Usworth Colliery Primary School- Progression in Addition

Year	Foundation	Rapid	Mental	Objective	Method	Practical method	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
EYFS		1 more numbers up to 10		Add one more to a group of objects 0-5 then 0-10, then 0-20	Practical / recorded using ICT (eg digital photos / pictures on IWB)	Range of Toys, Books, Beads, Rhymes, Counters, Number tiles, objects (stationary and moving) number lines, Numicon, stories, Role play.	Drawings of problems.	add, more than, equals, altogether, same as, plus, number bonds,
		Number bonds in the range of 10.		Addition as 'combining 2 groups' using single digit numbers in range 0-5 then 0-10 then 0-20 Addition as 'counting on' in range 0-5 then 0-10 then 0-20		Adding 1 more	Begin to record using marks.	number sentences,
				Real life problems in range 0-10		Combining 2 groups		

Year	Foundation	Rapid	Mental	Objective	Method	Practical method	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
У1	1 more Number bonds: 5, 6,7,8,9,10 Largest number first.	Number bonds up to 10. 1 or 10 more than a number	U + multiple of 10 TU + multiple of 10	Consolidation of EYFS Read, write and interpret mathematical statements involving addition (+) and equals (=) signs Adding U+U (bridging 10) TU + U by counting on in range 0-20	Practical / recorded using ICT Informal written methods Horizontal	Objects, Number lines, numbertrack , 100 squares, Multilink, Numicon, Lego, beads, tape measures, bead strings, fingers, whiteboards, role play,	Jumps along a number track. Jumps along a number Jumps along a number line.	add, more than, equals, altogether, same as, plus, number bonds, number sentences, Total, equal to, most, least, put
	Add 10. Number Ten plus ones. Doubles up to 10 Use number bonds of 10 to derive bonds of 11	Doubles up to 10 (double 5)		TU + U (bridging 20) Concept of addition in any order Concept of addition and subtraction as inverse operations Solve real life/missing number 1 step problems in range 0-20	recording	Counting on U+U	Bigger jumps on a number line. Horizontal layout. $\hline + \hline +$	together, more than

Year	Foundation	Rapid	Mental	Objective	Method	Practical method	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
5.								
	40							
Y2	10 more	Number	10+0	Consolidation of 91	Practical	Bead strings, number lines, 100	Number line progressing	add, more than,
	No. 1 and a star	Donas to	The sector of	T 11 T	T. C L	squares, Dienes, place value cards.	to efficient jumps.	equais,
	Number bonds:	20	10+ multiple of	10+1	Informal written		DE 47	aitogetner,
	20,	Dist	10	TU TU	methods		35+4/=	same as, pius,
		Pairs to						number bonds,
	Number bonds:	100 (using	0+0+0	(bridging 10s / 100)	Horizontal		+30 +3 +2	number
	12,13,14,15,	multiples	0 (1 10 1)		recording		4/ // 80 82	sentences,
	16,17,18,19	01 10)	+9 (by +10-1)	0+0+0				I otal, equal to,
							Partitioning	most, least, put
	Add I digit to 2			Add 9 and 11 by adding 10,			33 + 42	together, more
	digit by			then one less or one more			30 + 40 = 70	than
	bridging.						3+2=5	
				Recognise addition and use			/0 + 5 = /5	inverse, sum,
	Partition second			in problem solving including				partition
	number, add			numbers, quantities and		•		
	tens then ones			measures				
							Beginning to record in	
	Add 10 and					34+20=54	columns	
	multiples.							
	Doubles up to 20					and the second		
	Doubles up to 20					200 20 2	-	
	Multiples of 5					4001 40 V 5004 50 5	2 Dies	
						609 60 6 700 70 7		
	Add near					100 80 8 100 90 9		
	multiples of 10							
	Partition and							
	recombine							

Year	Foundation	Rapid	Mental	Objective	Method	Practical method	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
5.								
	Add multiplac of	Number	T U.U	Contribution of V2	Desetient	Counting sticks disease would be	Deutitienine	
¥3	10 100	Number	10+0	Consolidation of 92	Practical	Counting sticks, dienes, number	Partitioning	ada, more than,
	10, 100	Donds To	T U. T U	م ما ما براند که کر ماز د زم بر سرا د ام	T. 6	lines, nunarea square, tape	57 . 20E	equais,
	Add single digit	20/100/1	10+10	Add up to 3 digit numbers	Informal written	measures, place value caras, place	57 + 285	altogether,
	bridging through	000	The man	using formal written	mernoas	value courriers.	0.200-200	same as, plus,
	boundaries	Deine	10+ riear	mernoas (column no	11		0+200=200	number bonds,
		Pairs of	multiple of 10	carrying)	Horizonia		50+60=150 7-5-12	number
	Partition second	multinlag		Add up to 2 digit numbers	recording	and and a second	200,120,12-242	Total aqual to
	number to add	of 5 and		including bridging 100	Formal written		200+130+12-342	most least put
	Pairs of 100	10 that		(conving Draging 100	mathad (no		Column addition	toosthen more
	Use near doubles	total 100		(currying 105)	(no	A.2.0.0	(no carrying)	than inverse
	to add	10101100		Add fractions with the	currying)	14 0	(10 currying) 243	sum partition
		Multinles		some denominator within			+126	sum, par mon
	Add near multiples	of 50 and		one whole			369	column addition
	of 10 and 100 by	100 that						column dddrhon
	rounding and	total		Estimate answers using			Adding fractions	
	adjusting	1000		approximation			3/5 + 1/5 = 4/5	
	Partition and	1000		approximation			373 + 173 - 473	
	recombine			Using inverse to check				
				osing inverse to check				
				Application into problem				
				solvina				
				TU + TU includina bridaina				
				100				
				HTU + TU not bridaina				
				1000				
				HTU + HTU not bridaina				
				1000				

