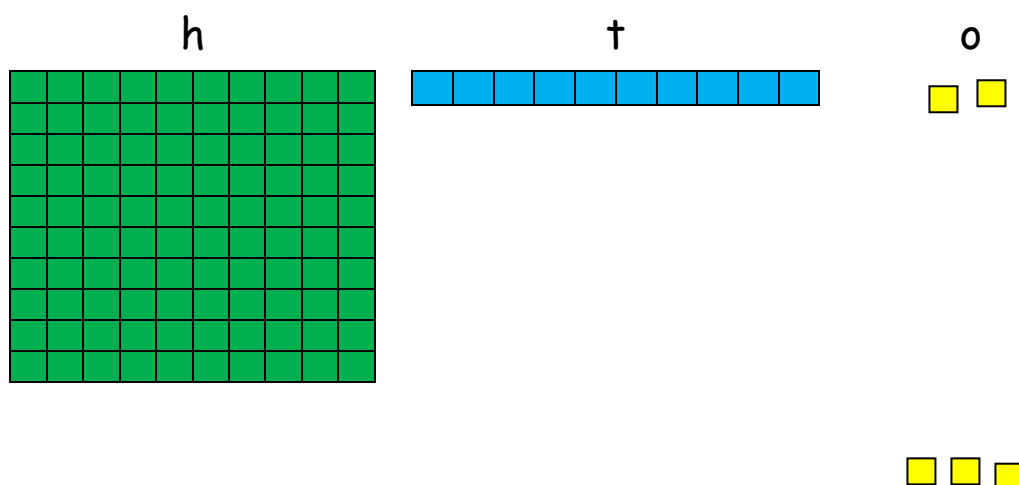
o



---

---

# Exchange tens for hundreds



|   | h | t | o |
|---|---|---|---|
|   | 1 | 4 | 2 |
| + |   | 7 | 3 |
|   | 1 |   |   |
|   | 2 | 1 | 5 |

**Key vocabulary:** add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, plus, addition, column, increase, vertical, exchange.

## Key skills for addition at Year Three:

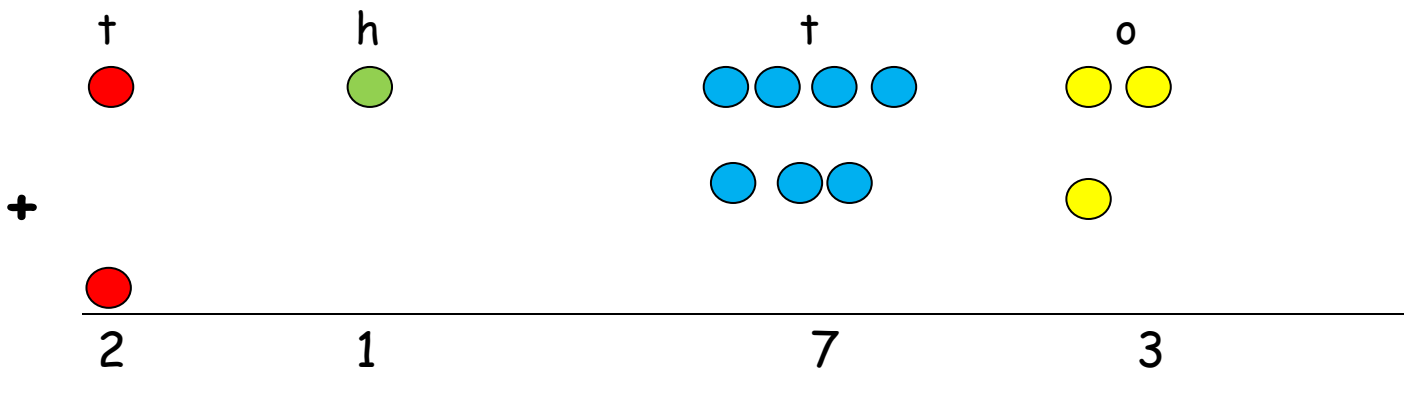
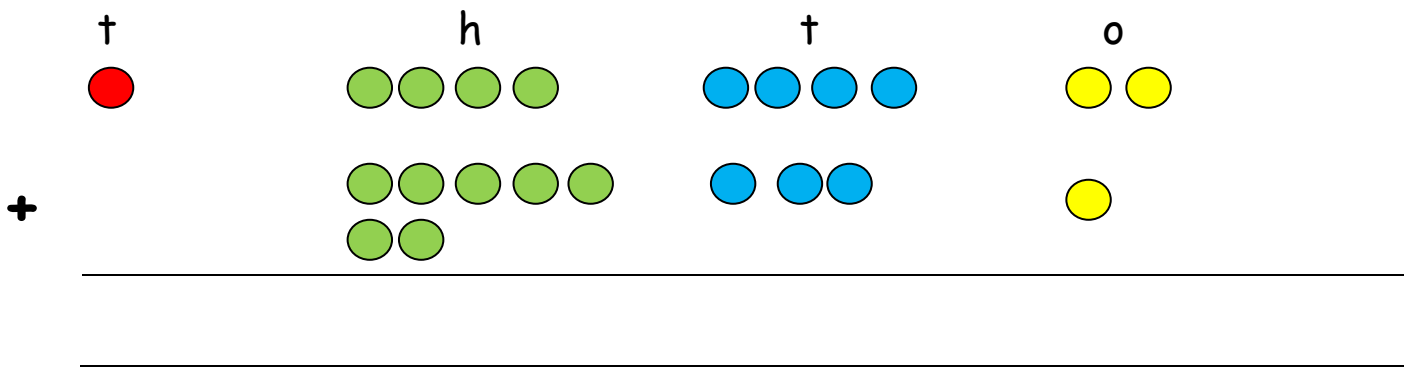
- I can read and write numbers to 1000 in numerals and words.
- I can add 2-digit numbers mentally, including those exceeding 100.
- I can add a three-digit number and ones mentally (e.g.  $175 + 8$ ), a three-digit number and tens mentally (e.g.  $249 + 50$ ) and three-digit numbers and hundreds mentally (e.g.  $381 + 400$ ).



