



Holmbush Calculation

Progression Overview

Before children move to written methods, they need:

- To understand the number system
- Know some number facts
- Have good mental strategies / mental agility!

To be reviewed annually

When children move to written methods they need to think...

- What will the answer be roughly?
- Can I work it out in my head?
- What can I use to help me? Do I need a written method?
- Does that answer my question? Does it make sense? Can I check?



הרעטררש + Addition Add Plus Total Altogether More Sum + Year 3 Year 4 Year 5 Year 6

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	Add Plus Total	+ Addition +	• More	Sum Alto	gether
		Vear 3	Vear 4	Vear 5	Vear 6
	Pre-requisite skills needed	Method to be used by	Method to be used by	Method to be used	Method to be used
	(with some ideas to support)	Mernou to be used by	Mernou to be used by	Merriou To De useu	hu core of close
	(with some ideas to support)		core of class	by core of class	by core of class
2	• Addition can be done in any order (commutative)	Expanded addition, 10			- · · · · · · ·
Ę	S4 + 50 or 50 + 54	then IU crossing tens	Compact addition	Compact addition	Compact addition
	related 'East Eamily' for	barriers, then HTU	(integers only) with	including with	including with
	each fact	e.g. 34 + 62	numbers up to 4 digits	decimals to 2 places	decimals to 3 places 📄
	10 = 6 + 4 $4 + 6 = 10$ $6 + 2 = 10$ $2 + 6 = 10$	30 + 4	e.g.	ea	e a 🗆
	10 - 4 = 6 $10 - 6 = 4$ $10 - 6 = ?$ $10 - 4 = 6$	60 + 2	7648	32 75	32 756
	Lindenstand place value can partition numbers & recombine	$\frac{90}{90}$ + 6 = 96	<u>+ 1486</u>	+48.64	+48.646
	Onderstand place value - can partition numbers a recombine	<u></u>	<u>9134</u>	<u>81 30</u>	<u>81 402</u>
	numbers	494 + 368 =	111	<u> </u>	
				11	
		400 + 90 + 4	Expanded addition may		24 5+ 36 238
2		<u>300 + 60 + 8</u>	be used for decimals in		24.5+ 30.230
Ę	30	<u>700 +150 +</u> 12 =862	real contexts e.g.		24 500
			money and length		24.000
	37= 30 + 7 Place Value	then Compact addition	£11.35+ £12.43=		+30.230
	30+7 = 37	494	C40 C4 00 F		<u>60./38</u>
	5 4-50+4 5 0+4-54	+368	$\pm 10 + \pm 1 + 30p + 5p +$		
		862	$\pm 10 + \pm 2 + 40p + 3p$		
	50 54	11	$\pm 20 + \pm 3 + 70p + 8p$		
	concrete 100 square then mentally		= f .23.78		
	 Have a range of mental methods for calculating first with 	Models / Tmages /	Models / Tmoges /	Models / Tmages /	Models / Tmages /
Ę	numbers to 20, then with numbers to 100 e.a.	concrete apparatus to	concrete apparatus to	concrete apparatus	concrete apparatus
	* Usually start with the biggest number (if counting on)	support	support	to support	to support
	* Breaking numbers apart to use them flexibly, this may be with	Numicon	GTTP Add Ventical	Monay	Place value countane
	a bridging strategy (e.g. 7+5 could be thought of as 7+3+2 or	dianas blacks, manay	Numicon	Money	
	5+5+2), a compensating strategy (e.g. 7+9 could be thought of as	nlano voluo ocurtora	Numicon Dianag blacks	Place value courriers	
g	7+10 then -1), using a near double (e.g. 7+8 =14+1), or by doing an	place value courriers	Dienes Diucks	Fluce value Mais	
	equivalent calc (e.g. 6+8=7+7). This will depend on known facts.	place value mats	Place value counters	Jiraws (can cut into	
	• Use partioning to add numbers, first with concrete apparatus,	GITP Dienes and Coins	Place value mats	1/105 and 1/1005)	
	then as a possible mental method	GLIP Add Vertical			
	Estimation to check magnitude				
	,UNUNUNUNUNUNUNUNUNUNUNUNUNUNUNUNUNUNUN	յուղուղոնորըներըները	յուղորըներըներըները	ามกมกมกมกมกมกมกมก	מערערערערערערערערערערערערערערערערערערער

