Programme of study for calculating:
statutory requirements in bold, suggested steps in faint, **adult curriculum in green**
Addition and subtraction

Step 3

Pupils should be given opportunities to notice that groups of things change when something is added or taken away

- *Join in with number rhymes*
- *Understand that the number will change as the rhyme progresses*
- *Add objects to a group of objects and attempts to count them*
- *Take objects away from a group of objects and attempts to count them*

Step 4

Pupils should be provided with opportunities to show an interest in number problems

- *Join in self-registration*
- *Help to check how many children are away*
- *Help to find out how many more snacks are need*

Pupils should be supported to separate a group of three or four objects in different ways beginning to realise that the total is still the same

Step 5

Pupils should be supported to find the total number of items in two groups by counting all of them

- *With verbal prompts push two given objects together*
- *Count all of the new objects in the new larger group*

M7.5 Add single-digit numbers reliably to three with support to five

Pupils should be provided with opportunities, in practical situations, for discussion to begin to use the vocabulary involved in addition and subtraction

- *Add, take away*
- *Makes, equals*
- *Same, difference*
- *More, less*

N1/M7.6 Subtract single-digit numbers reliably from numbers to three with support, from numbers to five

N1/M7.8 With some inconsistencies, recognise =, +, -   and understand how they are applied

Pupils should be encouraged to identify own mathematical problems based on own interests and fascinations

- *Invent number problems in their play*

N1/M8.7 Add single-digit numbers reliably to five with support to 10

N1/M8.8 Subtract single-digit numbers reliably from numbers to five with support, from numbers to 10

Step 6

Pupils should be taught to:

recognise mathematical statements involving addition (+), subtraction (-) and equals (=) signs.

- *Recognise and use appropriate language relating to addition (+)*
- *Recognise and use appropriate language relating to subtraction (-)*
- *Recognise and use appropriate language relating to equals (=)*

N1/M8.10 Recognise and apply +, -, =   such as when working with a calculator to input numerals from 0 to 10

- *Answer simple addition problems related to life*

N1/E1.6 interpret +, - and = in practical situations for solving problems

- *Compare 2 sets to find numerical differences*

add and subtract one-digit numbers.

N1/E1.4 Add single – digit numbers with totals to up to 10

N1/E1.5 Subtract single-digit numbers from numbers up to 10

represent and use number bonds and related subtraction facts within 10.
N1/E2.4 Recall addition and subtraction facts to 10
- *Separate groups of 10 objects into 2 groups*
- *Know several ways how sets to 10 may be separated into 2 groups*

N1/E1.7 Use a calculator to check calculations using whole numbers

Step 7

Pupils should be taught to:
read and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- *Realise that addition involves combining two groups*
- *Use objects to add 2 groups together*
- *Read a calculation involving – and =*
- *Realise that subtraction means taking away*
- *Identify the operation required to solve a problem*
- *Use objects to find the difference between two numbers*

add and subtract one-digit and two-digit numbers to 20 (9 + 9, 18 - 9)
N1/E2.3 Add and subtract single and two- digit whole numbers

represent and use number bonds and related subtraction facts within 20.
- *Know several ways how sets to 20 may be separated into 2 groups*

N1/E2.7 Use a calculator to check calculations using whole numbers

Step 8

Pupils should be taught to:
read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- *Use a range of methods to solve calculations (drawing the question/objects/counting on and back)*
- *Record addition problems (pictures, symbols, stickers, I.C.T, writing)*

N1/E2.3 Add and subtract two- digit whole numbers

represent and use number bonds and related subtraction facts within 20.
- *Know number bonds to make a given number within 20*
- *Record ways of making a given number*

add and subtract one-digit and two-digit numbers to 20 (9 + 9, 18 - 9), including zero

N1/E2.7 use and interpret +, -, in practical situations for solving problems

Pupils should be taught to solve simple one-step problems that involve addition and subtraction
- *Identify which operation they need to solve the problem*
- *Use an appropriate method to solve the problem*
- *Select resources to help solve the problem*

N1/E2.8 use a calculator to check calculations using whole numbers

Step 9

Pupils should be taught to:
- solve problems with addition and subtraction:

- using concrete objects and pictorial representations, including those involving numbers, quantities and measures

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

- a two-digit number and ones
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Step 10

Pupils should be taught to:
 solve problems with addition and subtraction:
- applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently,

N1/E3.3 recall addition and subtraction facts to 20

add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
- **a two-digit number and tens**
- adding three one-digit numbers
- two two-digit numbers

solve problems with addition and subtraction:
- derive and use related facts up to 100

Step 11

Pupils should be taught to add and subtract numbers mentally, including:

N1/E3.2 Add and subtract using three digit whole numbers
- a three-digit number and ones
- a three-digit number and tens
- a three-digit number and hundreds

Pupils should be taught to add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction

Pupils should be taught to estimate the answer to a calculation and use inverse operations to check answers

N1/E3.8 Estimate answers to calculations

Pupils should be taught to solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
N1/E3.9 Interpret +, -, and = in practical situations for solving problems

Step 12   **Extension content**

Pupils should be taught to add and subtract numbers with up to 4 digits using the efficient written methods of column addition and subtraction where appropriate

Pupils should be taught to estimate and use inverse operations to check answers to a calculation

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