

Our Progression in Calculation – Subtraction

Concrete – Pictorial - Abstract

SUBTRACTION: Vocabulary Progression:

- Using **correct mathematical language** is crucial for thinking, learning and communicating mathematically.
- We encourage children to explain **what they are doing** and **why they are doing it**.
- When children are first introduced to new vocabulary, it is **not essential** that children remember these words - but this modelling will help them become **familiar with the terms**, gradually beginning to use them accurately and with understanding in later years.

	EYFS	KS1		KS2			
	YR R	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6
Number	zero, one, two..twenty number How many ...? count (up) to, count on (from, to), count back (from, to) is the same as more/less few pattern	twenty-one - one hundred numeral forwards/backwards odd/even equal to equivalent to most/least many multiple of	two hundred - one thousand Tally Sequence Continue Predict Rule > Greater than < Less than	Factor of Relationship Roman Numerals	ten thousand - hundred thousand - million next consecutive integer positive/negative above/below zero minus negative numbers	factor pair ≥ greater than/equal to ≤ less than/equal to formula divisibility square number prime number ascending/descending order	factorise prime factor digit total
Subtraction	How many more to make ..? How many more is..than.? Take away How many are left over? How many have gone? One less, two less…. How much less/fewer is ...?	half, halve subtract equals is the same as number bonds/pairs missing number ten more/less	one hundred more/less number facts tens boundary	Hundreds boundary	inverse	Ones boundary Tenths boundary	

Our Progression in Calculation – Subtraction

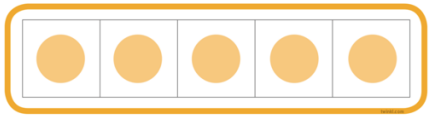
Concrete – Pictorial - Abstract

EYFS – use **quantities** and **objects** to subtract **two single digit** numbers and **count back** to find the answer.

As with addition, we start EYFS with **LOTS** of number recognition using **CONCRETE** resources



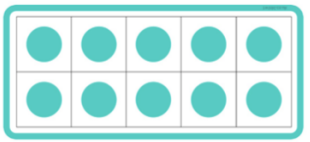
We start by knowing a hand is 5 (without counting).



We can then look for patterns and spot 5 using 5 frames.



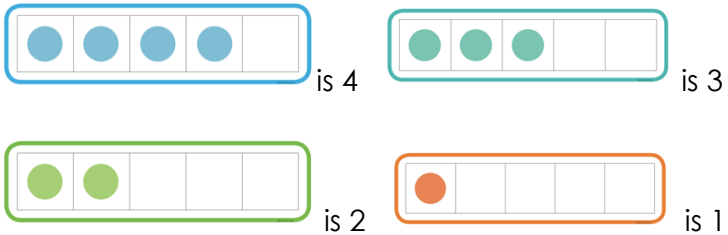
Once, we can spot 5, we can use this pattern to spot 10 (know our hands).



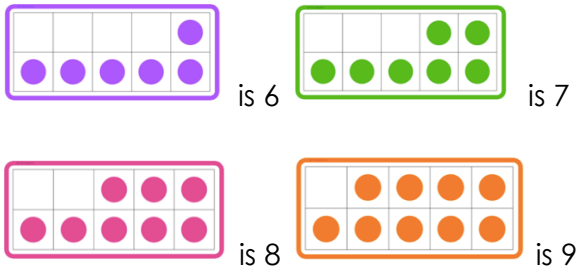
We can also spot 10 using a 10 frame.



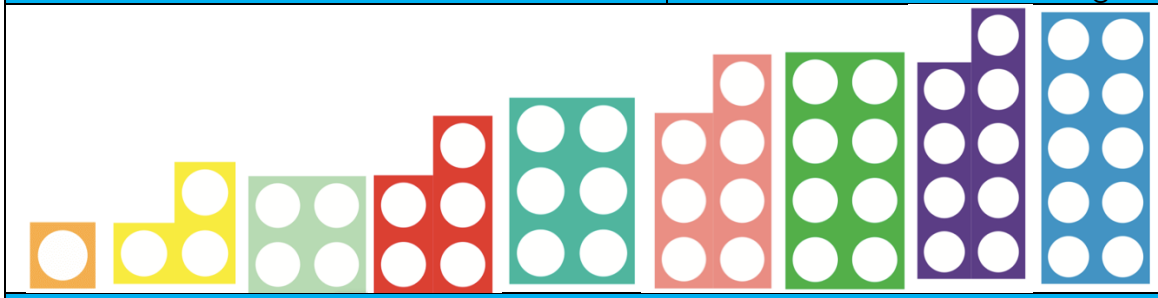
We love using ourselves to spot 5 and 10!



