



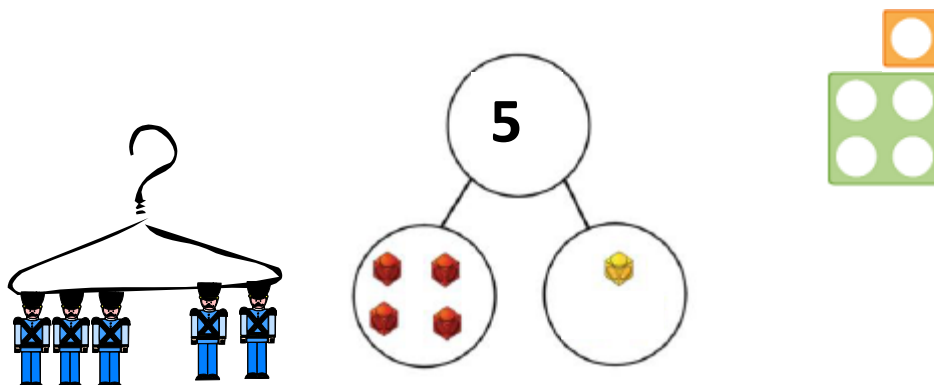
# ADDITION

## EYFS

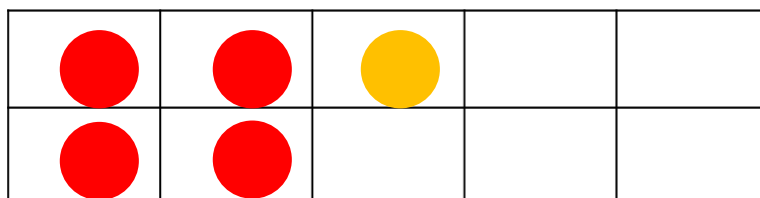
Children will engage in a wide variety of songs, rhymes, games and activities to build their awareness of number.

They will begin to relate addition to combining two groups of objects, first by counting all and then by counting on from the largest number.

In practical activities and through discussion they will begin to use the vocabulary involved in addition. We use a range of representations using concrete and pictorial methods to build the abstract concepts.



$4 + 1 = 5$   
One more than 4 is 5



## Key Vocabulary

add, more, plus, add, make, together.

## Key skills for addition at EYFS

- Children count reliably with numbers from 1 to 20
- Place numbers to 20 in order and say which number is one more than a given number.
- Using quantities and objects, they add two single-digit numbers
- Count on or back to find the answer



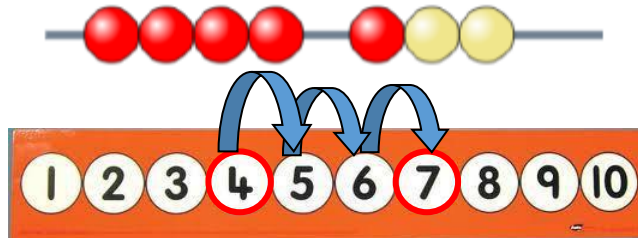
# ADDITION

## Year 1

NB: Ensure that children are confident with the methods outlined in the previous stage's guidance before moving on.

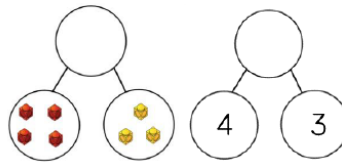
Children will continue to practise counting on from any number e.g. 'Put four in your head and count on three.'

Initially use a number line or bead strings to count on for addition, counting on from the largest number:  $4 + 3 = 7$



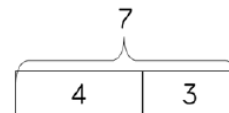
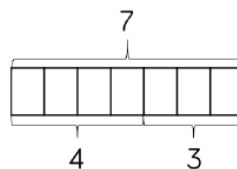
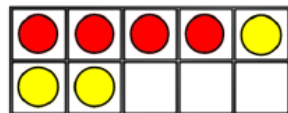
'Put your finger on number four. Count on (count forwards) three.'

As children become more confident, they will apply their knowledge to the part-part whole model.



