

SAINT PADARN'S RC PRIMARY SCHOOL



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Introduction

This booklet has been produced to help parents engage with their children's learning at home. The focus is on the four rules of number (+, -, x and ÷), and to produce guidelines:

- to ensure consistency in written methods between Years 3, 4, 5 and 6
- to enable parents to support their children's learning at home by reinforcing the methods developed at school.

It should be noted that these methods are used in all primary and secondary schools locally to ensure consistency between schools. This is especially important as children move from Year 6 to Year 7. Please note that these methods may differ from those that you were taught at school!

Within each section, extended methods are shown in order to develop understanding, which will lead to a more effective use of the standard written method.

Should you require any further explanations or assistance, please don't hesitate to ask the class teacher or the mathematics co-ordinator

Mr Peter Leggett - January 2014

Addition methods



Counting on in multiples of tens and units

$$86 + 57$$

	T	U	+	T	U										
	8	6	+	5	7	=	8	6	+	5	0	+	(7)		
						=	1	3	6	+	7				
						=	1	4	3						

Partitioning tens and units

$$86 + 57$$

	8	6	=		8	0	+		6						
	5	7	=		5	0	+		7						
			=	1	3	0	+	1	3						
			=	1	4	3									

Partitioning hundreds, tens and units

$$263 + 185$$

	2	6	3	=	2	0	0	+		6	0	+	3				
+	1	8	5	=	1	0	0	+		8	0	+	5				
			=	3	0	0	+	1	4	0	+	8					
			=	4	4	8											

Adding the lowest value digits first 386 + 57

			6	+		7	=		1	3								
		8	0	+	5	0	=	1	3	0								
	3	0	0				=	3	0	0								
							=	4	4	3								

Standard written methods of addition

				2	4	5							2	6	3			
			+	1	4	7							+	1	8	5		
				3	9	2							4	4	8			
				1									1					
	4	3	6	7					3	4	.	7						
+	3	7	5	6					+	5	8	.	2					
	8	1	2	3					9	2	.	9						
	1	1	1						1									

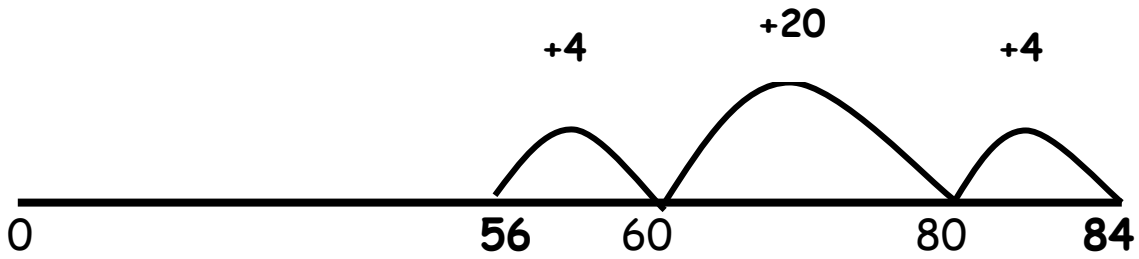
Subtraction methods



Counting up from the smaller to the larger number

TU - TU

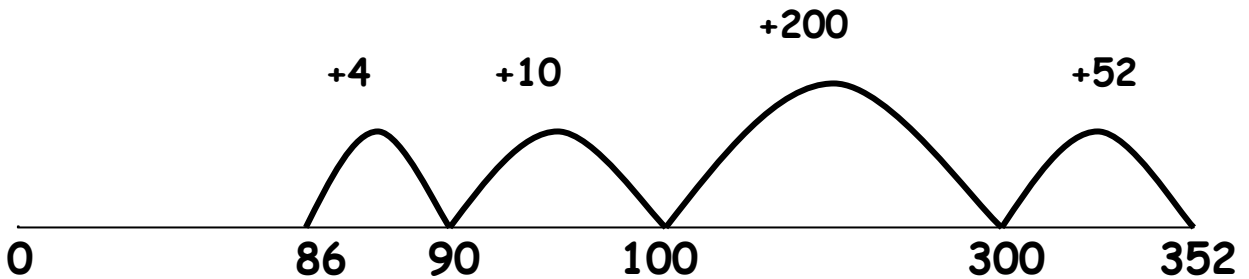
84 - 56



		5	6	+	4	+	20	+	4	=	8	4							
		8	4	-	5	6	=	2	8										

HTU - TU

352 - 86



		8	6	+	4	+	10	+	200	+	52	=	3	5	2				
		3	5	2	-	8	6	=	2	6	6								

Decomposition method - (borrow from the column next door... but don't pay back!)