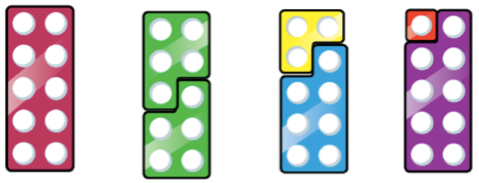
Once we can spot 5 and 10, we can look for patterns in numbers using 5 frames.



Then, we can spot patterns in numbers using 10 frames.



We love using Numicon to recognise number.



How many ways can you build 10?

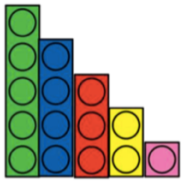
We can then use Numicon to make 10.

Our Progression in Calculation – Subtraction

Concrete – Pictorial - Abstract

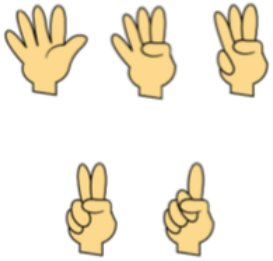
EYFS – subtract **two single-digit** numbers and count on or back to find the answer

Once EYFS has developed **number recognition**, finding '**one less**' can then be explored using CONCRETE resources.



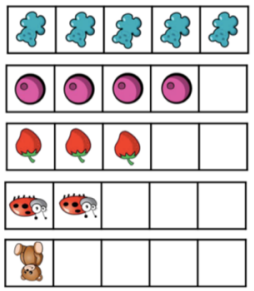
How many items have you used for each step?
Children should see the link that one less than a number is the next number that they are saying.

Construction



Children use their counting and comparing skills to find one less.

Fingers



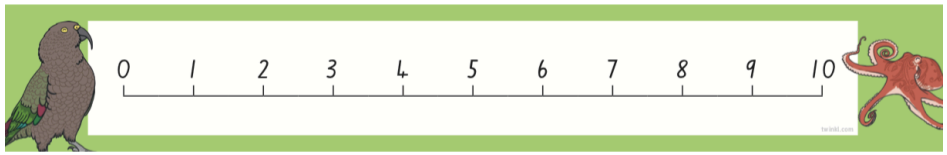
Use a 5 frame (or 10 frame) to represent numbers and then make one less.

5 or 10 Frame



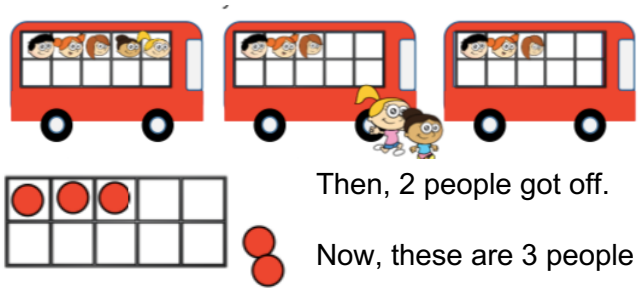
1 **less than** 5 makes 4

We love using objects (including ourselves) to jump back!



We use number lines to count/jump back.

Numicon



First, there were 5 people on a bus.

Then, 2 people got off.

Now, these are 3 people on the bus.