Year	Foundation	Rapid	Mental	Objective	Method	Practical method	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
	Add as dialas of							
У 4	Add multiples of	Bonds to	10+10	Consolidation of 93	Practical	Place value counters and cards,	Partitioning	add, more than,
	103 , 1003, 10003	1000				dienes, coins, fraction cards and	1234 + 3472	equals,
	Fluency of 2 digit +		Pairs of	Add 4 digit numbers using	Informal written	pictures.	1000 + 3000 = 4000	altogether,
	2 digit	Derive	multiples of	formal written methods	methods		200 + 400 = 600 30 + 70 = 100	same as, plus,
	_	sums of	10/100/1000	including bridging 1000		200	4 + 2 = 6	number bonds,
	Partition second	pairs of	T I 0.11 11		Horizontal	2 2 2 W 115 P	4000 + 600 + 100 + 6 - 4706	number
	number to add	multiples	Three, 2 digit	Add fractions with the	recording		4000 + 000 + 100 + 0 - 4700	sentences,
		0T	multiples of 10	same denominator	Competenciation		Column addition	Total, equal to,
	Decimal pairs of 10	10/100/1	(40+50+30)		rormal written		(with carrying)	most, least, put
		000	True 2 dista	Add decimais in the	method (carrying)			together, more
	Use near doubles	AAultinlag	Two, 3 digit	context of money			2358 £3.48	than, inverse,
	to add	Multiples	(220,150)	Estimata using nounding			<u>+1874</u> + <u>£2.41</u>	sum, parition,
		that total	(320+150)	Estimate using rounding			<u>4232</u> <u>£5.89</u>	column addition
	Adjust both	1000		Llas nounding to shack			111	Thomas
	numbers before	1000.		ose rounding to check			Adding fractions	decimal point
	adding	Pairs of		unswers			3/5 + 1/5 = 4/5	denominator
	Add poor multiplos	fractions		Peccanise addition as the				numerator
	Add field finditiples	to 1 whole		inverse of subtraction				numer arei
	Partition and	10 1 001010						
	recombine			Solve 2 step problems				
				including money and				
				fractions				

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group		Recall	calculation				methods	
•••								
	Add multiplac of	Nautius	Tutores	Concelidation of VA	Desetiant		Column oddition	
Y5	10s 100s 1000s	Derive	Integer +	Consolidation of 94	Practical	Place value counters and cards,	Column addition	ada, more than,
	tenths.	bonas up	decimal e.g.		T (1)))	coins, fraction cards/pictures	(with carrying)	equais,
	,	то I (I ар)	19 +3.4	Add numbers of more than	Informal written		5.761	altogetner,
	Fluency of 2 digit +			4 digits using column	methods		+3.725	same as, plus,
	2 digit including	Derive		addition		0.7	9.486	number bonds,
	with decimals	bonds up			Horizontal	0.05	1	number
		to 10 (1		Addition of numbers with	recording			sentences,
	Partition second	dp)		up to 3 decimal places				lotal, equal to,
	number to add				Formal written		Adding fractions	most, least, put
	Use number facts,			Add fractions with the	method	6214 +	3/5 + //10 = 13/10 = 1	together, more
	bridging and place			same denominator, and		Th H T u	3/10	than, inverse,
	value			denominators that are				sum, partition,
				multiples of the same				column addition,
	Adjust numbers to			number where answer				increase,
	add			exceeds 1				decimal point,
	Partition and						+	denominator,
	recombine			Solve multi-step problems				numerator
				deciding on appropriate				
				operation				tenths,
								hundredths,
								thousandths,
						2786		partition, near
								multiples,
								denominator

Year	Foundation	Rapid	Mental	Objective	Method	Practical method	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
У6	Add multiples of 10s , 100s, 1000s, tenths, hundredths. Fluency of 2 digit + 2 digit including with decimals Partition second number to add Use number facts, bridging and place value Adjust numbers to add Partition and recombine	Derive bonds up to 1 (2 dp) Derive bonds up to 10 (2 dp)	Decimal + decimal e.g. 19.7+3.4	Consolidation of Y5 Application of all prior skills learnt to increase fluency Solve multi-step problems deciding on appropriate operation Explore the order of operations using brackets Add fractions with different denominators/ mixed numbers	Practical Informal written methods Formal written method	Place value counters, fraction cards/cubes, decimal place value cards	3/4 + 2/3 $9/12 + 8/12 = 17/12 = 1$ $5/12$ $4 6 2 1 4$ $2 5 7 8 7$ $7 2 0 0 1$ $1 1 1$ Column addition with decimals $2 6 . 3 7 + 2 8 . 0 9$ $5 4 . 4 6$ $1 1$	add, more than, equals, altogether, same as, plus, number bonds, number sentences, Total, equal to, most, least, put together, more than, inverse, sum, partition, column addition, increase, decimal point, denominator, numerator, tenths, hundredths, thousandths, partition, near multiples, denominator Common denominator

Usworth Colliery Primary School – Progression in Subtraction

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
EYFS		1 less Numbers up to 10		Compare sets of objects Remove objects from a set Say what is one less than a given number within 5 then 10 Use quantities and objects to subtract using single digit numbers	Practical / recorded using ICT (eg digital photos / pictures on IWB)	A range of Toys, Books, Beads, Rhymes, Counters, Number tiles, objects (stationary and moving) number lines, Numicon, stories, Role play Taking away 1 Counting back subtracting single Children should physically remove objects and count what is left.	Those who are ready will begin to make drawings of problems.	Take away, left, left over, gone, one less, fewer, count back(wards), equals