<u>, U U U U U U U U</u>	Subtract take away	- Subtra	ction - minus	difference bet	u C WCCD C C
	Pre-requisite skills needed (with some ideas to support)	Year 3 Method to be used by core of class	Year 4 Method to be used by core of class	Year 5 Method to be used by core of class	Year 6 Method to be used by core of class
	 Understand that subtraction can be seen as taking away and finding the difference 10 grapes, eat two. How many left? 9,8 8 left 9,8 8 left 9,8 000000000000000000000000000000000000	Number line method (2 or 3 digit numbers) e.g. 81-46=35 $\sqrt[44]{+4} + \sqrt[40]{+0} + \sqrt[40]{+0} + \sqrt[40]{+1} + \sqrt[40]{+1$	Number line method (2, 3 , 4 digit numbers, extending to decimals in a real context) e.g. $23 \cdot 21 - \frac{1}{6} + \frac{1}{65} = \frac{1}{210}$ Expanded subtraction e.g. $354 - 165$	Compact subtraction, including up to 4 digits and with decimals to 2 places	Compact subtraction, including up to 4 digits and with decimals to 2 places $\frac{23^{3} \cdot 37}{-12 \cdot 88}$
	and the related Fact Family' for each fact. (especially for 10 itself) 10 = 6 + 4 $4 + 6 = 1010 - 4 = 6$ $10 - 6 = 46 + ? = 10$ $? + 6 = 1010 - 6 = ?$ $? + 6 = 1010 - 6 = ?$ $10 - 4 = 6$	351-165=186 351-165 = 186 +5 +30 +100 +50 +1 0 165 170 200 300 330 351	Compact subtraction $ \begin{array}{r} 2351 \\ -165 \\ -186 \end{array} $	2136	$\frac{+12 \cdot 88}{23 \cdot 37} \checkmark$
	 GITP bingo make amounts) Count on or back in 1s/ and 10s (from any no), first with concrete, then 100 square, then mentally Understand the number line as a continuum Understand place value of numbers (see + images) Understand that subtraction is the inverse of addition (numicon is a particularly useful image) 	Models / Images / concrete apparatus to support Rods and tracks as described in expanded calculation policy Numicon on the numicon tens line Bead bar (using as a number line) Move from Gordon ITP 'Finding the difference' To NNS ITP 'difference'	Models / Images / concrete apparatus to support Dienes, straws or numcon to support GITP Decompexpand GITP Dienes and Coines Place value counters Place value mats	Models / Images / concrete apparatus to support Place value counters Place value mats	Models / Images / concrete apparatus to support Place value counters Place value mats

