



Addition Progression Policy

EYFS to Year 6

Addition- Progression in written method Y1 to Y6



Contextualise the mathematics

WHAT DOES THIS NUMBER REPRESENT?

Expose mathematical structure and work systematically

Expect children to use correct terminology and express reasoning

- ❖ Use **stem sentences**.
- ❖ Answer in **complete sentence**.

Identify difficult points

- ❖ Be aware of common misconceptions.
- ❖ Actively seek to uncover these.

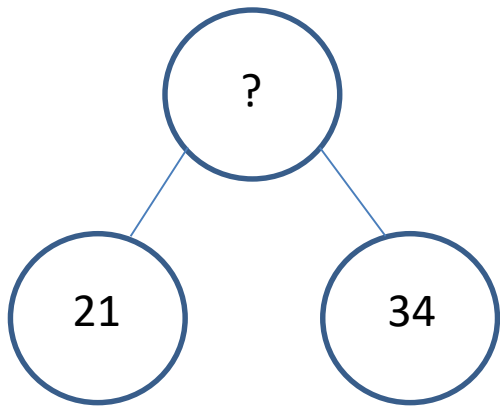
Move between concrete, pictorial and the abstract (CPA)

Teach inequality alongside all mathematical concepts.



< and > can also help deep understanding of key concepts.

Conceptual variation; different ways to ask children to solve 21+34



Word problem:
In Year 3, there are 21 children and in Year 4, there are 34 children. How many children in total?

21+ 34 = 55. Prove it.

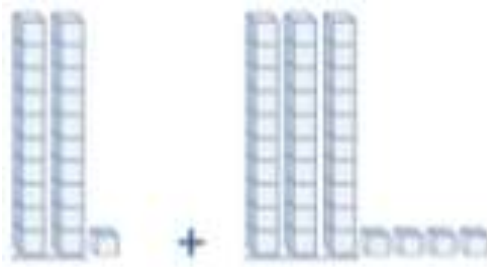
?	
21	34

$$\begin{array}{r} 21 \\ +34 \\ \hline \end{array}$$

21 + 34 =

 = 21 + 34

Calculate the sum of twenty-one and thirty- four.



10s	1s
	
	?
?	5

It is important to use conceptual variation in order for the children to deepen their understanding of the mathematical structure.

Children will find different ways easier or harder to understand than others. We encourage children to work towards looking for the most efficient methods once they have conceptual understanding of the maths.

EYFS Objectives



30-50 months:

- ❖ Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.

40-60 months:

- ❖ Finds the total number of items in two groups by counting all of them.
- ❖ Says the number that is one more than a given number.
- ❖ Finds one more or one less from a group of up to five objects, then ten objects.
- ❖ In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.

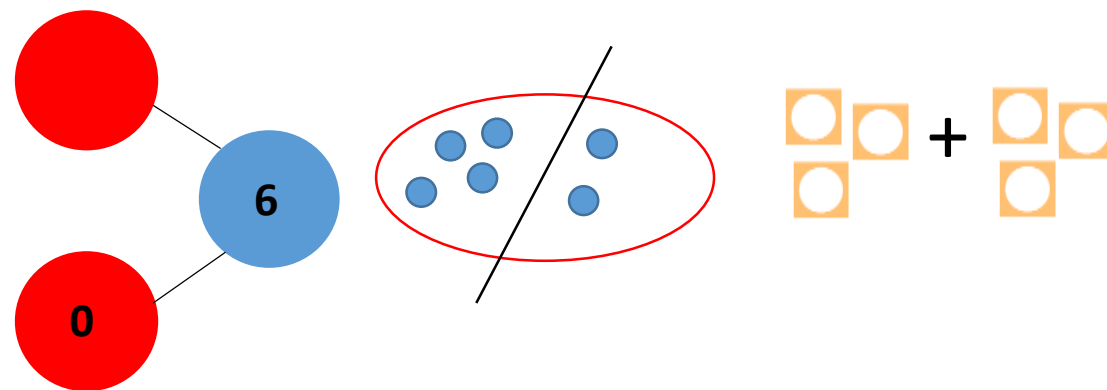
Pupils must be provided with opportunities to develop their skills so that they are able to count reliably, including one to one correspondence and count on from a given number.

Pupils must be provided with many opportunities to **subitise** numbers so they are equipped to calculate rather than count as they progress through their learning.

Pupils should be given the opportunity to count out sets of objects and then combine them to make a total.

