Year 2 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

Year 2 – adding a **two-digit number** and **ones**; a **two-digit number** and **tens**; **two two-digit** numbers; adding **three one-digit** numbers

Concrete Resource:

Using Base 10:



2 tens + 8 tens = 10 tens

Abstract: ***20 + 80 = 100***

We can use a 10 frame and base 10 to spot number bonds to 100.

Concrete Resource:

Using 10 frame:



Abstract:

2 + 8 = 10

20 + 80 = 100

10 Frame –spotting patterns

Concrete Resource:

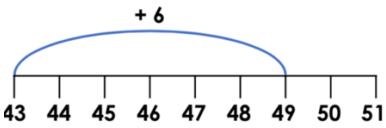


Abstract:

4 + 3 + 3 = 10

We can also use a 10 frame to add 3 one digit numbers

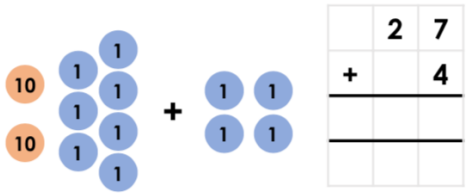
Concrete Resource/Pictorial Reoresentation:



43 + 6 = 49

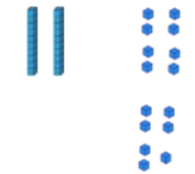
Number line – 2 digit number add ones

Concrete Resource: ***Place Value Counters***



Abtract calculation

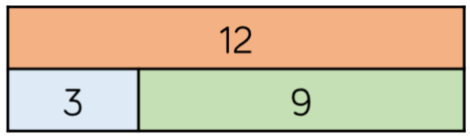
Concrete Resource: Base 10



2 8
+ 7
3 5
1

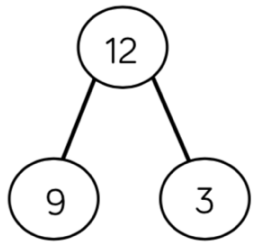
Abtract calculation

Pictorial Representation – Abstract Calculation



3 + 9 = 12

Bar Model



9 + 3 = 12

Part Whole Model

We can use conrete resources to introduce us to column addition

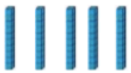
Year 2 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

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

Concrete/Pictorial:

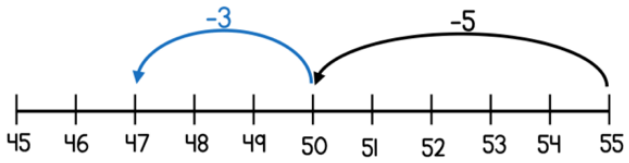
Tens	Ones
	
	
2	6

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

Abstract

Base 10 (or Place Value Counters) – column subtraction

Concrete/Pictorial:



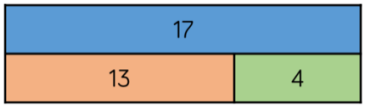
Abstract: 55 - 8 = 47

Number Line – with partitioning

Pictorial Representation – Abstract Calculation

17 – 13 = 4

17 – 4 = 13



Bar Model

Abstract:

34 – 13 = 21

34

30 4

–10 –3

20 1

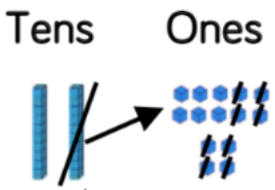
20 + 1 = 21

Partition 30 into 30 and 4

Partition 13 into 10 and 3

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

Concrete/Pictorial *Abstract*

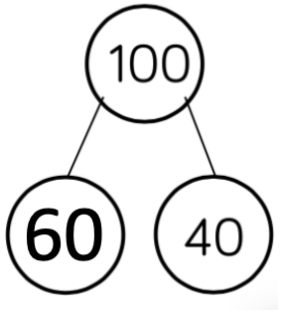


$$\begin{array}{r} {}^{1}\not{2}\ {}^{1}4 \\ -\ \ 8 \\ \hline 1\ 6 \end{array}$$

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

Part Whole Model

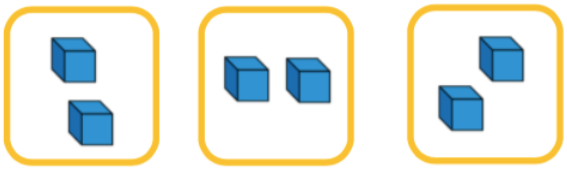
Year 2 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

Year 2 - calculate **multiplication** within the multiplication tables (x2, x5, x10), and write them using the multiplication symbol "x"

Concrete/Pictorial:



Abstract Calculation:

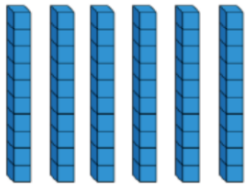
3 x 2 = 6 **or** 2 x 3 = 6

3 **lots of** 2 = 6

3 **equal** groups of 2 = 6

Base 10 - Equal Groups

Concrete:



Abstract:

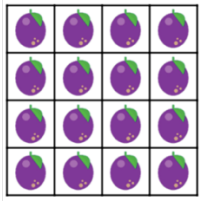
6 x 10 = 60

or

10 x 6 = 60

Base 10 – Equal Groups (x10)

Concrete/Pictorial:



Abstract:

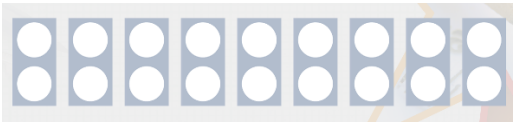
4 x 4 = 16

or

4 **lots of** 4 = 16

Making Arrays

Concrete:



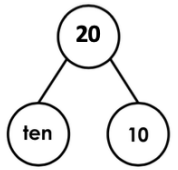
Abstract:

9 x 2 = 18

9 **lots of** 2 = 18

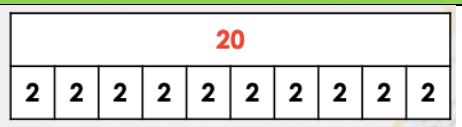
Numicon – Equal Groups (x2, x5, x10)

Pictorial Representation – Abstract Calculation



Abstract: 2 **lots of** 10 = 20

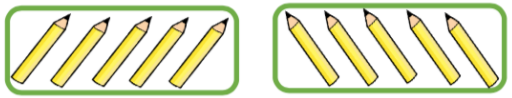
Part Whole Model



Abstract: 10 x 2 = 20 or 2 x 10 = 20

Bar Model

Concrete/Pictorial:



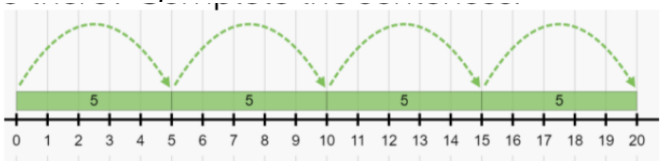
Abstract Calculation:

2 x 5 = 10 **or** 5 x 2 = 10

2 **lots of** 5 = 10

Concrete Objects – Equal Groups

Pictoria Representationl:



Abstract Calculation:

4 x 5 = 20 **or** 5 x 4 = 20

4 **equal** jumps of 5 = 20

Number Line – Repeated Addition

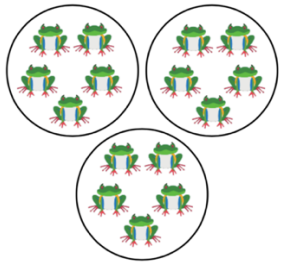
Year 2 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

Year 2 - calculate **division** facts within the multiplication tables (x2, x5, x10), and write them using the division symbol "÷"

Concrete/Pictorial:



Abstract Calculation:

There are 3 **equal groups** with 5 in each group.

15 ÷ 3 = 5

Equal Groups

Concrete/Pictorial:



Abstract Calculation:

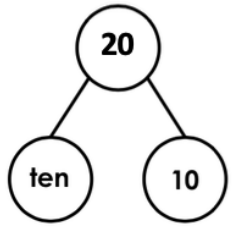
20 ÷ 5 = 4

20 **shared equally** between 4 is 5

20 **grouped equally** between 4 is 5

Base 10 – dividing by 5

Pictorial Representation – Abstract Calculation



Abstract Calculation:

20 ÷ 2 = 10

20 **shared equally** between 2 is 10

Concrete:



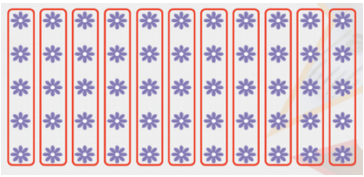
Abstract Calculation:

How many groups of ten? 9

90 ÷ 10 = 9

Base 10 – dividing by 10

Concrete/Pictorial:



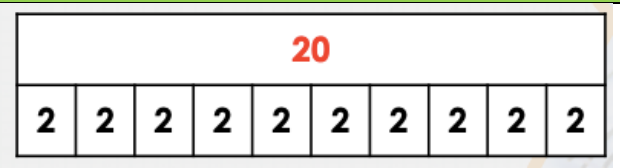
Abstract Calculation:

55 ÷ 5 = 11

There are 11 **equal groups** with 5 in each group.

Making Arrays

Part Whole Model



Abstract Calculation: 20 ÷ 10 = 2

20 **grouped equally** between 10 is 2

Bar Model