

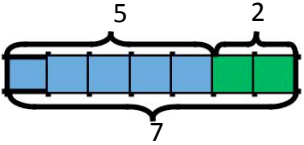


# Addition Early Years Foundation Stage

## Prior Learning

- Say some number names in sequence
- Uses words like 'more' and 'less'
- Knows that a group of things changes when an object is added or taken away.
- Sings songs using numbers

## Models & Images

- Jane has 5 fish, Bina has 2. How many fish do they have altogether?  

- Could represent fish with counters, or diagram, or other objects.  

- Also recorded as a bar to see relationship between amounts and total.  


## Signs & Symbols

Children be learning to write numbers accurately with correct orientation and formation.

$$9 + 3 =$$

$$= 9 + 3$$

## Key Language

add, addition  
more, make, plus  
count on, forwards,  
jump (on number line)  
bigger,  
altogether, total,  
sum  
Place value to 100

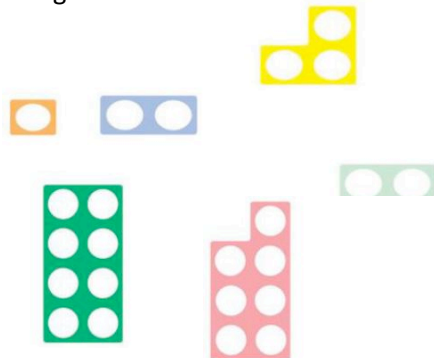
## Skills for next steps (Y1 Skills)

- Count to & across 100, forwards & backwards from any number.
- Read & write numbers to 20 in digits & words.
- Read & write numbers to 100 in digits.
- Say 1 more/1 less to 100
- Add & subtract: 1 digit & 2 digit numbers to 20, including zero.
- Add any three 1-digit numbers with a total up to 20.

## Mental Methods

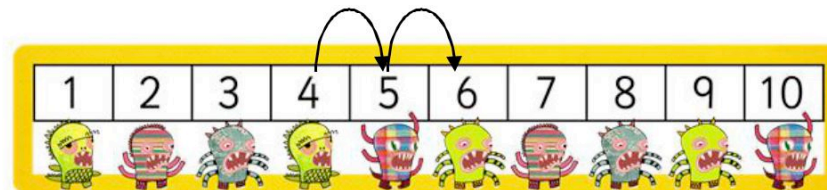
Introduce concept of numbers – recognising number object correspondence.

Children will become familiar with numicon tiles to support number recognition.

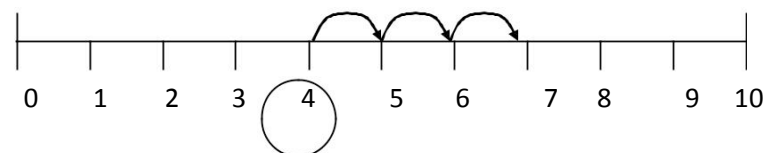


## Written Methods

Number Tracks:  $4 + 2 = 6$



Prepared Number Line:  $4 + 3 = 7$



## Resources

Practical objects  
Numicon Number  
Lines Hundred  
Squares Dienes  
Blocks Cuisenaire  
rods

Although these methods will be modelled by staff in school, children should experience calculations in a variety of other forms and presentations to support their understanding of maths in the wider world.

# Addition Key Stage 1 (Yr 1/2)

## Prior Learning (EYFS Skills)

- Count reliably to 20.
- Order numbers 1 – 20.
- Say 1 more/1 less to 20.
- Add & subtract two single digit numbers.

## Skills for next steps (Y3 Skills)

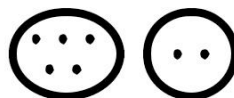
- Compare & order numbers up to 100.
- Read & write all numbers to 100 in digits & words.
- Say 10 more/less than any number to 100.
- Count in multiples of 2, 3 & 5 & 10 from any number up to 100.
- Recall & use +/- facts to 20.
- Derive & use related facts to 100.
- Recognise PV of any 2-digit number.
- Recognise & use inverse (+/-).

## Models & Images

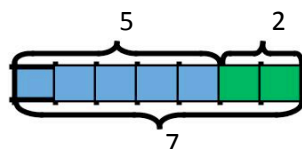
- Jane has 5 fish, Bina has 2. How many fish do they have altogether?



- Could represent fish with counters, or diagram, or other objects.

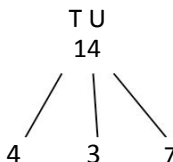
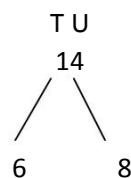
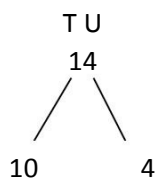


- Also recorded as a bar to relationship between amounts and total.