Number Stories

Our Progression in Calculation – Subtraction

Concrete – Pictorial - Abstract

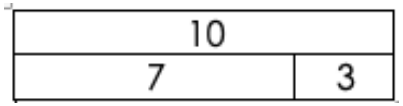
Year 1 – subtract **one-digit** and **two-digit** numbers **to 20**

CONCRETE resources developing **ABSTRACT** calculations

Concrete Resource:



Pictorial:

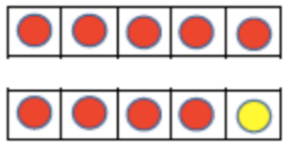


Abstract:

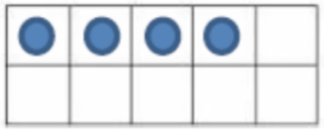
10 – 3 = 7

Building on our learning in EYFS, we can begin counting back with fingers.

Concrete Resource: **5 frame:**



Concrete Resource: **10 frame:**



Abstract: 10 - 6 = 4

Building on our learning in EYFS, we can use 5 and 10 frames.

Concrete Resource: ***Base 10:***



Concrete Resource:

Everyday Objects:

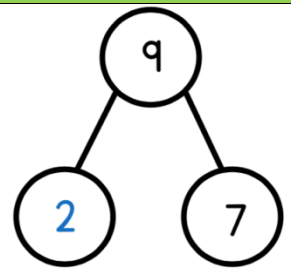


Abstract: 8 – 6 = 2

Abstract: 6 – 2 = 4

Using concrete objects

Pictorial Representation – Abstract Calculation

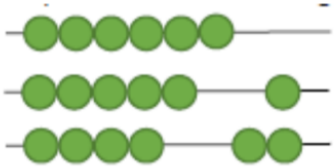


9 – 7 = 2

9 - 2 = 7

Part Whole Model

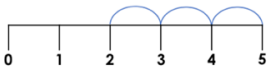
Concrete Resource:



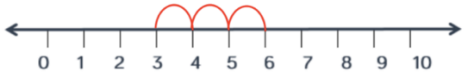
Abstract: 6 - 0 = 6 or 6 – 1 = 5

Bead Strings can help us spot patterns

Concrete/Pictorial:



Abstract: 5 – 3 = 2



Abstract: 6 - 3 = 3

Using a number line to count back.

Concrete/Pictorial:



How many more cakes does Beth have?

Finding the difference – counting on

Our Progression in Calculation – Subtraction

Concrete – Pictorial - Abstract

Year 2 - subtracting a **two-digit number** and **ones**; a **two-digit number** and **tens**; **two two-digit** numbers

Concrete/Pictorial:

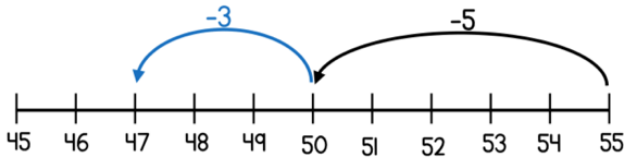
Tens	Ones
	
	
2	6

$$\begin{array}{r} 5\ 6 \\ -\ 3\ 0 \\ \hline 2\ 6 \end{array}$$

Abstract

Base 10 (or Place Value Counters) – column subtraction

Concrete/Pictorial:



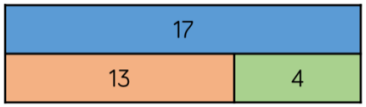
Abstract: 55 - 8 = 47

Number Line – with partitioning

Pictorial Representation – Abstract Calculation

17 – 13 = 4

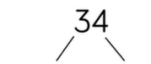
17 – 4 = 13



Bar Model

Abstract:

34 – 13 = 21



Partition 30 into 30 and 4

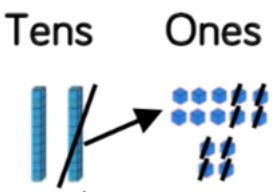
−10 −3 Partition 13 into 10 and 3

20 1

20 + 1 = 21

Partitioning – This could be supported by concrete resources such as Place Value Counters

Concrete/Pictorial *Abstract*

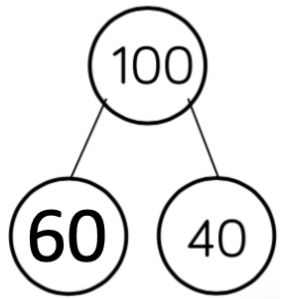


$$\begin{array}{r} {}^{1}\not{2}\ {}^{1}4 \\ -\quad 8 \\ \hline 1\ 6 \end{array}$$