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
У1	One less	Subtraction facts using	TU multiple of 10	Consolidation of EYFS	Practical / recorded	Counting sticks, 100 Squares, Dienes, coins, cubes, bead strings,	Pictures to represent working out.	Take away, left, left over, gone,
		bonds to 10				Numicon, number tracks, dominoes,		one less, fewer,
	Subtraction;			Use subtraction (-) and		dice etc.		count back(wards)
	5,6, 7,8,9			equals (=) signs	using ICT			equals
		1 or 10 less than a					1 2 3 4 5 6 7 8 9 10	equuis
	Count back.	number		Represent and use	Informal written			Subtract
				subtraction facts within	methods	Count back/take away		minus leave
				20		subtraction	13-518	how much/many
	Number bonds.						• • • • • • • • • • • • • • • • • • •	less,
					Horizontal		4.4.4.4	
				Subtract one-digit and	recording		Count back on a number line	
	Subtract 10			two-digit numbers to				
	Submuch to.			20, including 0			5-2=3	
	Teens subtract			Solve one-step				
	10.			problems that involve			Horizontal Missing numbers	
				subtraction and missing			lavout	
				number problems			layout	
	Difference							
	between.							
				Concept of addition and subtraction as inverse operations				

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
5 .								
	10 200	Cubturation	TU 11/	Concolidation of V1	Dreatical	Counting sticks hand strings	Number line pressent to efficient	Taka away laft
¥2	10 less.	Subtraction	10-07	Consolidation of 91	Practical	counting sticks, bedd strings,	ivend and shildren ware deaves in	lake away, let 1,
	Number banda	handa ta 20	numple of 10		Informal written	number lines, 100 squares, Dienes,	Jumps once children were secure in	and logg forward
	Subtraction: 20	Donus To 20	Difference of		mothoda		an to finding the difference using	one less, lewer,
	12 13 14 15 16 17	Daniva and	cmall numbers		mernous		number line	back(wands)
	18 10	use related	by counting	Solve problems with	Horizontal			equale
	10,19	facte to	up	subtraction including	recordina	43-20=14		eyuuis, eubtract minus
	Subtract 1 diait	100	up	those involving numbers	recording	-	1920-1920-092	leave how
	from 2 digit by	100		augntities and measures			47 - 23 = 24	much/many
	bridaina			quannes and measures		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	KARA	less
	bridging.					11 C 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1 -1 -1 -10 -10	1033,
	Partition second							inverse
	number count			τυ - υ				partition
	back in 10's then			TU - T				difference
	1's.			Τυ - Τυ			00 11-11-	takeaway
						(1.2.3)	52-16-10	subtract
	Subtract 10 and							
	multiples of 10.						10	
				Know that subtraction		5-2-3	2	
	Subtract near			cannot be done in any		Find the difference when numbers	10 25 30 <u>c</u> 35 40	
	multiples of 10.			order		are close together		
	Difference							
	between.			Recognise and use the			Partitioning	
				inverse relationship			33 - 12	
				between addition and			30 - 10 = 20	
				subtraction and use this			3 - 2 = 1	
				to check calculations			20 + 1 = 21	
				and solve missing				
				number problems.				

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
5.								
					.	a		
У3	Subtract	Subtraction		Consolidation of Y2	Practical	Counting sticks, dienes, number	Counting back on a number line when	l'ake away, left,
	and 100	least 20	HTU-H		- ()	lines, hundred square, traction	teaching subtraction as taking away.	left over, gone,
			HTU-HTU by	Subtraction as taking	Informal written	pictures etc.		one less, tewer,
	Subtract single	Differences	finding the	away.	methods		Counting on using a number line when	count
	digit by bridging	of multiples	difference.	C. Law at a set for the	11		teaching subtraction as finding the	back(wards),
	through	of 10		Subtraction as finding	Horizontal		difference.	equais,
	boundaries.		10 - near	The difference.	recording	1 Aller		subtract, minus,
	Partition second		muitiple of 10	Subtract numbers with	Formal written	100 P		neuve, now
	number to			up to 3 digits using	method		1,2,3	less inverse
	subtract.			formal written method	mernoa	use practical		nartition
				(column) without		equipment le chocolate, cakes etc.		difference
	Difference			decomposition			Partitionina	takeaway
	Derween.						573 - 261	subtract
				Estimate the answer to			500 - 200 = 300	
				a calculation and use			70 - 60 = 10	inverse.
				inverse operations to			3 - 1 = 2	partition
				check answers			300+10+2=312	minus
								subtract
							Concrete method before moving to	takeaway
				Solve problems,			formal column method.	how many less
				including missing				fewer
				number problems, using			T U	
				number facts, place				
				value, and more complex			243	
				subtraction.			- <u>122</u>	
							24-13=11 <u>121</u>	
							Column subtraction (no	
							decomposition)	

		Subtract fractions with			
		the same denominator		Subtract fractions	
		within one whole		7/10 - 3/10 = 4/10	
				- 3/10 =	

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
5 .								
У4	Subtract	Derive	Τυ-Τυ	Consolidation of Y3	Practical	Dienes, place value cards, place	Partitioning	Take away, left,
	multiples of	differences	Subtract	Subtract numbers with	Informal written	value counters, fraction cards.	5678 - 3462 5000 - 3000 - 2000	left over, gone,
	10's, 100's and	of pairs of	pairs of	up to 4 diaits using the	methods		600 - 400 = 200	one less, fewer,
	1000's.	multiples of	multiples of	formal written methods	merneds		70 - 60 = 10	count
		10/100/100	10/100/1000	(column)	Horizontal		8 - 2 = 6	back(wards),
	Fluency of 2	0			recording	27,94	2000 + 200 + 10 + 6 = 2216	equals,
	digit subtract 2		ThHTU-					subtract, minus,
	digit.		ThHTU with a		Formal written		Expanded method:	leave, how
			small		mernoa		-57 50 7 50 7	much/many
	Partition second		difference					less, inverse,
	number to						Concrete method using place value	partition
	subtract.						counters:	difference
							Exchange hundreds for tens and	takeaway
	Decimal						tens for units.	subtract,
	subtraction						5214 _2782	inverse,
	from 10 or 1.							partition
	N. 177							minus
	Difference			Subtract decimals in				subtract
	Detween.			context of money				такеашау
								how many less
	Subtract hear							Tewer
	multiples by						Subtract starting from the right	Increase,
	adjusting						and exchanging where needed.	decimal point,
	aajusting.							denominator.
							Subtract the ones	numerator
							Th H T u	Exchange
								Minus
								Subtract
								fewer
								partition