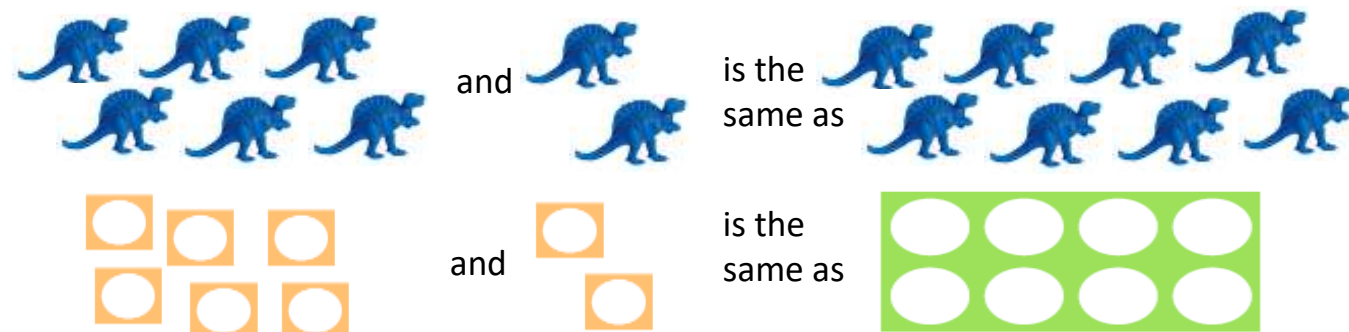
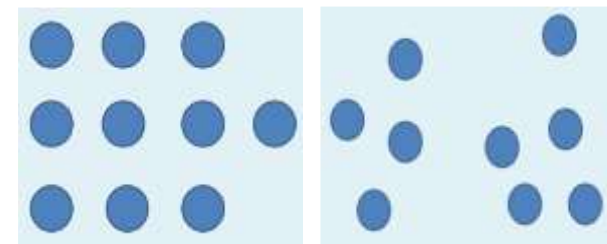
In EYFS pupils should be developing their concept of the number system through the use of concrete materials and pictorial representations. They should experience practical calculation opportunities using a wide variety of equipment, e.g. role play, outdoor play, counters, cubes, numicon, ten frames etc. They develop ways of recording calculations using pictures, etc.

Pupils should recognise different combinations of making single digit numbers. E.g. 6 can be made as:



Subitising

Show the dots for 3 seconds.
How many dots can you see?
How did you see them?
Did you calculate? E.g.. $9 + 1$
and $4 + 5$



Y1 Objectives

- ❖ Number bonds and related addition facts within 20.
- ❖ Add 1 and 2 digit numbers to 20, including zero.



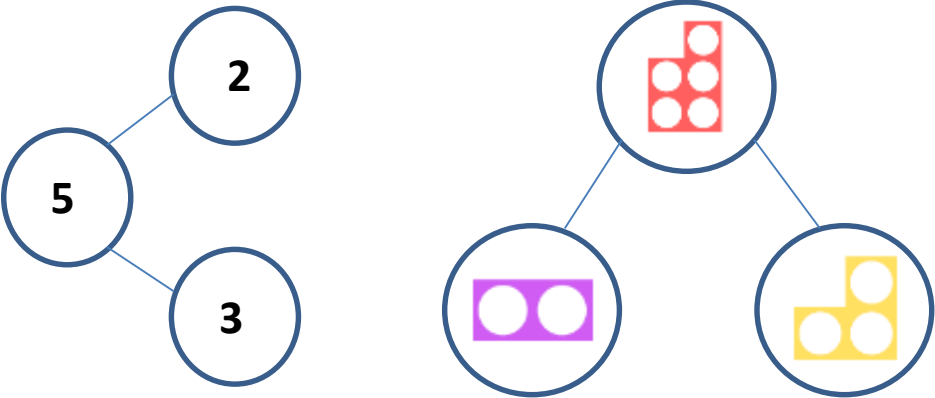
Key skills:

Adding 0 and 1 to a number

Addition bonds within 10 e.g. $5 = 4 + 1$

Addition bonds that = 10 e.g. $10 = 6 + 4$

Use part whole diagram, include zero.
(Zero is not a part- it has no value)



Start with expressions (no = sign)

$2 + 4$
 $4 + 2$

Move on to equations (has = sign)

$5 = 2 + 3$

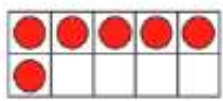
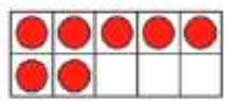
First Then Now