Multiply times lots of	× Multiplicat	tion x groups of	multiple of	product
Pre-requisite skills needed (with some ideas to support)	Year 3 Method to be used by core of class	Year 4 Method to be used by core of class	Year 5 Method to be used by core of class	Year 6 Method to be u
 Understand multiplication as repeated addition S+5+5+5+5=30 5×6=30 5 multiplied by 6 6 groups of 5 6 hops of 5 and as scaling. 34 x 10 = 340 Group sets of objects reliably Group sets of objects reliably Recognise number sequences e.g. 2s, 5s Understand the number line as a continuum. Understand place value of numbers and be confident at partitioning. Know multiplication facts (usual order 2,5,10,3,4, 8,6,9,7 times tables) Understand that multiplication is commutative 	Focus on understanding, representing and remembering times tables facts for 2,5,10,3,4 and 8 times tables, including division facts e.g $4x8=32.8x4=32,32\div4=8,$ $32\div8=4$ Note - before moving to any TU x U, the children will need be able to multiply a multiple of 10 by a single digit (TOxU)	ALL times tables facts to 12 x 12 should be known by end of year 4 Grid method TU x U or HTU X U e.g. 7 x 39 $\overline{)}$ Total 7 210 63 273 (but know when to calculate mentally e.g. x2, x10, x5) e.g. 245 x 6 $\overline{)}$ 200 40 5 Total 6 1200 240 30 1470	Grid Method for TU x TU or HTU x TU e.g 35 x 46 x 30 5 Total 40 1200 200 140 0 6 180 30 210 Tot al 1610 Moving to Long Multiplication (expanded) 35 x 46 x 30 5 Total 0 6 180 30 210 Tot 1610 35 x 46 35 x 46 30 210 1610 35 x 46 30 210 1610	Long Multiplicat Up to 4 digit x 2 digit 35 $\frac{x 4 6}{2 1 0}$ $14 0 0$ $14 0 0$ $16 1 0$ Moving to Decin numbers to 2 place multiplied by whole numbers Note -some childr may continue to us the grid method
 (arrays eg. Gitp multiplication and Cuisenaire particularly useful). Addition and subtraction of numbers. Understand that multiplication and division are 	Models / Images / concrete apparatus to support	Models / Images / concrete apparatus to support	Models / Images / concrete apparatus to support	Models / Image concrete apparc to support
inverse. - Doubling and halving.	Numicon or Cuisenaire in the calculations policy) GITP Grid method PV cards	e grid (see expanded	GITP Grid Method PV cards	Money can be us to support decin

share equally divide	÷ Divisio	n ÷ repuisder	factor qu	uotient
Pre-requisite skills needed (with some ideas to support)	Year 3 Agreed method to be used by core of class	Year 4 Agreed method to be used by core of class	Year 5 Agreed method to be used by core of class	Year 6 Agreed method to b used by core of class
 Group sets of objects reliably (then pictures) Share (equally) sets of objects reliably (then pictures) GIP Grouping and GITP Sharing Understand division as grouping and sharing. Understand that multiplication and division are inverse operations. 3x5=15 15÷5=3 5x3=15 15÷3=5 Recognise number sequences e.g. 2s, 5s Understand the number line as a continuum. Understand place value of numbers. Know multiplication facts (including the related 	Focus on understanding, representing and remembering times tables facts for 2,5,10,3,4 and 8 times tables, including division facts e.g	Focus on understanding, representing and remembering times tables facts for ALL times tables up to 12 x12 including division facts It is especially important that children understand that division can be grouping or sharing e.g. 12÷3=4 12 sweets between 3 people gives 4 sweets each. (3 groups of 4) 'How many 3s in 12?' gives 4 groups of 3	Short division, up to 4 digit numbers divided by 1 digit numbers e.g 4251÷3 $\boxed{1417}$ $3 \overline{1425^21}$ Including dealing with remainders in context. $\boxed{326} R 6$ $7 \overline{12} \overline{2} \overline{8} \overline{8}$	Short division, up to 4 digit numbers divided by 2 digit numbers e.g. 423 ÷ 18 18 [423:5] 18 [423:0] or Long division 18 [423:0] -36 63 54 90
 fact family e.g 3×5=15, 5×3=15, 15÷3=5, 15÷5=3) Addition and subtraction of numbers Finding half and guarter 	Models / Images / concrete apparatus to support	Models / Images / concrete apparatus to support	Models / Images / concrete apparatus to support	Models / Images / concrete apparatus to support
- Doubling and halving.	come in sets eg pairs of socks, packets of 10, 5mins sections on clock, GITP multiplication, grouping GITP Mental division		rower point, alenes diocks, place value counters, mats	

Fractions Year 3 Year 4 Year 5 Year 6 Pre-requisite skills needed Agreed method to be Agreed method to be used Agreed method to be Agreed method to be (with some ideas to support) used by core of class used by core of class used by core of class by core of class Models / Images / Models / Images / concrete Models / Images / Models / Images / apparatus to support concrete apparatus to concrete apparatus to concrete apparatus to support support support

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