		Estimate and use		Then subtract the tens, exchanging	
		inverse operations to		is needed.	
		check answers to a			
		calculation			
				Th H T u	
				Subtract the hundreds again	
				exchanging is needed	
		Solve subtraction two-			
		step problems in			
		contexts, deciding			
		which operations and			
		methods to use and why			
				Finally subtract the thousands	
L					



Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
aroup		Recall	calculation					
5.								
Y5	Subtract	Subtraction	Near multiple	Consolidation of Y4	Practical	Dienes, place value counters,	Use expanded method to show place	Take away, left,
	10's 100's	tacts linked	of 1000-near	Subtract whole	Informal written	Traction cards	value as above for those who heed it.	lett over, gone,
	1000's and	to 1 (one	multiple of	numbers with more than	methods		Extend to:	one less, tewer,
	tenths.	dp) eg 1.0 -	1000 eg	4 digits, using formal	mornous		Column subtraction	count back(wanda)
		0.7 = 0.3	6070-4097=	written methods	Horizontal		(with decomposition)	equals subtract
	Fluency of 2	U - U.†		(column)	recording		Abstract method	minus leave how
	digit- 2digit		Decimal-				, ,	much/many less.
	including with		decimal	Subtract numbers with	Formal written		5 ⁸ ∲¹∕1 ¹ 4 -	inverse,
	decimais.		9.5-3.7	up to 5 decimal places	mernoa		<u>2787</u>	partition
	Partition second			methods (column)			3127	difference
	number to							takeaway
	subtract.			Solve subtraction multi-				subtract,
				step problems in				inverse,
	Difference			contexts, deciding				partition
	between.			which operation and				minus
	Adjust numbers			methods to use and why			3/5 - 1/10 = 5/10	subtract
	to subtract.			Subtract fractions with				takeaway
				the same denominator.				how many less
				and denominators that				fewer, increase, decimal point
				are multiples of the				denominator,
				same number				numerator
								exchange
								minus, subtract
								fewer
								partition
								tenths,
								, hundredths,
								thousandths,
								partition, near
								multiples

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
aroup		Recall	calculation					
5.								
У6	Subtract	As previous	As above	Consolidation of Y5	Practical	Dienes, place value counters,	As y5.	Take away, left,
	10's 100's	increasing		Application of all prior	Informal written	Traction cards/ cubes	Embedding understanding of formal	left over, gone,
	1000's tenths	fluency	Integer/deci	skills learnt to increase	methods		written method with decomposition	one less, fewer,
	and hundredths.	,,	mal (1dp)	fluency		a 🗧 🦉 👘 👘	using larger numbers and decimals.	count
		Subtract	subtract	,	Formal written			back(wards),
	Fluency of 2	mentally	integer/decim	Solve multi-step	method		3/4 - 2/3 = 9/12 - 8/12 = 1/12	equals, leave,
	digit- 2digit	with	al (1dp)	problems deciding on				how much/many
	including with	increasingly		appropriate operation				less, inverse,
	decimais.	numbers		Punils explore the order				partition
	Partition second	and mixed		of operations using				difference
	number to	operations.		brackets			3/5 - 1/10 = 5/10 (1/2)	takeaway
	subtract.							subtract,
				Subtract fractions with				inverse,
	Use number			different				partition
	facts, bridging			denominators/ mixed				minus
	and place value.			numbers				how many less
	Adjust numbers							fewer,
	to subtract.							increase, decimal point
								denominator
	Difference							numerator
	between.							exchange
								fewer
								partition,
								tenths,
								hundredths,
								Thousanaths,
								multiples
								Common
								denominator

Usworth Colliery Primary School – Progression in Multiplication

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
EYFS		Chanting of		Repeated grouping	Practical/	Toys, Beads, Rhymes, Counters,	Drawing problems	Chanting/
		counting in			recorded using	objects, number lines, Numicon,		counting in 2s.
		2s		Counting in pairs	ICT (eg digital	stories, role play, number lines-		
				Doubling	photos /	hopping on, counting pairs.	AT ANY END IN	
				Coupling	pictures on			
					IWB)			
							Begin to record using marks they	
							can explain	

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
У1	Count in 2's Count in 10's Doubles up to 10 Count in 5's Double multiples of 10 Count in 2's, 5's and 10's	Consolidatio n of EYFS Chanting of counting in 2s, 5s 10s Double pairs to 10, then 20		Consolidation of EYFS Begin to understand multiplication through grouping small quantities, Solve one-step problems involving multiplication Make connections between arrays and number patterns Double numbers and quantities Count in multiples of twos, fives and tens	Practical / recorded using ICT Informal written methods Horizontal recording	long number lines, 100 square, counting sticks, Dienes, tape measure, coins, cubes, bead strings, peg boards, numicon	Pictures to represent working out. $ \begin{array}{c} $	Chanting/ counting in 2s. Count on in, lots of, groups of, pattern,