3 + 1 4

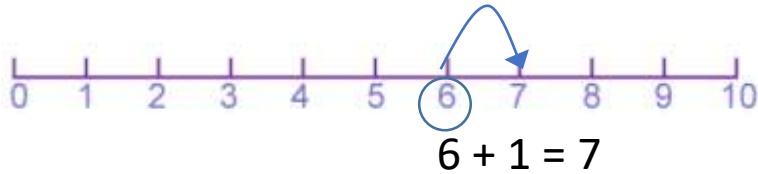
$3 + 1 = 4$

First Then Now

6 + 1 7

$6 + 1 = 7$



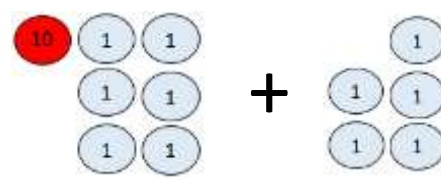
Teacher to use the bar model in summer term



- Y2 Objectives**
- ❖ 1 digit number + 1 digit number + 1 digit number.
 - ❖ 2 digit number + 1 digit number.
 - ❖ 2 digit number + 2 digit number (where sum is less than 100).

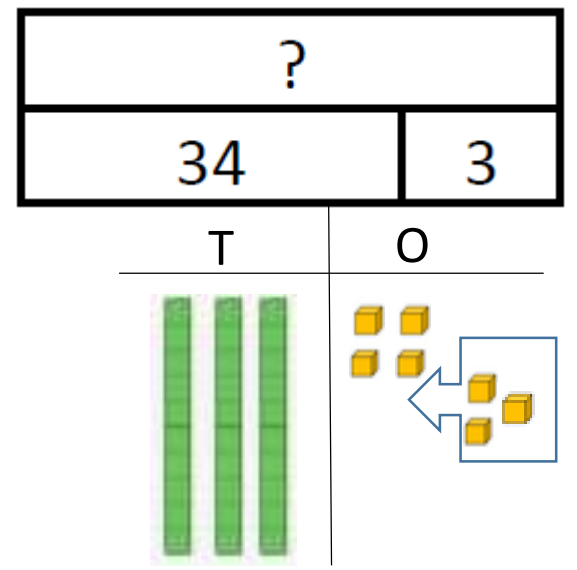


2 digit number + 1 digit number
Use numbers in a context



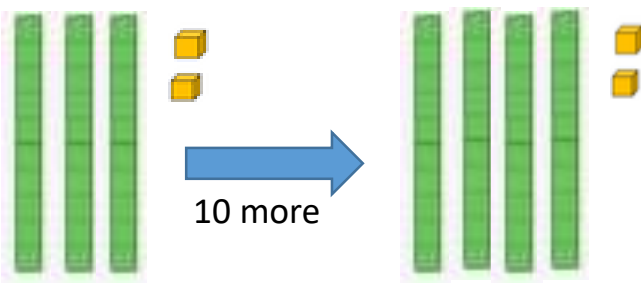
What does each number represent?

Children to use bar model



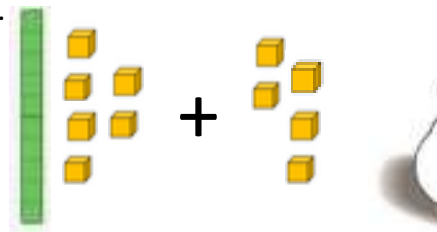
2 digit number + multiple of 10

What's the same? What's different?



Tens 10s	Ones 1s
10 10 10 10 10 10	1 1 1

$43 + 20 = 63$



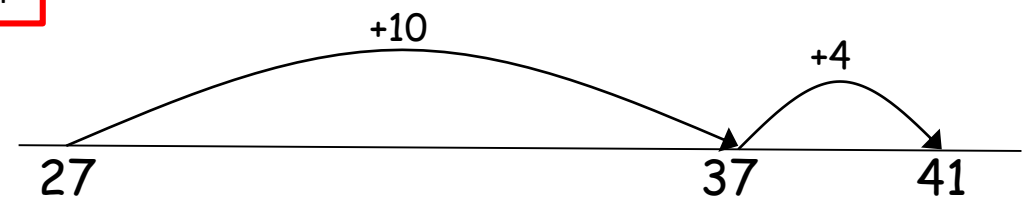
$16 + 5 = 21$
 $16 + 4 + 1 = 21$

At **first** Fiona had saved £34 and **then** she added her £3 pocket money to that. How much does she have **now**?