## Mental Methods

Introduce concept of numbers being made up of other numbers (Partitioning):



## Signs & Symbols

$$9 + 3 =$$

$$= 9 + 3$$

$$+ 3 = 12$$

$$12 = + 3$$

$$9 + = 12$$

$$12 = 9 +$$

$$+ = 12$$

$$12 = +$$

Adding 3 numbers:

$$1 + 12 + 6 = 19$$

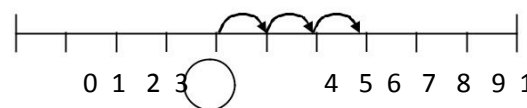
Extend to:

$$14 + 5 = 10 +$$

$$1 + + 6 = 19$$

## Written Methods

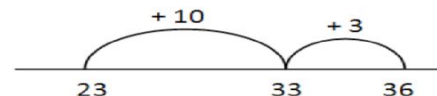
Prepared Number Line:  $4 + 3 = 7$



Prepared Number Line:

$$16 + 12 = 28$$

Unnumbered Number Line:  $23 + 13 = 36$



Hundred Square:  
 $34 + 13 =$   
 $34 + 10 + 3 = 47$

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

## Key Language

add, addition  
more, make, plus  
count on, forwards,  
jump (on number  
line)  
bigger,  
altogether, total,  
sum  
Place value to 100,  
hundreds, tens and  
units.

## Resources

Practical objects  
Numicon  
Number Lines  
Hundred Squares  
Dienes Blocks  
Cuisenaire rods

Although these methods will be modelled by staff in school, children should experience calculations in a variety of other forms and presentations to support their understanding of maths in the wider world.

# Addition Lower Key Stage 2 (Yr 3/4)

## Prior Learning (Y2 Skills)

- Compare & order numbers up to 100.
- Read & write all numbers to 100 in digits & words.
- Say 10 more/less than any number to 100.
- Recall & use +/- facts to 20.
- Derive & use related facts to 100.
- Recognise PV of any 2-digit number.
- Recognise & use inverse (+/-).

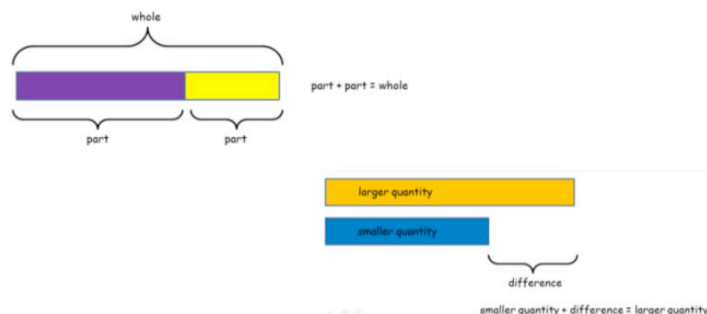
## Skills for next steps (Y5 Skills)

- Count forwards & backward with positive & negative numbers through zero.
- Count forwards/backwards in steps of powers of 10 for any given number up to 1000000.
- Compare & order numbers with 3 decimal places.
- Recognise PV of any number up to 1000000.

## Models & Images

Models and images should be used to support children in visualising calculations and to secure understanding.

When solving problems in different contexts, children should be encouraged to represent the problem visually for support. E.g. using the bar method.



## Signs & Symbols

$$4350 + 3645 = \square \quad \square = 3645 + 4350$$

$$+ 3645 = 7995 \quad 7995 = + 4350$$

$$4350 + \square = 7995 \quad 7995 = 3645 + \square$$

$$+ \square = 7995 \quad 7995 = + \square$$

Adding 3 numbers:

$$\square + 650 + \square = 1925$$

Extend to:

$$2950 + 3125 = \square + 4050$$

## Key Language

Consolidate previous vocabulary  
expanded method / column method  
Carry  
Place value to 1000, tenths, hundredths

## Mental Methods

$$\begin{array}{r} 33 \\ + 9 \\ \hline \end{array}$$

What do I add to get to the next multiple of 10?

$$33 + 7 = 40$$

$$40 + 2 = 42$$

We only need to partition the smallest number.

$$\begin{array}{r} 33 \\ + 42 \\ \hline \end{array}$$

$$30 \quad 3$$

$$42 + 30 = 72$$

$$72 + 3 = 75$$

## Written Methods

Expanded column method, starting with least significant digits (in preparation for formal method), paying attention to place value of each digit.