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
2/2	2 x tabla	Count in 2c	Doubles of	Concolidation of V1	Practical	Counting sticks bead strings	Annova	Chanting/
¥2		55 and 105	TU numbers		Fractical	number lines 100 squares Dienes	Arrays	counting in 2s
		55 und 105	TO Humber 3			objects in aroups and arrays	Distantiat chart	counting in 23.
		Derive					G STAT	count on in,
	10 x table	multiples of		Count in steps of 2 and 5 from	Informal		States	lots of, groups
		2, 5 & 10.		0, and in 10s from any number,	written	and the second second	Contraction of the second	of,
				forward and backward	methods			
	Doubles up to	Relate to x				Heatros toeral		pattern,
	20 and	Tacis (ana				10-0-0-0-0-0-0		odd. even.
	multiples of	derive		Recall and use multiplication	Horizontal	1 월 11 년 전망 이번 11 월 11 년 1 월 11 년 전망 이번 11 월 11 년 - 전에 12 12 12 12 12 12 12 12 12 12 12 12 12		every other,
	5.	related		facts for the 2, 5 and 10	recording	100 - 100 -	9999 4×2+8	how many
		facts)		multiplication tables, including		「国を関す国を国」	2×4=0	times, multiple
				recognising odd and even				of, sequence,
	5 x table			numbers		counting on		times, multiply,
		Understand					Departed addition	multiplied by,
		that halving				and the second second	Repeated addition	multiple of,
		is the		Calculate mathematical				once, twice,
	Count in 3's.	inverse of		statements for multiplication		annanaina abiasta	and the second second second	three times,
		doubling		within the multiplication tables		in array	201 0 0 P22	four times,
		and derive		and write them using the		in dirdy.	Server Blockson in Andreas	five times
	2x , 5x and	and recall		multiplication (×) and equals (=)				ten times as
	10x tables.	doubles of		signs				(Dig, long, wide
		all numbers						repeated
		to 20, and						addition
		the		Show that multiplication of			Honizontal recording of nerset	array, row,
		correspondi		two numbers can be done in			addition and using x and -	column, double
		ng halves.		any order (commutativity)				,

		Solve problems involving multiplication using materials, arrays, repeated addition, mental methods, and multiplication facts, including problems in contexts.		2×5=10 44 MARY IN LANS ADD IN 10 12 19 2+2+2+2+2
		Connect the 10 × multiplication table to place value Relate multiplication to grouping discrete and continuous quantities, to arrays and to repeated addition.		Multiplying by 10 using place value
		Use commutativity and inverse relations to develop multiplicative reasoning (for example, 4 × 5 = 20 and 20 ÷ 5 = 4).		5

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
У3	Review 2x, 5x	Derive and	U/TU x	Consolidation of Y2	Practical	Counting sticks, dienes, number	Partitioning	Chanting/
	and 10×	recall 2, 3,	10/100			lines, hundred square, tape		counting in 2s.
	tables	4, 5, 8 and				measures	32 x 6 =	
		10 times	(describe the	Count from () in multiples of 3	Informal		30 x 6 - 180	count on in,
		tables	effect)	4 50 and 100	written		30 × 0 - 100	lots of, groups
	4x tables	(Derive		1, 50 and 100	methods	100	2 × 6 = 12	of, pattern,
	TX TUDICS	related			mernous			odd, even,
		division	Doubles of				180 + 12 = 192	every other,
		facts) Also	Τυ/ΗΤυ	Connect the 2, 4 and 8				times multiple
	Double 2 digit	count in		multiplication tables through	Horizontal	1 2 3 5 5 5 7 2 3 31 31 31 35 5 3 31 31 39 31 31 31 35 35 31 31 31		of sequence
	numbers.	multiples of	numbers	doubling.	recording	1 12 00 22 10 10 10 10 10 10 10 10 10 10 10 10 10	Written method: grid method	times multiply
		above				NA out No No No No 61. 62 53 65 66 33 00 70		multiplied by
						11 12 23 30 27 30 10 61 62 30 65 66 67 60 30 61 62 30 65 66 67 60 30	× 30 5	multiple of
	8x table.			Recall and use multiplication	Formal written	The second se	7 210 35	once, twice,
				and division facts for the 3, 4	method			three times,
		Recognise		and 8 multiplication tables			210 + 35 = 245	four times,
	2	multiples of				Grid method using concrete		five times
	3X Table.	2,				materials:	Introduce formal written method	ten times as
		5 and 10 up		Multinly TLL v LLucino montol			(exhaugea toun):	(big, long, wide
		to 1000		methods and progressing to		<u> </u>	36	and so on),
	6x table or			formal written methods		8		repeated
	review			for mar with en merhous		10 8	<u>× 5</u>	addition,
	others.						20	array, row,
		Use					30	column, double
		Knowledge		Solve problems, including			150	
		ot number		missing number problems,			<u></u>	
		operations		involving multiplication			<u>180</u>	Count on in
		and		including positive integer				hundreds
		correspondi						nanai cao,

ng inverses,	scaling problems and	multiplication,
including	correspondence problems in	product
doubling	which n objects are connected	
and halving,	to m objects	
to estimate		
and check		
calculations	Pupils develop efficient mental methods, for example, using commutativity and associativity (for example, $4 \times$ $12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 =$ 240) and multiplication facts to derive related facts (for example, $3 \times 2 = 6$, $30 \times 2 =$ 60).	

