Addition: Yellow (Y2)

Mental Work
Derive and recall
- addition facts for all numbers to at least 10, e.g. 3 + 4
- number pairs with totals to 20
- all pairs of multiples of 10 with totals up to 100, e.g. 30 + 70, 60 + Δ = 100 (knowledge of pairs to 10)
- what must be added to any 2-digit number to make the next multiple of 10, e.g. 52 + Δ = 60
- addition doubles for all numbers to 20, e.g. 17 + 17, and multiples of 10 to 50, e.g. 40 + 40

Work mentally (with jottings if needed)
- add a pair of 1-digit numbers, including crossing 10, e.g. 5 + 8 (reorder numbers when adding, partition)
- add any 1-digit number to a multiple of 10, e.g. 60 + 5
- add a 1-digit number to a 2-digit number, including crossing the tens boundary, e.g. 23 + 5, then 28 + 5 (partition and combine multiples of tens and ones)
- add a multiple of 10 to any 2-digit number, e.g. 27 + 60
- add 9, 19, 29, … or 11, 21, 31, … (partition: add a multiple of 10 and adjust by 1)
- add near doubles, e.g. 13 + 14, 39 + 40 (partition: double and adjust)

Children should be encouraged to:

* **approximate** their answers before calculating

*consider if a mental **calculation** would be appropriate **before** using written methods

*check their **answers** after calculation using an appropriate strategy

Practical work
Children need to be confident with partitioning.
Base 10 materials can be useful together with a TU baseboard, e.g. 7 + 5, children put 7 unit cubes in the U column, add 5 units, then exchange 10 units for a 'ten', recording the result as 12 with '1' at the bottom of the tens column and '2' at the bottom of the units.
A similar activity can be done using Numicon (partitioning ideas in Numicon folder).
Children can then move onto bridging different tens, e.g. 57 + 6, followed by adding tens and bridging, e.g. 57 + 26.
Practical work may also be used to reinforce the need to reorder when adding, e.g. largest number first, using doubles.

Number lines
Children will begin to use 'empty number lines' themselves, starting with the larger number and counting on.

1. First counting on in tens and ones.

$34 + 23 = 57$

2. Then helping the children to become more efficient by adding the units in one jump (by using the known fact 4 + 3 = 7).

3. Followed by adding the tens in one jump and the units in one jump.

$34 + 23 = 57$

4. Add 9 or 11 by adding 10 and adjusting by 1, e.g. 65 + 11

Recording

Once a child is confident using and applying the simple written recording of addition and is no longer able to solve a calculation because the numbers increase, they move onto partitioning, showing their working on a number line or as a partitioned sum (see below).
Explain that partitioning is splitting a number into parts (children can hear the 'part' in 'partitioning').
Simple horizontal partitioning: first partitioning both numbers then just second number
(remember to use easy numbers to focus on the layout).

$$12 + 23 = 10 + 2 + 20 + 3$$
$$= 30 + 5$$
$$= 35$$

$$23 + 12 = 23 + 10 + 2$$
$$= 33 + 2$$
$$= 35$$

Missing number calculations
Continue using a range of equations with appropriate larger numbers than Orange.
Extend to

$$12 + 23 = 10 + 20 = 30$$
$$2 + 3 = 5$$
$$\Big\} 30 + 5 = 35$$

14 + 5 = 10 +   and adding three numbers, e.g. 32 +   +   = 100   35 = 1 +   + 5
Practical work using a **balance** would show that both sides need to be equal.

CHILDREN SHOULD NOT MOVE ONTO THE NEXT STAGE IF:

1) they are not ready
2) they are not confident