# Addition: Year Four

## Reducing the equipment

$$\begin{array}{r}
 \text{t} \quad \text{h} \quad \text{t} \quad \text{o} \\
 1 \quad 4 \quad 4 \quad 2 \\
 + \quad \quad 7 \quad 3 \quad 1 \\
 \hline
 \hline
 \end{array}$$



$$\begin{array}{r}
 \text{t} \quad \text{h} \quad \text{t} \quad \text{o} \\
 1 \quad 4 \quad 4 \quad 2 \\
 \quad \quad 7 \quad 3 \quad 1
 \end{array}$$

$$\begin{array}{r}
 \hline
 2 \quad 1 \quad 7 \quad 3 \\
 \hline
 \hline
 \end{array}$$

**Key vocabulary:** add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, plus, addition, column, increase, vertical, exchange, thousands, hundreds, digits, inverse.

**Key skills for addition at Year Four:**

- I can select most appropriate method: mental, jottings or written and explain why.
- I can add numbers with up to four digits using efficient written methods.
- I can estimate to check answers to calculations.
- I can solve two-step addition problems deciding which operations and methods to use and say why I chose a particular method.

# Addition: Year Five

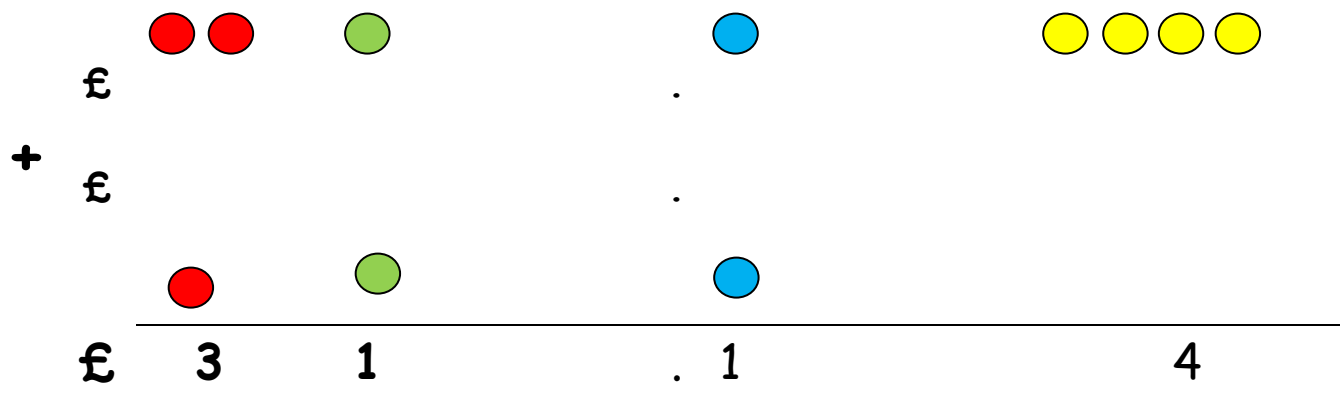
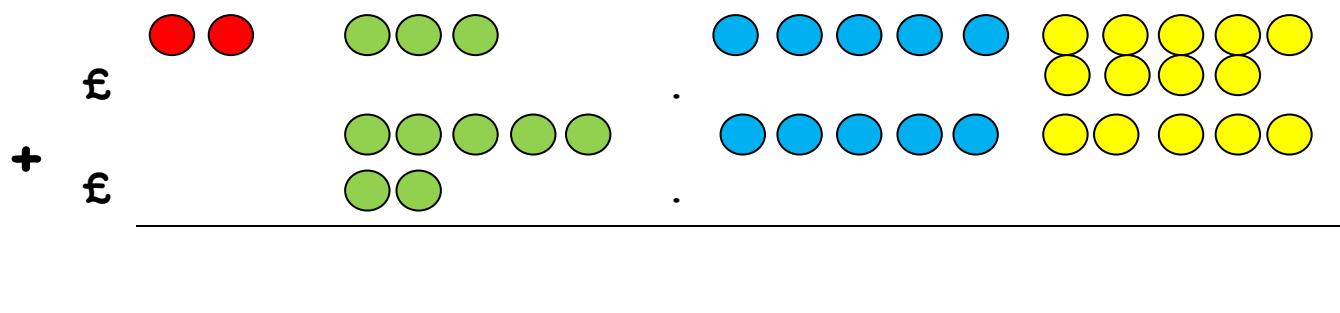
## Column Addition

£ 2 3 . 5 9

+ £ 7 . 5 5

---

---



£ 2 3 . 5 9

+ £ 7 . 5 5

1 1 1

---

---

3 1 . 1 4

**Key vocabulary:** add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, plus, addition, column, increase, vertical, exchange, thousands, hundreds, digits, inverse and decimal places, decimal point, tenths, hundredths, thousandths.

