Calculation Policy: Multiplication and Division

Number	Assessment Point	Example			
1	Count forwards and backwards using rhymes and stories.	"Five sizzling sausages sizzling in a pan."			
2	Count on and back in ones from any given number.	10, 9, 8, 7, 6			
3	Count on and back in 2's, 5's and 10's.	2, 4, 6, 8, 10			
3.1	Use a real life context to double, halve and share.	Double 3			
4	Begin to relate multiplication to getting bigger and division to getting smaller.	How many legs will 3 teddies have? 2 + 2 + 2 = 6			
5	Begin to count into equal groups of 2, 5 or 10 using objects or pictures.	$\int_{2}^{2} \int_{4}^{4} \int_{6}^{6} \int_{8}^{8} \int_{10}^{10}$ How many pairs of socks are there? How many socks altogether?			
5.1	Begin to multiply and divide with concrete objects, arrays and pictures.	How many groups of 4 can be made with 12 stars? = 3			

6Know find you can multiply numbers in any order but you have to divide numbers in order. $8 \div 2 = 4$ $2 \div 8 = 4 X$ $5 \times 3 = 3 + 3 + 3 = 15$ $3 \times 5 = 5 + 5 + 5 = 15$ 6.1Know multiplication and division facts for 2's, 5's and 10's. $7 \times 5 = 35$ $5 \times 7 = 35$ $35 \div 5 = 7$ $35 \div 7 = 5$ 6.2Multiply and divide using objects, arrays, diagrams, pictures, repeated addition and grouping using a number line. $0 \odot 0 \odot 0$ $5 \times 3 = 15$ 6.2Multiply and divide using objects, arrays, diagrams, pictures, repeated addition and grouping using a number line. $0 \odot 0 \odot 0$ $5 \times 3 = 15$ 6.2Multiply and divide using objects, arrays, diagrams, pictures, repeated addition and grouping using a number line. $0 \odot 0 \odot 0$ $5 \times 10 \times 15$ 6.2Multiply and divide using objects, arrays, diagrams, pictures, repeated addition and grouping using a number line. $0 \odot 0 \odot 0$ $5 \times 10 \times 15$ $0 \times 10 \times 15$ 20 6.1Multiply and divide using objects, arrays, diagrams, pictures, repeated addition and grouping using a number line. $0 \odot 0 \odot 0$ $0 \times 12 \times 45 \times 78 \times 101112$ $0 \times 12 \times 45 \times 78 \times 101112$ $0 \times 12 \times 45 \times 78 \times 101112$,		· · · · · · · · · · · · · · · · · · ·
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12 ÷ 3 = 4			12 ÷ 3 = 4
6.3 Begin to solve There are 6 pupils on this table and there are 18 pieces	6.3	Begin to solve	There are 6 pupils on this table and there are 18 pieces
simple word of fruit to share between us. If we share them equally.		simple word	of fruit to share between us. If we share them equally.
problems. how many will we each aet?		problems.	how many will we each aet?

		There are 6 sweets, how many people can have 2 sweets each?				
		00/00/00				
7	Use and understand the symbols x and ÷	 Key vocabulary multiplication: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated ad-dition, column, row, commutative, sets of, equal groups, times, _times as big as, once, twice, three times, partition, grid method, multiple, product, tens, units, value Key Vocabulary division: share, share equally, one each, two each, group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, there division 				
7.1	Know multiplication and division facts for 3's, 4's and 8's.	$8 \times 5 = 40$ $5 \times 8 = 40$ $40 \div 8 = 5$ $40 \div 5 = 8$				
7.2	Multiply a 2- digit number by a single digit number by partitioning the numbers into tens and units within a grid.	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				
7.3	Divide 2-digit numbers by a single digit number by using the short division method.	$4\sqrt{7^{3}2}$				
8	Use multiplication and division to solve problems including missing numbers and scaling.	_x 5 = 20, 3 x = 18, x = 32				
9	Use factor pairs and the commutative law mentally.	$4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$ $4 \times 3 = 12$ $3 \times 4 = 12$				

9.1	Know multiplication and division facts up to 12x12.	X I Z 3 4 5 6 7 8 9 10 I I Z 3 4 5 6 7 8 9 10 Z Z 4 5 6 7 8 9 10 Z Z 4 6 8 10 12 14 16 18 20 3 6 9 10 12 14 16 16 18 20 4 4 8 12 16 20 24 28 32 36 40 5 5 10 15 20 25 30 36 42 48 50 66 61 12 14 14 45 50 6 6 12 18 27 28 35 42 49 56 63 70 8 8 16 24 32 46 55 64 72 80 90 100					
9.2	Use the distributive law in mental calculations.	$39x7 = 30 \times 7 + 9 \times 7.$					
9.3	Use approximating and rounding to check answers.	346 x 9 is approximately 350 x 10 = 3500					
9.4	Multiply a 2- digit and 3-	327 x 4 =					
	digit numbers by a single	x 300 20 7					
	digit number by partitioning	4 1200 80 28					
	the numbers into hundreds, tens and units within a grid.	1200 + 80 + 28 = 1308					
9.5	Divide 3-digit numbers by a single digit number by using the short division method.	218 4)87 ³ 2					
9.6	Use place	Multiplying and Dividing by 10, 100 and 1000					
	known facts to multiply and divide mentally by 10 and 100.	10 000 100 10 1 1 1 1 1 10 000 100 10 1 100 100 1000 10 1 10 1 100 1000 1000 10 10 1 10 1 100 1000 X 10 digits move LEFT 1 space 2 spaces 2 spaces digits move RIGHT 1 space X 1000 digits move LEFT 3 spaces 2 spaces 4 1000 digits move RIGHT 3 spaces					
9.7	Use multiplication and division to solve one-step worded problems in context.	Albert has 35 oranges stored in boxes. If there are 7 boxes, how many oranges must go in each box?					
10	Identity	The factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24 because					

