Year 4 Calculation

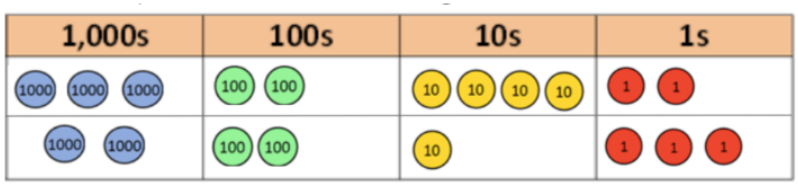
Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

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

Concrete Resourse (PV counters):

Column Addition (without crossing):

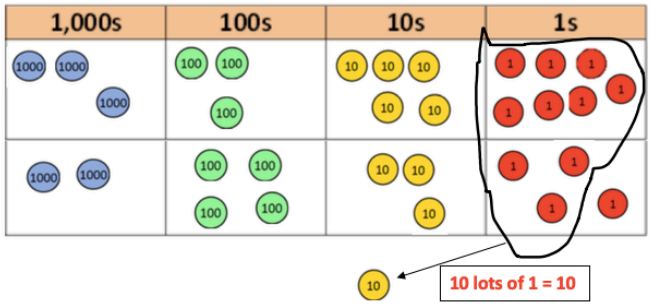


5 4 5 5

Abstract

3 2 4 2
+ 2 2 1 3
5 4 5 5

Column Addition (with crossing)

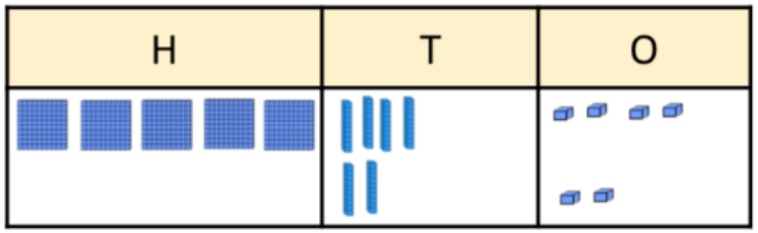


Abstract

3 3 5 7
+ 2 4 3 4
5 7 9 1

Place Value Counters – Column Addition (with and without crossing)

Concrete Resourse (Base 10):



544
+ 22
566

Abstract

Base 10 – Column Addition (with and without crossing)

4,844
+ 2,156
7, 000
1 1 1

Abstract

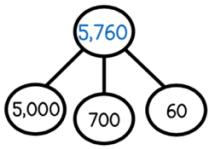
Column Addition

2 503
2 811
+ 814
6 128
2

Abstract

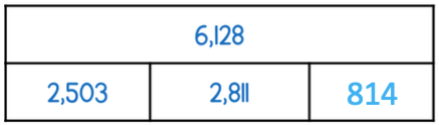
Column Addition

Pictorial Representation – Abstract Calculation



5000 + 700 + 60 = 5760

Part Whole Model



2503 + 2811 + 814 = 6128

Bar Model

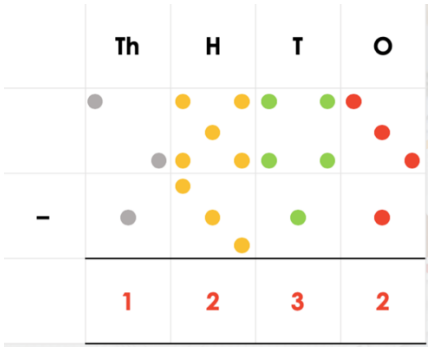
Year 4 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

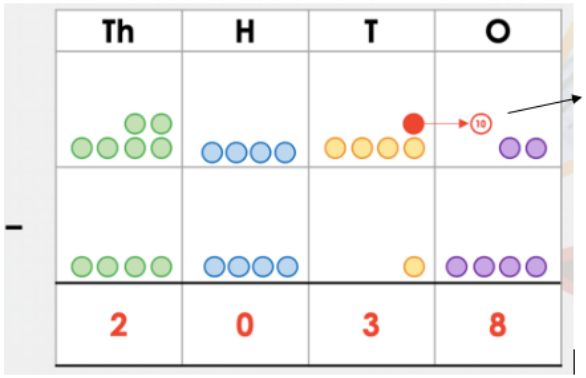
Year 4 - subtract numbers **with up to** 4 digits

Concrete Resources:



Place Value Counters/Base 10 – without exchanging

Concrete Resources:

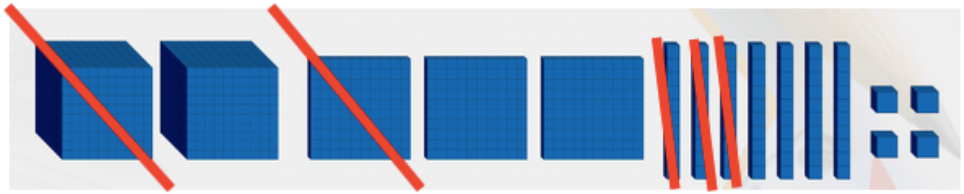


Place Value Counters/Base 10 – with exchanging)

Abstract Calculation:

	3	3 4	1 0	9
–	1	2	6	5
	2	1	4	4

Column Subtraction

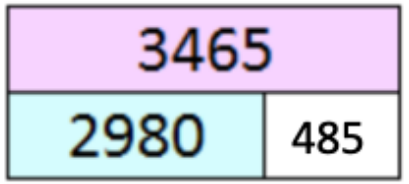


Abstract:

2374 – 1130 = 1244

Base 10 – Column Subtraction (with or without exchanging)

Pictorial Representation – Abstract Calculation

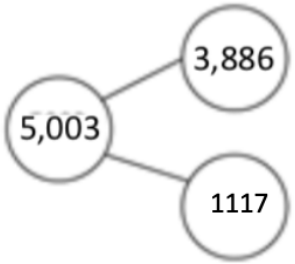


Abstract:

3465 – 2980 = 485

3465 – 485 = 2980

Bar Model



5003 – 3886 = 1117

5003 – 1117 = 3886

Part Whole Model

Year 4 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

Year 4 - multiply **two-digit** and **three-digit numbers** by a **one-digit number** using formal written layout

Making Arrays

Concrete/Pictorial:



Abstract Calculation:

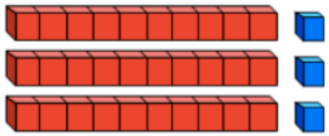
5 x 9 = 45

9 **lots of** 5 = 45

5 **equal** groups of 9 = 45

Base 10 – Equal Groups

Concrete:



Abstract:

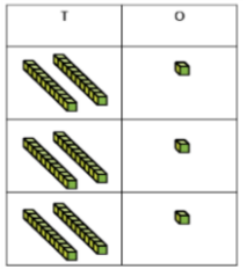
3 x 11 = 33

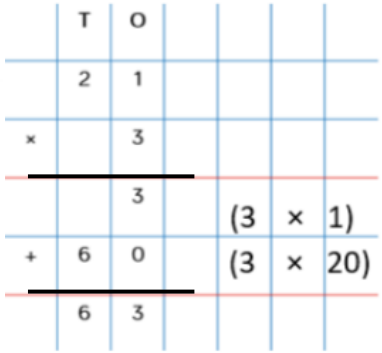
3 **lots of** 11 = 33

3 **equal** groups of 11

Base 10 – expanded method

Concrete: Abstract:



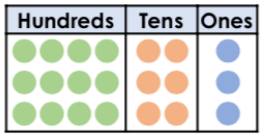


Abstract: 21 x 3 = 63

3 **lots of** 21 = 63

Place Value Counters

Concrete:



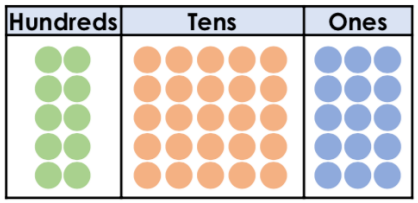
Abstract:

	4	2	1	
x			3	
			3	(3 x 1)
		6	0	(3 x 20)
1	2	0	0	(3 x 400)
1	2	6	3	

421 x 3 = 1263

Place Value Counters – Column Multiplication

Concrete:



5 **lots of** 253 = 1265

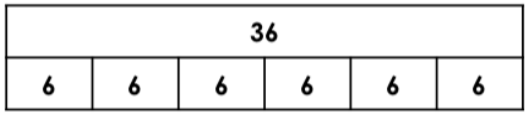
Abstract:

	2	5	3
x			5
1	2	6	5
	2	1	

253 x 5 = 1265

Pictorial Representation – Abstract Calculation

Bar Model



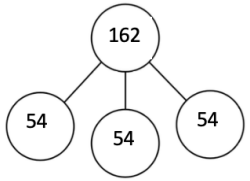
Abstract Calculation:

6 **lots of** 6 = 36

6 **equal** groups of 6 = 36

6 x 6 = 36

Part Whole Model



Abstract Calculation

3 **equal** groups of 54 = 162

3 x 54 = 162

Year 4 Calculation

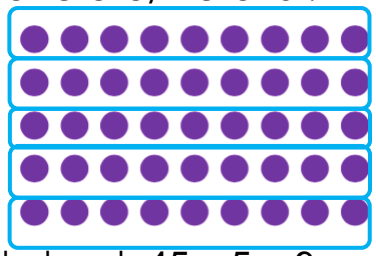
Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

Year 4 – recall **division** facts for multiplication tables up to 12 × 12; use place value, known and derived facts to divide mentally - including dividing by 1 digit numbers

Making Arrays

Concrete/Pictorial:

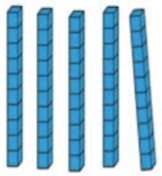


Abstract: 45 ÷ 5 = 9

5 **equal groups** with 9 in each group.

Base 10 – Fact Families

Concrete/Pictorial:



Abstract:

5 x 10 = 50 or 10 x 5 = 50

50 ÷ 10 = 5 or 50 ÷ 5 = 10

Place Value Counters – Sharing Equally (no exchanging)

Concrete/Pictorial:

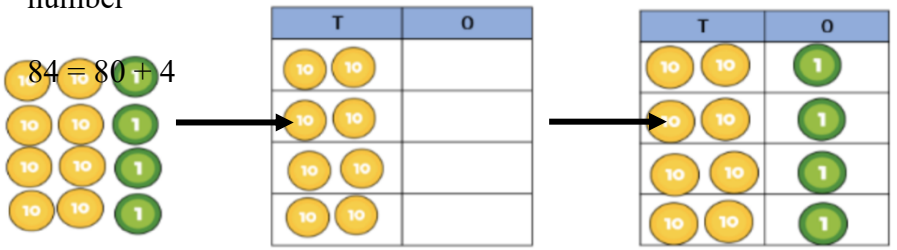
84 ÷ 4 = 21

Step 1: Build the number

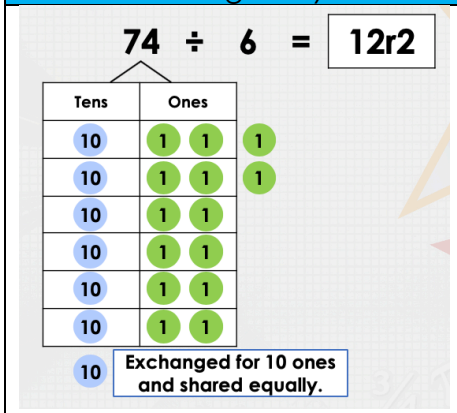
84 = 80 + 4

Step 2: Share the tens into 4 equal groups

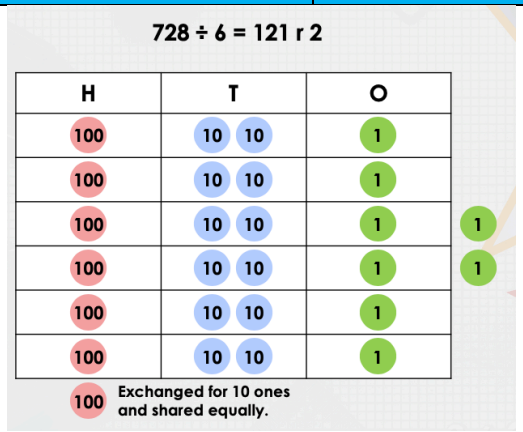
Step 3: Share the one into 4 equal groups



Place Value Counters (with exchanging)

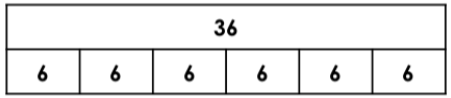


Place Value Counters (with exchanging)



Pictorial Representation – Abstract Calculation

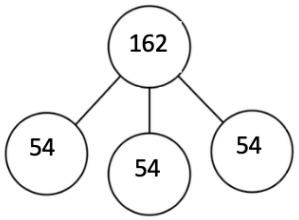
Bar Model



36 **shared equally** between 6 is 6.

36 ÷ 6 = 6

Part Whole Model



162 **shared equally** between 3 is 54.

162 ÷ 3 = 54