Moving on to formal method, carrying numbers below the line.

$$\begin{array}{r} \text{H T U} \\ 135 \\ + 44 \\ \hline 9 \\ 70 \\ 100 \\ \hline 179 \end{array}$$

$$\begin{array}{r} \text{Th H T U} \\ 3596 \\ + 1874 \\ \hline 10 \\ 160 \\ 1300 \\ 4000 \\ \hline 5470 \end{array}$$

$$\begin{array}{r} \text{Th H T U} \\ 3596 \\ + 1874 \\ \hline 10 \\ 160 \\ 1300 \\ 4000 \\ \hline 5470 \\ 111 \end{array}$$

## Resources

Practical objects  
Numicon  
Number Lines  
Hundred Squares  
Dienes Blocks  
Cuisenaire rods

Although these methods will be modelled by staff in school, children should experience calculations in a variety of other forms and presentations to support their understanding of maths in the wider world.

# Addition Upper Key Stage 2 (Yr 5/6)

## Prior Learning (Y4 Skills)

- Count backwards through zero to include negative numbers.
- Compare and order numbers beyond 1000.
- Compare and order numbers with 2 decimal places.
- Find 1000 more/less than a given number.
- Recognise Place Value of any 4-digit number.

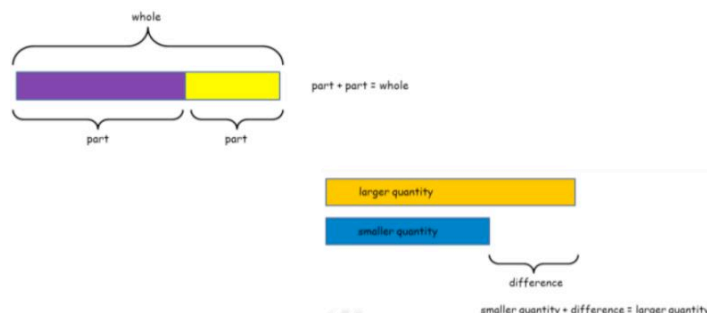
## Skills for Next Step

- Understand and use place value for decimals, measures and integers of any size.
- Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions and mixed numbers, all both positive and negative.
- Recognise and use relationships between operations including inverse operations.

## Models & Images

Models and images should be used to support children in visualising calculations and to secure understanding.

When solving problems in different contexts, children should be encouraged to represent the problem visually for support. E.g. using the bar method.



## Signs & Symbols

$$24.4 + 6.7 = \square \quad \square = 24.4 + 6.7$$

$$+ 6.7 = 31.1 \quad 31.1 = + 6.7$$

$$24.4 + \square = 31.1 \quad 31.1 = 24.4 + \square$$

$$+ \square = 31.1 \quad 31.1 = + \square$$

Adding 3 numbers:

Extend to:

$$3.4 + 1.5 + \square = 5.5$$

$$7.5 + 3.4 = \square + 2.9$$

Calculations with whole numbers with more than four digits

## Key Language

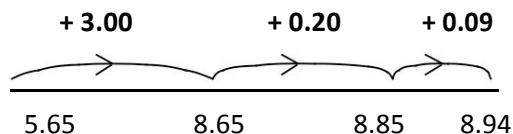
Consolidate all language from previous year groups.

Place Value to 1000000, decimals to thousandths

## Mental Methods

Extend use of jottings and open number lines to move onto numbers with more than four digits and decimal numbers (partitioning):

$$5.65 + 3.29 = 8.94$$



$$10598 + 5714 =$$

$$\begin{aligned} 10000 + 5000 + 500 + 700 + 90 + 10 + 8 + 4 \\ = 10000 + 5000 + 1200 + 100 + 12 \\ = 10000 + 6200 + 112 \\ = 16312 \end{aligned}$$

## Written Methods

Adding whole numbers with more than four digits as well as decimal numbers to the thousandths:

$$\begin{array}{r} 4 \ 2 \ 6 \ 9 \ 4 \\ + \ 5 \ 5 \ 5 \ 0 \ 6 \\ \hline 9 \ 8 \ 2 \ 0 \ 0 \\ \hline 1 \ 1 \ 1 \end{array}$$

For column methods of addition, the addition sign will be positioned on the left and carries will be recorded at the bottom of the full column.

$$\begin{array}{r} 5 \ 1 \ 2 \ 7 \ . \ 3 \ 4 \ 6 \\ + \ 2 \ 7 \ 6 \ 2 \ . \ 8 \ 2 \ 3 \\ \hline 7 \ 8 \ 9 \ 0 \ . \ 1 \ 6 \ 9 \\ \hline 1 \ 1 \end{array}$$

## Resources

Numicon  
Number Lines  
Hundred Squares  
Dienes Blocks  
Cuisenaire rods