## Ashton Gate Calculation Policy: Addition and Subtraction

## Early Years Foundation Framework (Development Matters)

- Count objects, actions and sounds
- Link the number symbol (numeral) with its cardinal number value.
- Count beyond ten.
- Compare numbers
- Understand the 'one more than/one less than' relationship between consecutive numbers.
- Explore the composition of numbers to 10
- Automatically recall number bonds for numbers $0-5$ and some to 10 .
- Cardinality and Counting: say number words in sequence; tag each object with one number word; know the last number counted gives the total so far
- Subitising: recognising small quantities without needing to count them all
- Numeral meanings, conservation, knowing that the number does not change if things are rearranged

| Strategies | Concrete | Pictorial | Abstract |
| :---: | :---: | :---: | :---: |
| Reciting numbers from 0 to 10 (and beyond) and back from 10 to 0 <br> Shows awareness that numbers are made up (composed) of smaller number. <br> Exploring partitioning in different ways with a wide range of objects | Children use toys and general classroom resources to physically manipulate, group/regroup. <br> They also use specific maths resources such as counters, snap cubes, Numicon. |  |  |



## Year 1 Objectives

- Read, write and interpret mathematical statements involving addition (+), subtraction ( - ) and equals (=) signs
- Represent and use number bonds and related 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

| Strategies | Concrete | Pictorial | Abstract |
| :---: | :---: | :---: | :---: |
| Adding by aggregation: Combining two parts to make a whole. | Numicon and tens frames support aggregation. | Part whole models <br> Discrete bar models <br> Continuous bar models | $4+3=7$ |


| Adding by augmentation: increasing a quantity by another quantity | The tens frame and bead string support with augmentation. | Number lines <br> Number tracks <br> Combination bar model | $4+3=7$ |
| :---: | :---: | :---: | :---: |
| Adding 1 and 2 digit numbers within 20: regrouping by 10 |  | Concrete manipulatives are used alongside number lines to support children in understanding how to partition their jumps. <br> Part-whole and bar models may also be used. | $8+7=15$ |

Subtraction by | Concrete bar models and Numicon support children to subtract |
| :--- |
| bartitioning partitining a number. |



## Year 2 Objectives:

- Solve problems with addition and subtraction using concrete objects, pictorial representations, and mentally, including those involving number and quantities.
- Recall addition and subtraction facts to 20 fluently and derive and use related facts up to 100 which include: Add and subtract 1-digit number to 2-digit number to 100; add and subtract two two-digit numbers; add three one-digit numbers.
- Regroup a ten into ones
- Partitioning to subtract without regrouping
- Partitioning to subtract regrouping

| Strategies | Concrete | Pictorial | Abstract |
| :---: | :---: | :---: | :---: |
| Adding 1 and 2 digit numbers within 20: regrouping by 10 |  | Concrete manipulatives are used alongside number lines to support children in understanding how to partition their jumps. <br> Part-whole and bar models may also be used. | $8+7=15$ |


| Adding 1 and 2 digit <br> numbers within 100 |
| :--- | :--- | :--- |
| Add 3 one-digit numbers |
| counters. |


| Subtract 1 and 2-digit numbers to 20 | A range of concrete resources are used to support with subtraction. | $\square$ <br> 14 <br> 6 <br> 8 | $14-6=8$ |
| :---: | :---: | :---: | :---: |
| Subtract 1 and 2 digit numbers to 100 |   | Part whole models and bar models are used. <br> Children can also use a blank number line to count on in multiples | $65-28=37$ <br> Children are expected to use concrete and pictorial resources to solve calculations like this. |

## Year 3 Objectives:

- Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a 3-digit number and hundreds
- Add numbers with up to three digits, using formal written method of columnar addition, where appropriate.
- Subtract numbers mentally, including: a three-digit number subtract ones; a three-digit number subtract tens; a three-digit number subtract hundreds.
- Subtract numbers with up to three digits, using formal written method of columnar subtraction, where appropriate.
Strategies



## Year 4 Objectives:

- Add and subtract numbers with up to 4 digits using the formal written methods of columnar 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
Strategies



## Year 5 Objectives:

- 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.


Subtract decimals
with up to 3

decimal places \begin{tabular}{l}
Decimal counters or plain counters on a place value grid can be <br>
used to represent the subtraction.

 

Bar models and part-whole models are used to <br>
represent pictorially.
\end{tabular}

## Year 6 Objectives:

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

In Year 6, children will revisit previously learned strategies as needed, progressing to working more efficiently in the abstract.

