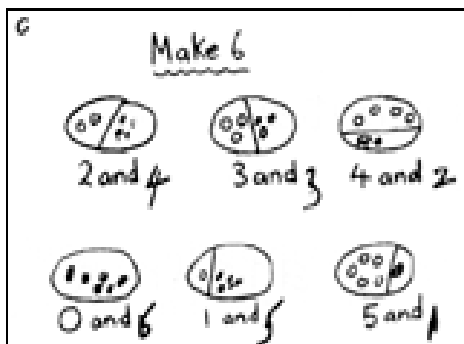


Reception Class and Year 1



Children are taught that addition is the combining of two or more amounts. To start, they learn to **'count all'** - find how many items there are altogether by counting out each amount, then touching and dragging them into a line, one at a time, whilst counting, so they don't count the same counter twice.

Children then move on to **counting on** from the **largest amount, using their fingers/counters**. **When they are ready**, they begin to record addition number sentences such as $2 + 4 = 6$ and $8 = 3 + 5$ and $3 + 2 + 4 = 9$.

They learn to think about addition as combining amounts in practical, real life situations.

They learn that units/ones have best friends (number bonds to 10) and are able to recall them: **1+9, 2+8, 3+7, 4+6, 5+5**.

In Reception class, children add single digit numbers and in Year 1, they learn to add numbers up to 20.

Be careful! The word **'sum'** means **'total'** and so must **only** be used when referring to **addition**. Problems involving the four **number operations (+, -, x and ÷)** are called **'number sentences'**.

Year 1

Children move on to using Base 10 equipment (unit/one blocks and rods of 10 units/ones) to support their developing understanding of addition.

$$11 + 5 = 16$$

11 cubes are lined up (1 ten and 1 unit/one). 5 cubes are added to the line of 11 giving a total of 16.



If possible, use two different colours of base 10 equipment so that the initial amounts can still be seen.

In Year 1, children add numbers between 0 and 20.

Year 2

Stage 1: Children continue to use the Base 10 equipment to support their calculations. They will record their own drawings of the Base 10 equipment, using lines for 10 rods and dots for the unit/one blocks, recorded **in pairs** to prevent confusion when crossing out and exchanging during stage 2.

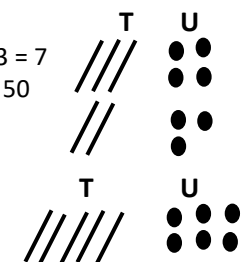
$$34 + 23 = ?$$

The units/ones are added first: $4 + 3 = 7$

The tens are added next: $30 + 20 = 50$

Both answers are put together

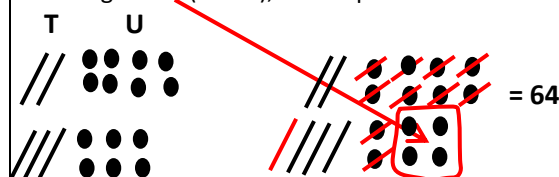
$$50 + 7 = 57$$



Stage 2:

Exchanging 10 units/ones for 1 ten when the total of the units/ones is 10 or more. E.g. $28 + 36 = ?$

The units/ones are added first: $8 + 6 = 14$, with ten units/ones exchanged for 1 ten. A ring is put around the units/ones not exchanged – this is the units/ones part of the answer. The tens are then added, including the exchanged ten (in red), to complete the addition.



When children are secure, they can move onto using 3 digit numbers, writing a square to represent 100:

$$122 = \begin{array}{c} \text{H} \quad \text{T} \quad \text{U} \\ \square \quad // \quad \bullet \end{array}$$

Key Stage 2 (Years 3 – 6): Children move onto the compact written method, **when they are secure** using the rods and units/ones jottings. The children are taught to line the digits up in the correct place value column and to work out the smallest value column first.

By the end of Year 3, children should be able to add 3 digit numbers and by the end of Year 4, they should be able to add 4 digit numbers and numbers with 1 decimal place (tenths).

$$\begin{array}{r} \text{HTU} \\ 625 \\ + 48 \\ \hline 673 \\ 1 \end{array}$$

The example would be 'said' as follows:
5 units + 8 units = 13, put 3 units down and **carry** the 10.
20 + 40 + the 10 that was carried over = 70.
(7 written in the tens column)
600 + 0 = 600 (6 written in the hundreds column.)

$$\begin{array}{r} \text{Th} \quad \text{H} \quad \text{T} \quad \text{U} \\ 3 \quad 1 \quad 2 \quad 1 \\ + \quad \quad \quad 3 \quad 7 \\ \hline 3 \quad 3 \quad 0 \quad 6 \\ \hline \quad \quad 1 \quad 1 \end{array}$$

$$\begin{array}{r} \text{U} \quad \text{t} \quad \text{h} \\ 3 \quad . \quad 5 \quad 6 \\ + 2 \quad . \quad 4 \quad 7 \\ \hline 6 \quad . \quad 0 \quad 3 \\ \hline \quad \quad 1 \end{array}$$

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \quad . \quad \text{t} \quad \text{h} \\ 4 \quad 0 \quad 1 \quad . \quad 2 \quad 0 \\ + \quad \quad \quad 2 \quad 6 \quad . \quad 8 \quad 5 \\ \hline 4 \quad 2 \quad 8 \quad . \quad 7 \quad 6 \\ \hline \quad \quad \quad 1 \end{array}$$

By the end of Year 5, children should be able to add several numbers with different numbers of digits and decimals with up to two decimal places (with each number having the same number of decimal places) and in Year 6, children continue to work with decimals but with mixed numbers of decimal places.