Exchange 1 tens for ten ones

Base 10 (or Place Value Counters) – column subtraction with exchanging

Part Whole Model



100 – 60 = 40

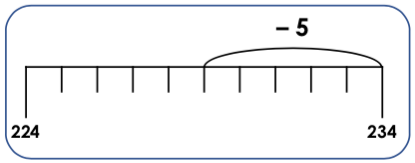
100 – 40 = 60

Our Progression in Calculation – Subtraction

Concrete – Pictorial - Abstract

Year 3 - subtracting a **three-digit** number and **ones**; a **three-digit number** and **tens**; a **three-digit number** and **hundreds**

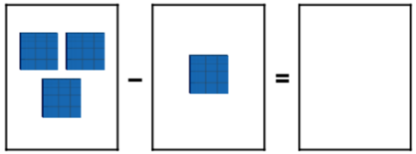
Pictorial:



Abstract:
234 – 5 = 229

Using number lines can help us subtract ones.

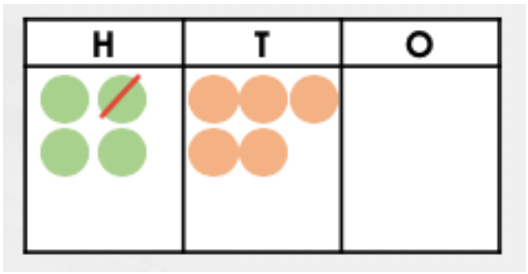
Concrete/Pictorial:



Abstract:
300 – 100 = 200

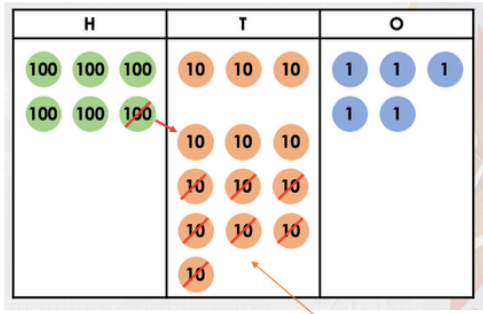
Using base 10 can help up subtract multiples of 100.

Concrete Resources: Place Value Counters/Base 10



Abstract: 450 – 100 = 350

Concrete Resources: Place Value Counters/Base 10

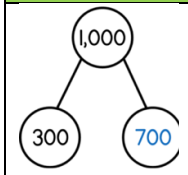


5 1
6 3 5
- 7 0
5 6 5

Abstract

Place Value Counters – Column Subtraction (with or without exchanging)

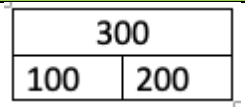
Pictorial Representation – Abstract Calculation



1000 – 700 = 300
1000 – 300 = 700

Abstract

Part Whole Model



Abstract: 300 – 200 = 100 or 300 – 100 = 200

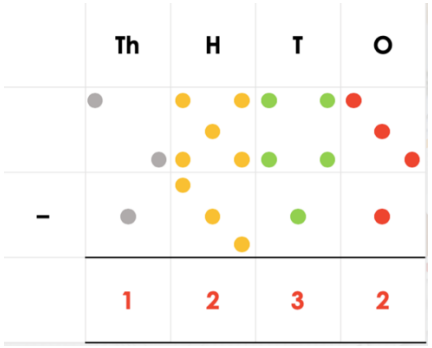
Bar Model

Our Progression in Calculation – Subtraction

Concrete – Pictorial - Abstract

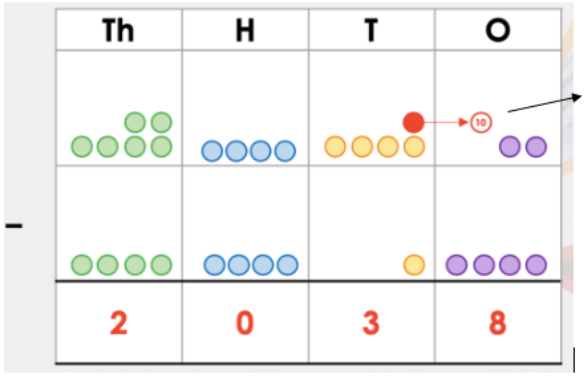
Year 4 - subtract numbers **with up to** 4 digits