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
VA	4x 8x tables	Derive and	Numbers up	Consolidation of V3	Practical	Dienes place value counters coins	Moving to written method using	Chanting/
74		recall facts	to $1000 \times$		rideriedi	Bienes, place value courrers, comb	arid	counting in 2s
	10 times	to 10 x 10	10/100	Count in multiples of 6, 7, 9, 25	Informal		3	count on in
	bigger.		(whole	and 1000	written		× 300 20 7	lots of, groups
	55	Count in	number		methods		6 1800 120 42	of, pattern,
	3x, 6x and	multiples of	answers	Recall facts for multiplication			1000 + 123 + 47 = 1683	odd, even,
	12x tables.	6, 7, 9, 25	and	tables up to 12 × 12	Formal written			every other,
		and 1000	understand		method			how many
	Double larger		the effect)	Use place value, known and				times, multiple
	numbers and	Recognise		mentally, including; multiplying by		Using the grid method (as in Y3),	1900-120-42-1062	of, sequence,
	decimals.	and use	Doubles of	0 and 1 and multiplying together		with place value counters.	1000+120+42=1902	times, multiply,
		factor pairs	Τυ/ΗΤυ	three numbers			More formal written method	multiplied by,
	3x and 9x	and	numbers and				(expanded method)	multiple of,
	tables.	commutativi	multiples of	Recognise and use factor pairs		x 400 10	(expanded merriod)	once, twice,
		ty in mental	10/100	and commutativity in mental			327	three times,
	11× and 7×	calculations.		calculations		3	x 6	four times,
	tables.						42	five times
				Multiply 10 x 0 using formal		Moving to written method using	120	ten times as
				written layout		the grid	1800	(big, long, wide
				Multiply HTU x U using formal			1962	and so on),
				written layout				repeated
								addition,
				Solve problems involving				column double
				multiplying and adding, including			Formal written method (compact	count on in
				using the distributive law to			form)	hundreds
				multiply two digit numbers by			327	multiplication
				one aigit, integer scaling			<u>× 6</u>	product
				problems and narder			<u>1962</u>	F. 50001
				n objects are connected to m			14	Factor.
				objects.				exchange

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
У5	4x and 8x	Recall	TU x U (eg 12	Consolidation of Y4	Practical	Dienes, place value counters	Written method:	Chanting/
	tables.	quickly	x 9)				(grid method to be used when	counting in 2s.
		facts to 12		Identify multiples and factors,	Informal		introducing and embedding	count on in,
	100, 1000	x 12	TU x TU (eg	including finding all factor	written		understanding of formal method):	lots of, groups
	times bigger.		16 x 25)	pairs of a number, and common	methods			of, pattern,
		Use facts		factors of two numbers.				odd, even,
	3x, 6x and	to multiply	Doubles of				12 X 23 -	every other,
	12x tables.	pairs of	U.t / 0.th	Know and use the vocabulary of	Formal written			how many
		multiples of		prime numbers, prime factors	method		x 40 2	times, multiple
	10, 100, 1000	10/100	Multiply	and composite (non- prime)			20 800 40	of, sequence,
	times smaller.		whole	numbers.				times, multiply,
	Double larger	Use known	numbers and			· · · · · · · · · · · · · · · · · · ·	3 120 6	multiplied by,
	numbers and	facts to	decimals by	Establish whether a number up				multiple of,
	decimals.	derive	10/100/1000	to 100 is prime and recall				once, twice,
		other facts		prime numbers up to 19			And recording as:	three times,
	3x and 9x	eg					800	four times,
	tables.	300x6 =		InHIU × U using a formal			1 2 0	five times
	44 17	1800		written method			1 2 0	ten times as
	11x and /x						40	(big, long, wide
	tables.	Also, find					+ 0	and so on),
	Dentition to	common		using a formal written method,			966	repeated
	Partition to	multiples		two digit numbers				
	mantally	numbanc		Two-digit humbers			Moving on to a more formal	array, row,
	mentany.	numbers		Multiply numbers mentally			method:	count on in
				drawing upon known facts			3 4	hundreds
				a awing upon known rucio			x 1 3	multiplication
				Multiply whole numbers and			I U 2 sex s, carrying i sen from 4 x 3 1	product
				those involving decimals by 10			3 4 0 34 x 10	factor.
				100 and 1000			4 4 2	exchange
								- c

		Recognise and use square		Moving further to more complex	Factor, prime,
		numbers and cube numbers,		numbers:	prime factor
		and the notation for squared		1234	
		(2) and cubed (3)		x 16	
				7 4 0 4	
		Solve problems involving		1 2 2	
		multiplication including using		1 2 3 4 0	
		their knowledge of factors and		19744	
		multiples, squares and cubes			
		Solve problems involving			
		multiplication.			

Year	Foundation	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written methods	Vocabulary
group		Recall	calculation					
У6	Multiplication	Use facts	TU x U	Consolidation of Y5	Practical	Dienes, place value counters	As above (including multiplying	Chanting/
	facts up to	up to 10 x	11411				decimals by whole numbers	counting in 2s.
	12x12	10 to	U.T X U			A CALLER AND A CAL	eg 4.92 × 3).	count on in,
		derive facts		InHIU x 10 using the formal	Informal			lots of, groups
	.	involving	Integer y	written method of long	written	· · · · · · · · · · · · · · · · · · ·		of, pattern,
	Partition to		1000/	multiplication	methods	100	Equivalent Fractions:	odd, even,
	muitiply	multiples of	100/10/0 1/0				Equivalent Fractions.	every other,
	mentally.	10/100	01					how many
		(ea 80 x		Multiply one-digit numbers	Formal written			times, multiple
		30) and		with up to two decimal places	method		<u>3</u> (×3) = <u>9</u>	of, sequence,
	Double larger	decimals (eq		by whole numbers.		10	E (times, multiply,
	numbers and	0.8 x 7)					5 (×3) =15	multiplied by,
	decimals							multiple of,
				T 1 1 1 C 1 C 1				once, twice,
				Identify common factors,			Multiplying fractions	three times,
		Derive		common multiples and prime				four times,
		squares of		numbers			<u>1</u> <u>3</u> <u>3</u>	five times
		numbers to						ten times as
		12×12					2 X 8 = 16	(DIG, IONG, WIDE
		16 × 16		Explore the order of			(multiply numerators)	and so on),
				operations using brackets; for				addition
				example, 2 + 1 x 3 = 5 and (2 +			(multiply denominators)	
				1) × 3 = 9.				column double
								column, double,

Derive correspond ng squares of multiples c 10.	li f	Use common factors to find equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form		count on in hundreds, multiplication, product, factor, exchange, factor, prime, prime factor
		(1/2 × 2/4 = 2/8 = 1/4)		Common denominator