Children should:

- have access to a range of equipment eg. Number lines, counting apparatus, Numicon, 100, squares, bead strings etc
- be shown numbers in a range of contexts
- Read and write number sentences using the = and + signs
- Interpret number sentences including missing number problems eg.  $5 + \square = 7$



## Key Vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line

## National Curriculum requirements:

- read, write and interpret mathematical statements involving addition (+), and equals (=) signs
- represent and use number bonds and related facts within 20
- add one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition, using concrete objects and pictorial representations



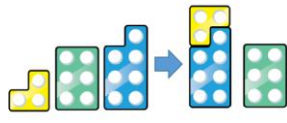
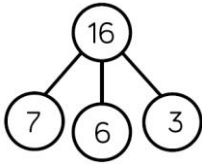
# ADDITION

## Year 2

Ensure that children are confident with the methods outlined in the previous stage's guidance before moving on.

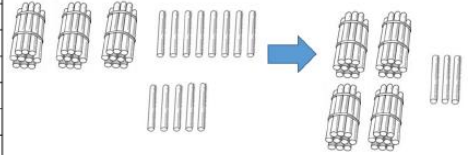
The use of practical manipulatives will still be used to add three one digit numbers, a 2 digit + 1 digit number and two 2 digit numbers.

$$7+6+3 = 16$$

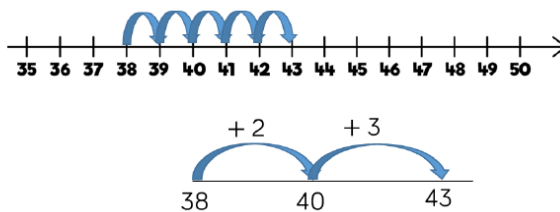
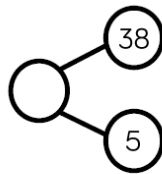


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

$$38 + 5 = 43$$

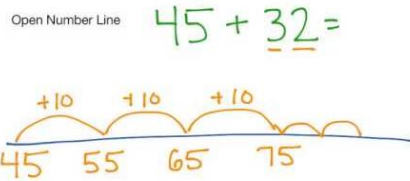


Use the number line and empty number line in conjunction with a 100 square to show jumps of tens.



$$38 + 5 = 43$$

Children then move on to adding 2 digits + 2 digits using a numberline. 'Put the biggest number first (45), and then partition the smaller number (32 = 30 + 2) and count on: 45 + 30 + 2.'



$$45+32 = 75$$

Children move to more formal recording using partitioning method, setting out as follows:

Tens	Ones
	●●●●
	●●

38
+ 23
---
61
1

This needs to be practiced in a concrete fashion, moving to pictorial before abstract representations are used. If children are secure in these, they will be moved on to the more formal methods used in year 2 without bridging over the tens/hundred barrier.

### Key Vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary

### National Curriculum requirements:

- solve problems with addition
  - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
  - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and ones
  - a two-digit number and tens
  - two two-digit numbers
  - adding three one-digit numbers
- show that addition of two numbers can be done in any order (commutative)
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.



# ADDITION

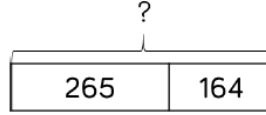
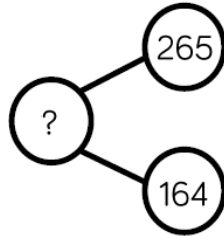
## Year 3

When they are ready, children move on to the expanded written method supported by practical activities. We know children are ready for this method when they:

- know addition and subtraction facts to 20,
- they understand place value and can partition numbers,
- they explain their mental strategies orally and record them using informal jottings.

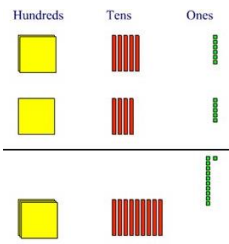
### Partitioning method:

$$\begin{array}{r}
 265 \\
 + 124 \\
 \hline
 9(\text{ones}) \\
 80(\text{tens}) \\
 \hline
 300(\text{hundreds}) \\
 \hline
 389
 \end{array}$$



This method would be introduced initially with numbers that do not require bridging to the next column. Start with the least significant digits first (ones), followed by tens then hundreds in preparation for the compact method.