TU - TU
84 - 56

Take 10 from the tens column and change into 10 units

											7	0			1	4				
8	4	=	8	0	+	4					8	0				4				
5	6	=	5	0	+	6					5	0			-	6				
											2	0				8				
			2	0	+	8	=	2	8											

HTU - HTU
363 - 175

3	6	3	=	3	0	0	+		6	0	+		3							
1	7	5	=	1	0	0	+		7	0	+		5							
										5	0			1	3					
3	6	3	=	3	0	0	+		6	0	+		3							
1	7	5	=	1	0	0	+		7	0	+		5							
				2	0	0			1	5	0			1	3					
3	6	3	=	3	0	0	+		6	0	+		3							
1	7	5	=	1	0	0	+		7	0	+		5							
				1	0	0	+		8	0	+		8							
			=	1	8	8														

Standard written methods of subtraction

	2	14									2	14	12						
	3	5	¹ 2				o	r			3	5	2						
-		8	6								-		8	6					
	<u>2</u>	<u>6</u>	<u>6</u>									<u>2</u>	<u>6</u>	<u>6</u>					
	2	15									2	15	13						
	3	6	¹ 3				o	r			3	6	3						
-	1	7	5								-	1	7	5					
	<u>1</u>	<u>8</u>	<u>8</u>									<u>1</u>	<u>8</u>	<u>8</u>					
	5	13	15								5	13	15	14					
	6	4	6	¹ 4			o	r			6	4	6	4					
-	2	6	8	7							-	2	6	8	7				
	<u>3</u>	<u>7</u>	<u>7</u>	<u>7</u>								<u>3</u>	<u>7</u>	<u>7</u>	<u>7</u>				
	6	11									6	11		15					
	7	2	.	¹ 5			o	r			7	2	.	5					
-	4	3	.	6							-	4	3	.	6				
	<u>2</u>	<u>8</u>	.	<u>9</u>								<u>2</u>	<u>8</u>	.	<u>9</u>				

Multiplication methods

Partitioning method

2	3	x	8	=	(2	0	x	8)	+	(3	x	8)									
				=	1	6	0		+	2	4										
				=	1	8	4														

Grid method

2	3	x	8																		
	x		2	0		3															
	8	1	6	0	2	4	=	1	6	0	+	2	4								
							=	1	8	4											

3	4	6	x	9																		
	x		3	0	0	4	0	6														
	9	2	7	0	0	3	6	0	5	4	=	2	7	0	0	+	3	6	0	+	5	4
											=	3	1	1	4							

3	7	2	x	2	4																
		x		3	0	0		7	0	2											
	2	0	6	0	0	0	1	4	0	0	4	0					7	4	4	0	
		4	1	2	0	0		2	8	0	8		+	1	4	8	8				
																	8	9	2	8	

Multiplying the lowest value digits first

Estimate first e.g. 23×8 is approximately $20 \times 10 = 200$

								2	3										
								x		8									
			3	x	8				2	4									
	2	0	x	8				1	6	0									
								1	8	4									

72×38 is approximately $70 \times 40 = 2800$

										7	2								
										x	3	8							
			8	x		2					1	6							
			8	x	7	0				5	6	0							
		3	0	x		2					6	0							
		3	0	x	7	0				2	1	0	0						
										2	7	3	6						
										1									

Standard written methods of multiplication

Emphasis is put on estimating first to give pupils a guide to a sensible answer

	2	3	x	8	Approx.	(2	0	x	1	0	=	2	0	0)				
		2	3															
x			8															
	1	8	4															
		2																
	3	4	6	x	9	Approx.	(3	5	0	x	1	0)	=	3	5	0	0	
		3	4	6														
x				9														
	3	1	1	4														
		4	5															
	7	2	x	3	8	Approx.	(7	0	x	4	0)	=	2	8	0	0		
			7	2														
x			3	8														
		5	7 ₁	6														
	2	1	6	0														
	2	7	3	6														
		1																

Division methods



Using knowledge of multiplication facts

9	0	÷	6	=	(6	0	+	3	0)	÷	6								
				=	(1	0	+	5)											
				=	1	5													
9	2	÷	6	=	(6	0	+	3	2)	÷	6								
				=	(1	0	+	5)	r	2									
				=	1	5	r	2											
2	5	6	÷	7	=	(2	1	0	+	4	6)	÷	7						
				=	(3	0			+	6)	r	4							
				=	3	6	r	4											

Standard written methods of division

Short division

9	6	÷	6			1	6												
					6	9	³ 6												

1	8	6	÷	6			0	3	1										
					6	1	¹ 8	6											

2	6	0	÷	5		0	5	2									
					5	2	² 6	¹ 0									

4	3	9	÷	4		1	0	9	r	3							
					4	4	3	³ 9									
				=	1	0	9	$\frac{3}{4}$									

Long division when presented with larger numbers

4	5	9	2	÷	3	1											
						0	1	4	8	r	4						
			3	1	4	5	9	2									
			-		3	1	↓	↓									
					1	4	9										
			-		1	2	4	↓									
						2	⁴ 5	¹ 2									
			-		2	4	8										
								4									
		1	4	8	r	4			o	r	1	4	8	$\frac{4}{31}$			