<u>Usworth Colliery Primary School – Progression in Division</u>

Year	Foundations	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written	Vocabulary
group		Recall	calculatio				methods	
			n					
EYFS		Chanting		Division as sharing - one	Practical and	Concrete materials - counters,	Drawings of problems	Group, pairs,
		ot counting		tor me, one for you	recorded using IC1	teddies, Numicon etc Real life	Begin to record using marks	lett over, share equal
		in 2s			pictures on IWB)	pencils.	they can explain	half/halve,
				Division as grouping - how many groups of 3 can we make?			BIT INST	same, count out, share out, left, left over

Year	Foundations	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
У1	Count back in 2's	Chanting	Explore halving	Consolidation of EYFS	Practical /		Pictorial representations	Group, pairs,
	Count back in	of	numbers		recorded using ICT	objects, Multilink, Lego, beads, bead strings, Numicon, whiteboards, role	20÷2=10	left over,
	10's.	in 2s, 5s	even numbers.			play.		half/halve,
	Halves up to 10	and 10s		Solve one-step problems	Informal written	1 All Car	2 2	same, count
				practical contexts	methods		J. T.	out, share out,
	Count back in						337,333	
	53.					00000000000000	Early perior of winow	
	Half multiples			Concept of division as	Horizontal		1 m 1	
	07 10.			sharing	recording	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	How many 2's?			5				
	5's? 10's?							
				Find simple fractions of				
				objects, numbers and				
				contexts.				

Year	Foundations	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
	Nivision Conta	Kasan	TU - 2	Concelidation of V1	Desetion	Number lines would be breaker the brundless	11a	Carrier
Y2	Division facts	Know	10 ÷ 2	Consolidation of 91	Practical	Number lines, number tracks, nunarea	Use arrays: 15÷3=5	Group, pairs,
	ZX TUDIE.	facts for		Pecall and use division	Informal written	squares, multilink, counters, bead		share equal
	Division facts	2 5 and		facts for the 2 5 and 10	methods	15 ÷ 3 = 5		half/halve
	10x table.	10 times		tables, including	momodo			same. count
		tables		recognising odd and even	Horizontal	F++++Y++++Y+++++++++++++++++++++++++++		out, share out,
	Halves up to 20.			numbers	recording	0 1 2 3 4 5 6 7 8 8 10 11 12 13 14 15	$\bigcirc \bigcirc \bigcirc \bigcirc$	left, left over
	Division facts				_			
				Calculate mathematical				Groups of,
	5x table.			statements for division			Picture representations:	times smaller,
				within the multiplication			Plad to fibe Stars Sheat direction E	shorter etc,
	Count back in			tables and write them		6 - 3 - 2	man	repeated
	3's.			using the (÷) and (=) signs		solution	40	subtraction,
	Deview division			Know that division is not		(1 + 1)	ALL AND ALL AN	array, row,
	facte (2x 5x			commutative i.e. cannot			A	column, naive
	and 10x tables)			be done in any order			30	equally one
								each, two each,
				Solve problems involving				three each
				division, using materials,				group in pairs,
				arrays, mental methods,				threes tens,
				and division facts,				equal groups of,
				including problems in				divide, divided
				contexts				by, divided into,
				Recognise, tind, name and				
				write fractions 1/4, 1/3,				
				1/2 and 3/4 of a set of				
				objects or quantity				

Year	Foundations	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
5 .								
	Davian division	4.5		Consolidation of V2	Desetion		T U . U	Create to size
¥3	Review division	AS	107 410 2	Consolidation of y2	Practical	Practical division using place value	$10 \neq 0$	Group, pairs,
	facts (2x, 5x	previous		Decall and use division	Tuformal unittan	counters or dienes	Partioning 63+3=21	lett over,
	and IUX tables).	with		Recall and use division	Informal written	63 - 3 = 21	00 . 3=20	snare, equal,
	Nivisian Casta	increasing		facts for the 3, 4 and 8	methods	63 ÷ 3	3÷3=1	nait/naive,
	Division facts	Tiuency		multiplication tables	l la niman da l			same, count
	4x Table.	Kinawi		Muite and coloulate	Horizonia	(i) (ii) (ii) (ii) (ii) (ii) (iii) (Formal unittan mathed	our, snare our,
	Llalva 2 diait	Know		write and calculate	recording		rormal written metrica -	lett, lett over
	Haive 2 aigit	division		for division using the	Formal unittan		short division (no,	groups of,
	numbers.	Tucis for		for division using the	rormal written		exchange, no remainders)	times smaller,
	Division facto	5,4 unu o		they know using mental	mernoa		21	shorter etc,
	By table	tion		and prograssing to			0 [[]	repeated
	ox tuble.	tablec		formal written methoda		72-3	363	subtraction,
	Division facts	Tubles		formal written mernous			0100	column halve
	3x table			Solve problems including		() (e 70)20		share share
	ox fubic.			missing number problems				equally one
	Division facts (6			involvina division				each two each
	x table) or			including positive integer			1 ÷ 10 = 1/10	three each
	review others.			scaling problems				aroup in pairs.
						- 63+8		threes tens,
				Recognise that tenths		2 1		equal groups of,
				arise from dividing one-		0		divide, divided
				digit numbers or				by, divided into
				quantities by 10				
								Division, share,
								groups of, sets
								of