Children who are very secure and confident with 3-digit expanded column addition, should be moved onto the compact column addition method, involving carrying. A comparison of the partitioning addition method to compact method is useful to show minimising the number of steps involved.

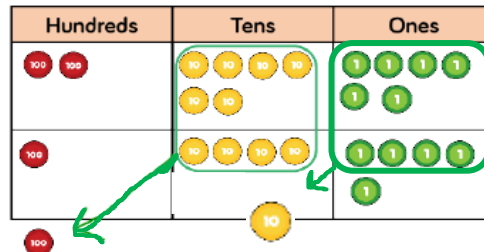


$$\begin{array}{r}
 256 \\
 + 145 \\
 \hline
 11 \text{ (ones)} \\
 90 \text{ (tens)} \\
 \hline
 300 \text{ (hundreds)} \\
 \hline
 401
 \end{array}$$

$$\begin{array}{r}
 256 \\
 + 145 \\
 \hline
 401 \\
 11
 \end{array}$$

Dienes apparatus can be used to support this method.

Children may also use place value counters to support this method in another concrete and pictorial fashion.



## Key Vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact

## National Curriculum requirements:

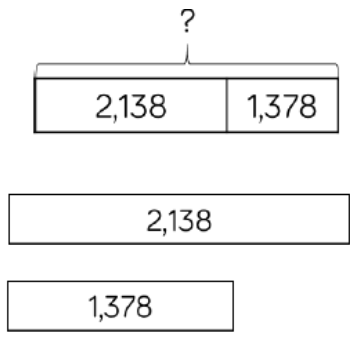
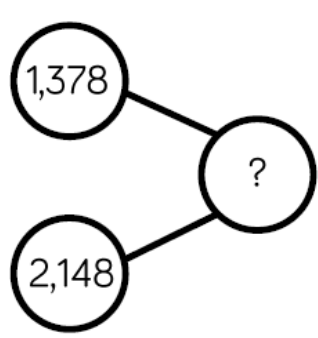
- add and subtract numbers mentally, including:
  - a three-digit number and ones
  - a three-digit number and tens
  - a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.



# ADDITION

## Year 4

Children continue to use the compact column method, adding units first and carrying underneath the calculation. Their additions will include money and measures in meaningful contexts. Just like previous year groups, children explore addition in compact column method using mathematical equipment such as Dienes and place value counters. They see the addition method in a variety of ways, including part-part whole, bar models and compact methods.



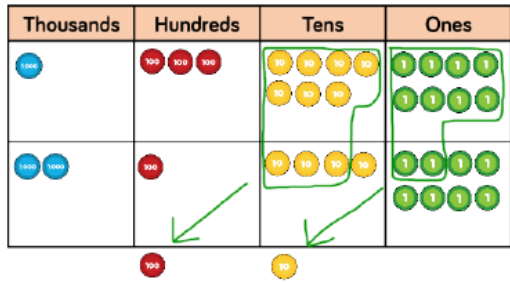
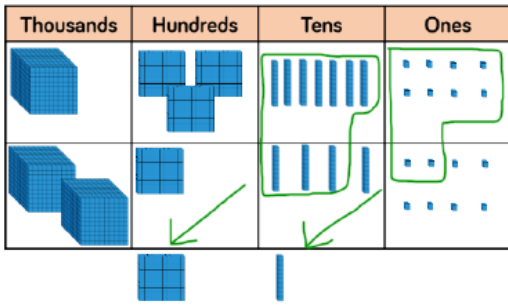
1	3	7	8	
+	2	1	4	8
3	5	2	6	