2 digit number + 2 digit number

$27 + 14$
 $27 + 10 + 4$
 $37 + 4 = 41$

Keep the first number whole



T	O
20	7
+ 10	4
30	11

 $= 41$

Tens 10s	Ones 1s
10 10 10	1 1 1 1 1 1 1 1 1 1 1

Key skills:
2 digit number + 1 digit number
2 digit number + multiple of 10

Teacher to use columnar methods with addition that do not cross the tens boundary in summer term using concrete resources to support.

Y3 Objectives

Mentally:

- ❖ 3 digit number + 1 digit number.
- ❖ 3 digit number + multiple of 10.
- ❖ 3 digit number + multiple of 100.

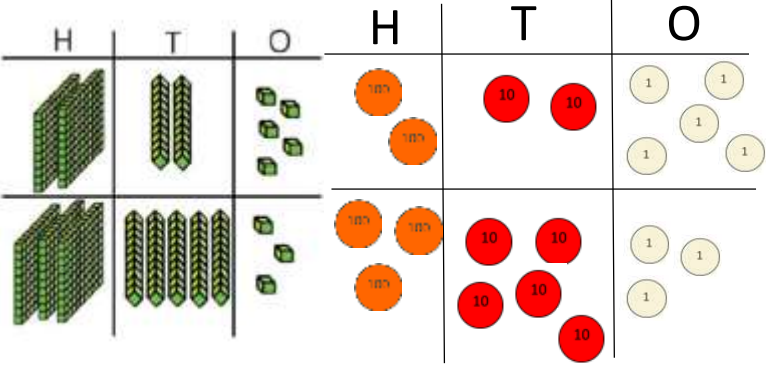


Written Calculation (using column method):

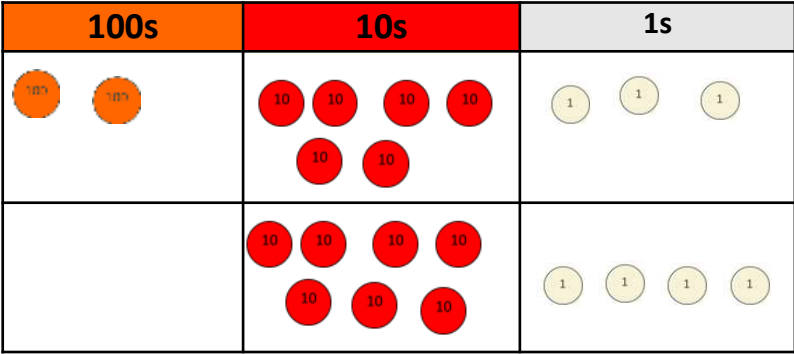
- ❖ 3 digit number + 1 digit number.
- ❖ 3 digit number + 2 digit number.
- ❖ 3 digit number + 3 digit number.

Key skills prior to this stage :
2 digit number + 1 digit number
2 digit number + multiple of 10
Column method using concrete and pictorial

3 digit number + 1 digit number



3 digit number + 2 digit number



3 digit number + 3 digit number

473 + 359 =

			HTO
			473
			+ 359
			12
			120
			700
			832

400 70 3
300 50 9

700 + 120 + 12 = 832

			HTO
			473
			+ 359
			832

Mental strategies based on experiences using concrete and pictorial representation previously:

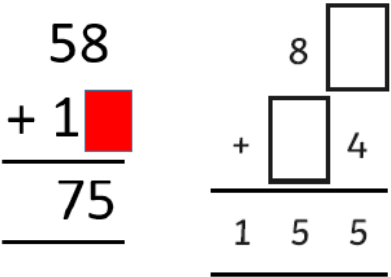
143 + 9 = 143 + 7 + 2
= 150 + 2 = 152

276 + 35 = 276 + 30 + 5
= 306 + 5
= 310 + 1 = 311

165 305 = 305 + 100 + 60 + 5
= 405 + 60 + 5
= 465 + 5 = 470

Teacher to use columnar methods with addition using concrete resources to support.

Solve missing box problems

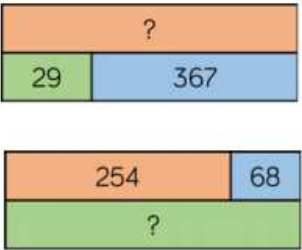


263 + 74 =

			HTO
			263
			+ 74
			7
			130
			200
			337

Teacher to use the compact method in summer term.

Children to use bar model



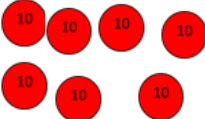
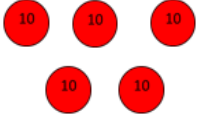
Y4 Objectives

- ❖ Numbers up to 4 digits.
- ❖ Estimate and use inverse operations.
- ❖ Solve two step addition problems, choosing the appropriate method.

