Multiplication Policy January 2015

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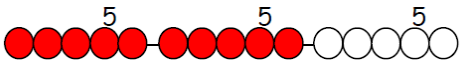
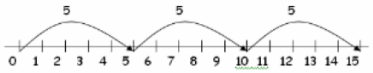
Progression in Multiplication

Experience of making equal groups of objects.	Practical work with concrete objects and related to everyday events	2+2+2+2
Repeated addition of objects and pictures	This should also be linked to sharing- arranging objects in equal groups	**Pictures and symbols** There are 3 sweets in one bag. How many sweets are there in 5 bags? 
Using bead bars to show repeated addition and equal groups	Language to use: this is 5x3 5 times 3 5 multiplied by 3	5x3---- 5times 3,-- 3 lots of 5. 
Doubling numbers to 5	Use games and objects	
Counting in 2s learn 2 x table to 2x12	Using songs and counting games	2,4,6,8,10,12 2x1, 2x2,2x3,2x4,2x5,2x6, 2x7 etc  $2+2+2+2+2=10$ $2\times5=10$ 2 multiplied by 5 5 pairs
Repeated addition on a number line	Use a blank number line to encourage jumping in 5s rather than counting on 1 at a time.	$5\times3=5+5+5$ 
Counting in multiples of 5 learn 5 times table to 5x12	Use 5p coins	5,10,15,20, 5x1,5x2,5x3,5x4,5x5 etc Children should use number lines or bead bars to support their understanding.

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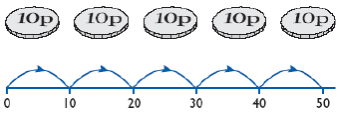
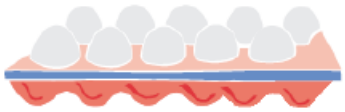
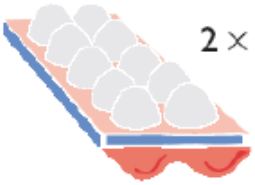
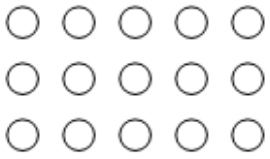
Learn 10 x table by heart to 10x12	Use images to support understanding	 10p + 10p + 10p + 10p + 10p = 50p 10p × 5 = 50p
Double numbers to 10 by heart		
Know 2x 5x,10x tables by heart	Encourage instant recall of the whole table	Children should learn to say the whole table eg 2 times 1 is 2, 2x2 is 4, 2x3 is 6. The symbol = should be understood as equals/ is the same as.
Using arrays to illustrate multiplication and solve problems The commutative nature of multiplication needs to be understood.	Use concrete objects and images to encourage understanding of multiplication	 5 × 2 = 10 2 × 5 = 10  2 × 5 = 10 5 × 2 = 10
Multiply pairs of 1 digit numbers and represent as arrays	The use of arrays will support the development of the grid method.	Recognize the commutative nature of multiplication  5 x 3 = 15 3 x 5 = 15
Know 3x,4x, ,8x,	Continue to learn these	Represent tables pictorially and using objects too. Make connections to own lives where possible.

tables by heart.	regularly as it is crucial.	
Recognize division as the inverse of multiplication		
Multiplying by ten and the effect on place value		10x4 increases the 4 ten times and the digit moves one place to the right on place value chart
To know all tables by heart up to 12x12	(in new curriculum this is a requirement at year 4)	Continue to use models and images to aid understanding as well as games to practise and become "automatic" with answers.
Solve 1 step problems involving multiplication and division	Use concrete objects arrays, grouping and sharing.	Reinforce that multiplication is inverse of division
Multiply by 100, 1000,	Place value reinforcement	
U x multiples of 10	Use place value counters	10x4 20x5
U x TU	Partition TU	Introduce the grid method Children will approximate first 23 x 8 is approximately 25 x 8 = 200 x 20 3 8 160 24 160 + 24 184
Look at patterns in multiplication		X2 = double X4 = double then double X5 = multiply by 10 then half
Estimation	Make reasonable estimates of Tu x U	23x9 is approx 23x10 Chose the correct answer.
TU xTU	Need to understand partitioning and place value. It is easy for	Use grid method

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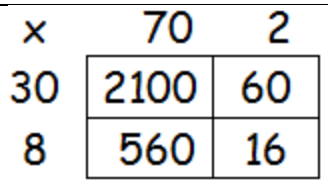
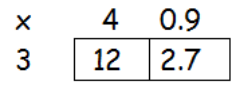
	children to make mistakes when adding up totals. So this needs to be part of the method	 2160 + 576 ---
HTU x U HTU x U	Continue with mental methods too	Use grid method (standard written method) Use expanded compact method
TU xTU		Use compact method
HTU x TU		
Extend to decimals		Children will approximate first 4.9 x 3 is approximately 5 x 3 = 15  12 + 2.7 14.7
Use Chinese method if desired when children are ready .		

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