Concrete Resources:



Place Value Counters/Base 10 – without exchanging

Concrete Resources:

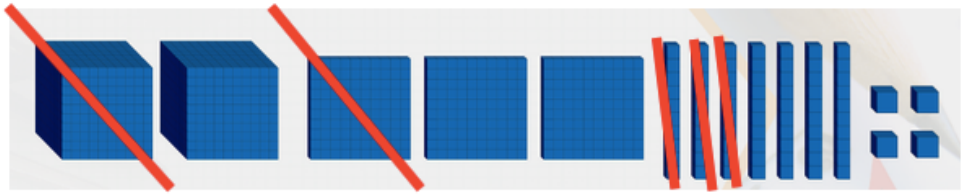


Place Value Counters/Base 10 – with exchanging)

Abstract Calculation:

	3	3 4	1 0	9
–	1	2	6	5
	2	1	4	4

Column Subtraction

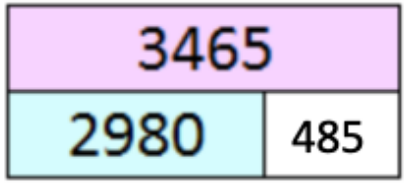


Abstract:

2374 – 1130 = 1244

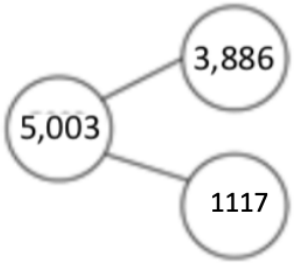
Base 10 – Column Subtraction (with or without exchanging)

Pictorial Representation – Abstract Calculation



Abstract:
3465 – 2980 = 485
3465 – 485 = 2980

Bar Model



5003 – 3886 = 1117
5003 – 1117 = 3886

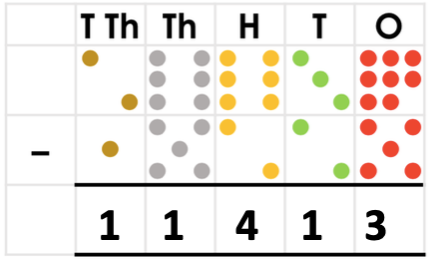
Part Whole Model

Our Progression in Calculation – Subtraction

Concrete – Pictorial - Abstract

Year 5 – subtract whole numbers with **more than** 4 digits
Year 6 - solve subtraction **multi-step problems** in contexts

Concrete Resources:



Abstract:
26638 – 15225 = 11413

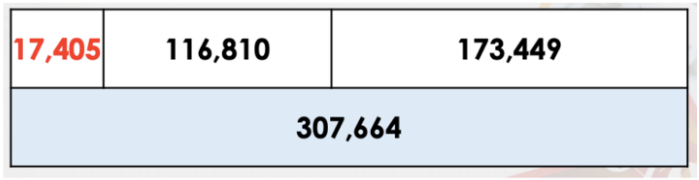
Place Value Counters/Base 10 Column Subtraction (with or without exchanging)

Abstract Calculation:



Column Subtraction (with or without exhanging)

Pictorial Representation – Abstract Calculation



Step 1:

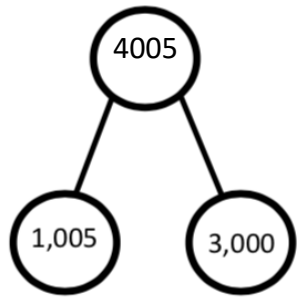
116 810
+ 173 449
290 259

Step 2:

307 664
- 290 259
017 405

Abstract Calculation:
116 810 + 173 449 = 290 259
307 664 – 290 259 = 17 405

Bar Model – Multi-step



Abstract:

4005 – 3000 = 1005

4005 – 1005 = 3000

Part-Whole Model