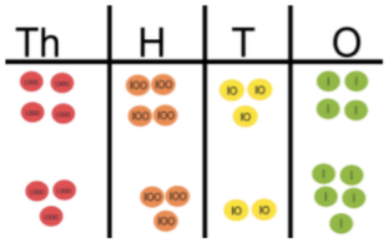
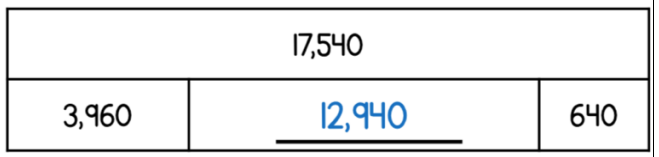
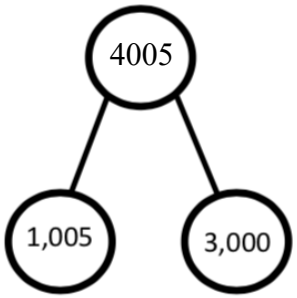
Year 5 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

Year 5 - add whole numbers with **more than** 4 digits
Year 6 - solve addition **multi-step problems** in contexts

Concrete Resources: Place Value Counters/Base 10	*Abstract Calculations:*	*Pictorial Representation – Abstract Calculation*	
 4434 + 3325 = 7759 Abstract	32 461 + 4 352 = 36 813 (1)	 12 940 + 3 960 + 640 = 17 540 (2 1) Abstract	 1005 + 3000 = 4005 Abstract
Place Value Counters/Base 10 Column Addition	*Column Addition*	*Bar Model*	*Part-Whole Model*

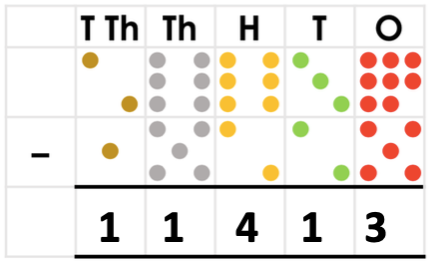
Year 5 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

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

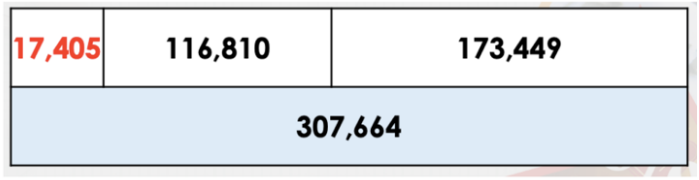
Place Value Counters/Base 10 Column Subtraction (with or without exchanging)

Abstract Calculation:



Column Subtraction (with or without exhanging)

Pictorial Representation – Abstract Calculation



Step 1:

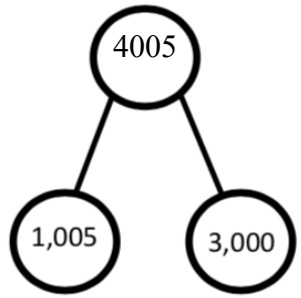
116 810
+ 173 449
290 259

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

Year 5 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

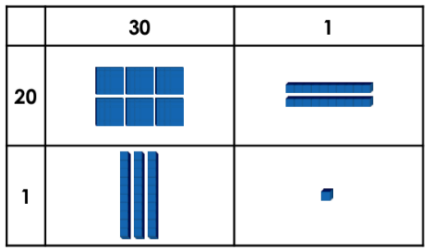
Year 5 – multiply numbers up to **4 digits** by a **one- or two-digit number** using a formal written method
Year 6 - solve multiplication **multi-step problems** in contexts

Base 10 – Area Model

Concrete/Pictorial:

31 x 21 =

(30 + 1) x (20+1)



630 + 21 = 651

Abstract: 31 x 21 = 651

Place Value Counters

Concrete/Pictorial:

1221 x 4 =

4 **lots of** 1221 = 4884

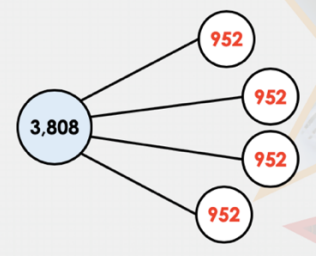


Abstract Calculation:

	1	2	2	1
x				4
	4	8	8	4

Part Whole Model

Pictorial Representation – Abstract Calculation



Abstract Calculation:

952 x 4 = 3808

4 **lots of** 952 = 3808

Written Column Multiplication

Abstract Calculation:

			5	2	
x			3	6	
		3	1 (1)	2	(6 x 52)
	1	5	6	0	(30 x 52)
	8	8	7	2	

Written Column Multiplication

Abstract Calculation:

		1	3	4	3	
x				3	2	
		2	6	8	6	
	4 (1)	0 (1)	2	9	0	→ Place Holder
	4	2	9	7	6	
		1				

Bar Model

5,244			
1311	1311	1311	1311

Abstract Calculation:

1311 x 4 = 5244

4 **lots of** 1311 = 5244

Year 5 Calculation

Concrete – Pictorial - Abstract

(Addition, Subtraction, Multiplication, Division)

Year 5 – divide numbers up to **4 digits by a one-digit number** using the **formal written method** of short division and interpret remainders appropriately for the context

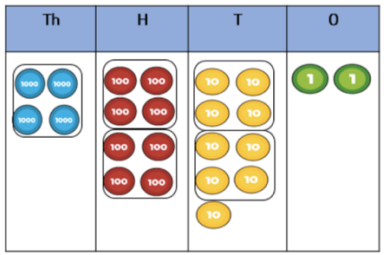
Concrete/Pictorial:

Abstract:

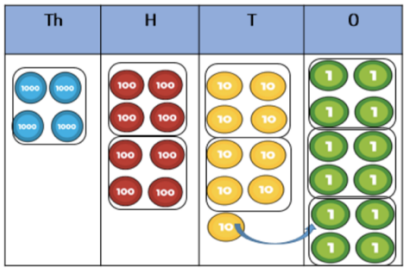
$4892 \div 4 = 1223$

Step 1: Build the number and group equally in 4

$4892 = 4000 + 800 + 90 + 2$



Step 2: Exchange the remaining ten for ten, ones. Then, group remaining ones equally in 4



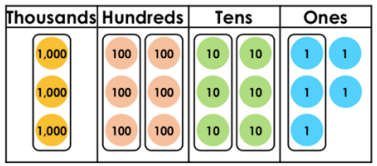
Step 3: Write as a formal written method

$$\begin{array}{r} 1223 \\ 4\overline{)4892^{1}} \end{array}$$

Place value counters progressing to formal written method

Concrete/Pictorial:

$3665 \div 3 =$

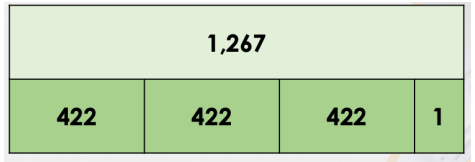


$$\begin{array}{r} 1221\ r2 \\ 3\overline{)3665} \end{array}$$

Abstract Calculation: $3665 \div 3 = 1221$ r 2

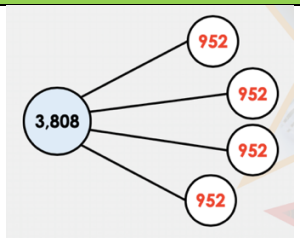
Place value counters - formal written method with remainers

Pictorial Representation – Abstract Calculation



Abstract: $1267 \div 3 = 422$ r 1

Bar model



$3808 \div 4 = 952$

Part Whole model