Add the ones first

Carry the numbers underneath

Remind pupils of actual value e.g 1 ten add 9 tens

$$1,378 + 2,148 = 3,526$$



### Key Vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact, thousands, hundreds, digits, inverse

### National Curriculum requirements:

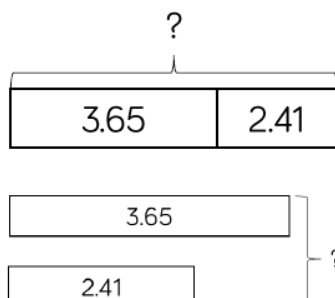
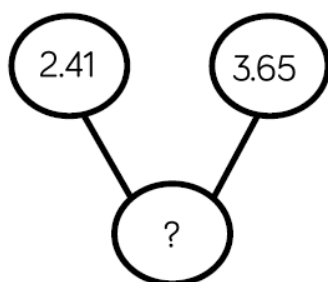
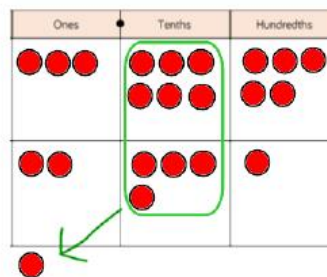
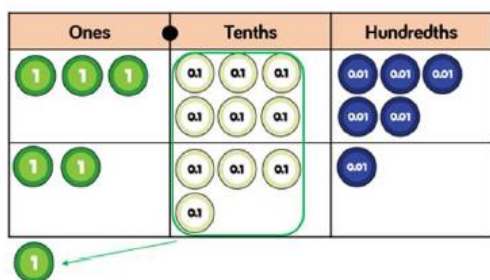
- add numbers with up to 4 digits using the formal written methods of columnar addition and subtraction
- where appropriate estimate and use inverse operations to check answers to a calculation
- solve addition two-step problems in contexts, deciding which operations and methods to use and why.



# ADDITION

## Year 5

At this stage, children add numbers with more than 4 digits including money, measures and decimals with different numbers of decimal places. Place value counters on a grid are the most effective manipulative when adding decimals with 1,2 and then 3 decimal places.



$$\begin{array}{r} 3.65 \\ + 2.41 \\ \hline 6.06 \\ 1 \end{array}$$

Say 6 tenths and 7 tenths to reinforce place value

$$\begin{array}{r} 19.01 \\ 3.65 \\ + 0.70 \\ \hline 23.36 \end{array}$$

Empty decimal places can be filled to with zero to show the place value of each column

$$\begin{array}{r} 23481 \\ + 1362 \\ \hline 24843 \end{array}$$

$$\begin{array}{r} \pounds 23.59 \\ + \pounds 7.55 \\ \hline \pounds 31.14 \end{array}$$

### Key Vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds, boundary, increase, vertical, 'carry', expanded, compact, thousands, hundreds, digits, inverse, decimal places, decimal point, tenths, hundredths, thousandths

### National Curriculum requirements:

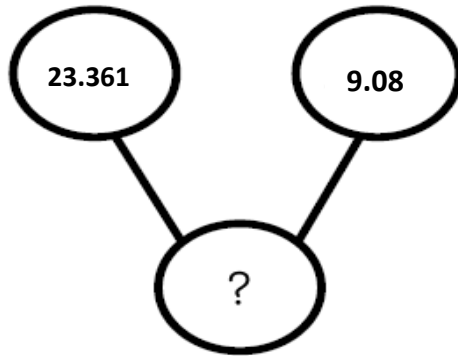
- add whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- add numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- solve addition multi-step problems in contexts, deciding which operations and methods to use and why

# +

# ADDITION

## Year 6

In year 6, children should be able to add several numbers of increasing complexity. The compact written method should be efficiently applied to multi-step problems and the adding of numbers with varying amounts of decimals should be mastered.



23	.	361
9	.	080
59	.	770
+	1	.300
<hr/>		
93	.	511
2	1	2

Pupils should apply their knowledge of a range of mental strategies; mental recall skills and informal and formal written methods when selecting the appropriate method to work out addition problems. Opportunities to discuss the appropriateness of methods need to be planned for.

?	
23.361	9.08

When calculating  $23.361 + 9.08 + 59.77 + 1.3$ , tenths, hundredths and thousandths should be correctly aligned, with the decimal point aligned vertically.

81,059			
3,668			
15,301			
+	20,551		
<hr/>			
120,579			
1	1	1	1

### Key Vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, additive, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact, thousands, hundreds, digits, inverse, decimal places, decimal point, tenths, hundredths, thousandths.

### National Curriculum requirements:

- 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