Year	Foundations	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written	Vocabulary
group		Recall	calculatio				methods	
			n					
У4	 Division facts (4x and 8x table). 10 times smaller. Division facts (3x, 6x and 12x tables). Halve larger numbers and decimals. Division facts (3x and 9x tables). Division facts (7x and 11x tables). Division facts (6x and 12x tables). 	Derive and recall facts up to the 10 times table	Numbers up to 1000 ÷ 10/100 (whole number answers and understand the effect Halves of TU / HTU numbers and multiples of 10 or 100	Consolidation of Y3 Recall division facts for multiplication tables up to 10 × 10 Use place value and known and derived facts to divide mentally for example 600 ÷ 3 = 200 can be derived from 2 × 3 = 6 Practise to become fluent in the formal written method of short division with exact answers Recognise that hundredths arise when dividing a one- or two-digit number by 100 and dividing by dividing tenths by 10 Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in	Practical Formal written method	Dienes, place value counters Practical division using place value counters or dienes 339 ÷ 3 = 113	TU ÷ U, then HTU ÷ U Formal written method - short division (no exchange, first without, then with remainders) 113 $3\overline{339}$ $112r^2$ $3\overline{338}$ 114 $3\overline{342}$	Group, pairs, left over, share, equal, half/halve, same, count out, share out, left, left over, groups of, times smaller, shorter etc, repeated subtraction, array, row, column, halve share, share equally, one each, two each, three each group in pairs, threes tens, equal groups of, divide, divided by, divided into Division, share, groups of, sets of

		the answer as ones, tenths			Exchange,
		and hundredths		1 51	factor, inverse,
				2211	divisible by
		Solve problems involving		3346	
		increasingly harder			
		fractions to calculate		Maria and a second second	
		quantities, and fractions to			
		divide quantities, including			
		non-unit fractions where			
		the answer is a whole			
		number eg 4/5 of 25 = 20			

Year Fo	oundations	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written	Vocabulary
group		Recall	calculatio				methods	
			n					
Y5Div (4x tab100 sma100 sm	ivision facts 4x and 8x ables). D0, 1000 times maller. ivision facts 8x, 6x and 12x ables). artition to ivide mentally. lalve larger umbers and ecimals. ivision facts 8x and 9x ables). D0, 1000 times maller. ivision facts 11x and 7x ables).	As previous with increasing fluency Divide whole numbers by 10, 100 and 1000	Divide using factors of the divisor (eg ÷8 by ÷2 and ÷4) Divide numbers by 10/100/1000 (describe the effect) Halves of U.t/0.th	Consolidation of Y4 Multiply and divide numbers mentally, drawing upon known facts 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 Divide whole numbers and those involving decimals by 10, 100 and 1,000 Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers Establish whether a number up to 100 is prime and recall prime numbers up to 19	Practical Formal written method	Practical division using place value counters or dienes	ThHTU + U with and without remainders expressed as fractions and decimals 5625+5 1125 $5(56'2^25)$ 5637+5 1127-2 5(56'37) 5637+5 1127-3 $5(56'3^37)$ 5637+5 1127-4 $5(56'3^37)^{2}$	Group, pairs, left over, share, equal, half/halve, same, count out, share out, left, left over, groups of, times smaller, shorter etc, repeated subtraction, array, row, column, halve share, share equally, one each, two each, three each group in pairs, threes tens, equal groups of, divide, divided by, divided into Division, share, groups of, sets of, exchange, factor, inverse, divisible by

Partition	Solve problems involving		Divisibility
decimals to	division, and a combination		Divisible by
divide mentally.	of all 4 operations,		
Review division	including understanding the		
facts (6x and	meaning of the equals sign		
12x tables).			
	Solve problems involving		
Halve larger	division, including scaling		
numbers and	by simple fractions and		
decimals.	problems involving simple		
	rates		
	Interpret non-integer		
	answers to division by		
	expressing results in		
	different ways according		
	to the context, including		
	with remainders, as		
	fractions, as decimals or		
	by rounding (for example,		
	98 ÷ 4 = 98/4 = 24 r 2 = 24		
	¹ / ₂ = 24.5 ≈ 25).		

Year	Foundations	Rapid	Mental	Objective	Method	Practical methods	Pictorial/written	Vocabulary
group		Recall	calculation				methods	
У6	Division facts up	Derive ÷	Divide using	Consolidation of Y5	Practical	Practical division using place value	ThHTU ÷ TU with	groups of,
	to 12 x 12.	tacts	tactors of the	Application of all prion	Informal writtan	counters or dienes	remainders	times smaller,
	Partition to	multiples	by $\div 5$ and $\div 3$)	skills learnt to increase	methods	4856 ÷ 4	decimals	repeated
	divide mentally.	of 10/100	2, 2 2.12 2,	fluency		010000		subtraction,
		(eg 240 ÷	TU ÷ U		Formal written		Formal written method -	array, row,
	Halve larger	30) and	U.t ÷ U	Divide numbers up to 4	method		long division	column, halve
	numbers and	decimals	Integer	digits by a two-digit		· · · · · · · · · · · · · · · · · · ·	28-12	share, share
	decimals.	(eg 4.8 ÷	1000/100/10	whole number using the			15432	equally, one
	Division facts	6)		formal written method of			-301	each, two each, three each
	(up to 12×12).			interpret remainders as			132	aroup in pairs
	(-p ··· //			whole number			120	threes tens,
	Partition to			remainders, fractions, or			12	equal groups of,
	divide mentally.			by rounding, as				divide, divided
				appropriate for the				by, divided into
	Halve larger			context			2853	Division, share,
	numbers and			Divide numbers un to 4			15 432	groups of, sets
	decimais.			digits by a two-digit			-301	factor, inverse,
				number using the formal			132	divisible by,
				written method of short			120	divisibility
				division where			120	
				appropriate, interpreting			12	
				remainders according to			A CALLER AND A COM	
				The context				

		Use written division		20.0	
		methods in cases where		154000	
		the answer has up to 2		1314320	
		decimal places		-30	
				132	
		Divide proper fractions		120	
		by whole numbers (for		1200	
		example, 1/3 ÷ 2 = 1/6)		120	
				120	
		Associate a fraction with		0	
		division and calculate			
		decimal fraction			
		equivalents [for example.			
		0.375 = 3/81			
		0.375 = 3/8]			