**Key skills for addition at Year Five:**

- I can add numbers mentally with increasingly large numbers, using and practising a range of mental strategies i.e. add the nearest multiple of 10, 100, 100 and adjust; use near doubles, inverse, partitioning and re-combining; using number bonds.
- I can use rounding to check answers and accuracy.
- I can solve multi-step problems in contexts, deciding which operations and methods to use and why.
- I can add numbers with more than 4 digits using formal written method of columnar addition.

# Addition: Year Six

## Column Addition Efficient written methods

|   |   |    |   |   |   |   |   |   |   |
|---|---|----|---|---|---|---|---|---|---|
| 2 | 3 | .3 | 6 | 1 | 3 | 1 | 0 | 5 | 9 |
|   | 9 | .0 | 8 | 0 |   | 3 | 6 | 6 | 8 |
| 5 | 9 | .7 | 7 | 0 | 1 | 5 | 3 | 0 | 1 |
|   | 1 | .3 | 0 | 0 | 2 | 0 | 5 | 5 | 1 |
| 2 | 1 | 2  |   |   | 1 | 1 | 1 | 1 |   |
| 9 | 3 | .5 | 1 | 1 | 7 | 0 | 5 | 7 | 9 |

**Key vocabulary:** add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, plus, addition, column, increase, vertical, exchange, thousands, hundreds, digits, inverse and decimal places, decimal point, tenths, hundredths, thousandths.

### Key skills for addition at Year Six:

- I can perform mental calculations, including with mixed operations and large numbers, using and practising a range of mental strategies.
- I can solve multi-step problems in context, deciding which operations and methods to use and why.
- I can use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.