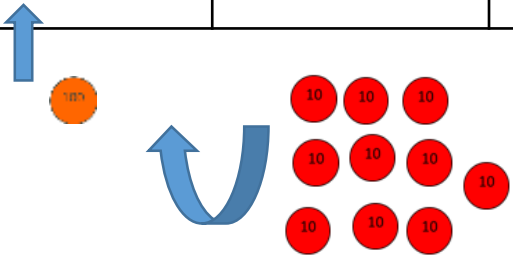


Key skills prior to this stage :
2 digit number + 1 digit number
2 digit number + multiple of 10
Column method

3 digit number + 3 digit number
with exchanging

100s	10s	1s
		
		

100s	10s	1s
		
		



173 + 152 = 325

4 digit number + 4 digit number
with exchanging

$$\begin{array}{r} 1294 \\ + 2345 \\ \hline 3639 \\ 1 \end{array} \qquad \begin{array}{r} 7289 \\ + 5145 \\ \hline 12434 \\ 1 \quad 11 \end{array}$$

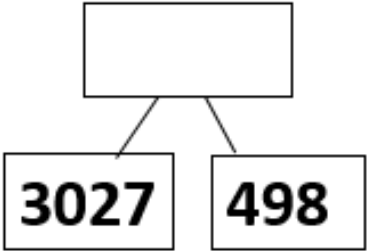
Teacher to use columnar methods
with addition using concrete
resources to support until children
are secure before using compact
method.

$$\begin{array}{r} 173 \\ + 152 \\ \hline 5 \\ 120 \\ \hline 300 \\ \hline 325 \\ 1 \end{array} \qquad \begin{array}{r} 173 \\ + 152 \\ \hline 325 \\ 1 \end{array}$$

Solve missing box problems

$$\begin{array}{r} 758 \\ + \boxed{}15 \\ \hline 10\boxed{}3 \end{array}$$

Children to use part whole and bar model to develop
estimation and number sense.



?	
3027	498

315	
185	?

315 – 185 = ?
185 + ? = 315

Y5 Objectives

- ❖ Numbers with more than 4 digits
- ❖ Add mentally with increasingly larger numbers
- ❖ Use rounding to check.
- ❖ Solve multi-step problems, choosing appropriate method.
- ❖ Decimal numbers



Adding numbers with more than 4 digits

$$\begin{array}{r} 7648 \\ + 1486 \\ \hline 9134 \\ 111 \end{array}$$

$$\begin{array}{r} 17289 \\ + 5145 \\ \hline 22434 \\ 1 \quad 11 \end{array}$$

Decimal numbers

$$\begin{array}{r} 57.30 \\ + 6.08 \\ \hline 63.38 \\ 1 \end{array}$$

Children to use part whole and bar model to develop estimation and number sense.

?	
375.5	14.3

Problem Solving

Sam and Amy are playing their favourite computer game.
Amy’s current high score is 8,453.
Sam’s high score is bigger than Amy’s and when you add them together their combined total is 19,384.
What is Matthew’s high score?

Solve missing box problems

$$\begin{array}{r} \square 4 \square 3 \square \\ + 2 \square 5 \square 2 \\ \hline 78529 \end{array}$$

- Vary the number of digits in the number,
eg, 2 digit number + 3 digit number
 $65 + 577 =$
- Add more than two numbers together.
 $1,254 + 345 + 12,698 =$
- Write = sign in different positions.
 $? = 4,277 + 656$
- Balanced equations.
 $648 + ? = 1,036 + 58$

Y6 Objectives

- ❖ Numbers with more than 4 digits.
- ❖ Decimal numbers.
- ❖ Multi-step problems.



- Vary the number of digit in the number.

$247 + 14,699 =$

- Add more than two numbers together.

$1,424 + 345 + 12,698 =$

- Write = sign in different positions.

$? = 6.9 + 14.32$

- Balanced equations.

$648 + ? = 1,036 + 58$

- Adding fractions. $\frac{2}{5} + \frac{1}{2} + \frac{1}{4} =$

Children to use part whole and bar model to develop estimation and number sense.

?	
487.3	2.9

Problem Solving

A is an odd number with rounds to 100,000 to the nearest ten thousand.
It has a digit total of 30.
B is an even number which rounds to 500,000 to the nearest hundred thousand.
It has a digit total of 10.
A and B are both multiples of 5 but end in different digits.

A	B
631,255	