	multiples and factors, including factor pairs and common factors of two numbers.	24 divides by 1, 2, 3, 4, 6, 8, 12 and 24 1 and 24 are a factor pair of 24 since 1 x 24 = 24 2 and 12 are a factor pair of 24 since 2 x 12 = 24 3 and 8 are a factor pair of 24 since 3 x 8 = 24 4 and 6 are a factor pair of 24 since 4 x 6 = 24
10.1	Multiply a 4- digit by a 1 digit number using short multiplication.	327 3652 × 4 * 8 1308 29,216
10.2	Multiply a 3- digit or 4-digit by a 2 digit number using long multiplication.	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
10.3	Divide 4-digit numbers by a single digit number by using the short division method.	0663 5 8)5 ⁵ 3 ⁵ 0 ² 9 8)6 ⁴ 49'7.'0 ² 0 ⁴ 0
10.4	Multiply and divide decimals with units.	3 · I 9 × 8 2 5 · 5 2 <u>1.3</u> 7) 9.1
10.4	Use multiplication and division to solve two-step worded problems in context.	Betty needs 2245g of sugar to bake some cookies. She has 4 packets of sugar. The mass of each packet of sugar is 500g. How much more sugar does she need? Solution: Step 1: Find the total mass of the 4 packets of sugar. 500 500 × 4 = 2000 Step 2: Find how much more sugar she needs.

		2245					
		2000 ?					
		2245 – 2000 = 245 She needs 245g more sugar.					
10.5	Use place value and	Multiplying by 10 When you multiply a decimal number by 10 you move all the digits one place to the left. The number becomes 10 times bigger. Example: 2.63 × 10 = 26.3					
	known facts to multiply and divide	You can see from the answer that the digits move to the left - units move to tens and the others follow like this: H T U 1					
	mentally by 10, 100 and	2 6 . 3 Multiplying by 100 When you multiply a decimal number by 100 you move all the digits two places to the left. The number became 100 times became					
	a decimal.	Example: 2.63 × 100 = 263 Th H T U $\frac{1}{10}$ $\frac{1}{100}$ Th = thousands H = hundreds H = hundre					
		2 6 3 U = units 2 6 3 Multiplying by 1.000					
		When you multiply a decimal number by 1,000 you move all the digits three places to the left . The number becomes 1,000 times bigger . Example: 2.63 × 1,000 = 2,630					
		TTh Th H T U $\frac{1}{10}$ $\frac{1}{100}$ Th the stand of thousands The thousands					
		2 6 3 0					
10.6	Recognise	$1^2 = 1 \times 1 = 1$					
	cubed, and roots.	$2^2 = 2 \times 2 = 4$ $2^2 = 2 \times 2 = 0$					
		$\sqrt{4}$ 2 or 2 Ard $\sqrt{25}$ 5 or 5					
		T = 2 or -2. And T = 5 or -5.					
		$1^{3} = 1 \times 1 \times 1 = 1$ $2^{3} = 2 \times 2 \times 2 = 8$					
		$3^3 = 3 \times 3 \times 3 = 27$					
		∛a is 2 and ∛27 is 3.					
11	Identify	24 = 1 x 24 = 2 x 12 = 3 x 8 = 4 x 6					
	common factors, common multiples and prime						
	numbers.	Is 8 a Prime Number? No , because it can be divided evenly by 2 or 4 (2×4=8), as well as by 1 and 8.					
		ls 73 a Prime Number? Yes , it can only be divided evenly by 1 and 73.					

12	Perform	I think of a number. I add 12, subtract 7.2 and multiply					
	calculation						
	including	(120 ÷ 3 + 7.2 -12 = 35.2)					
	operations						
	(including						
	Using the						
	large						
13	numbers.						
15	digit by a 2-	1234					
	digit number	\times 1 6 7 μ 0 μ (1234 × 6)					
	using long multiplication.	1 2 3 L O (1234 × 10)					
		19,744					
13.1	Divide 3-digit or 4-digit	27					
	numbers by a	- 720 (20x)					
	2-digit number	252					
	division by	- <u>252</u> \ 7× /					
	chunking.	0					
		Answer: 27					
13.2	Multiply a	37.7 x 2.8 = ?>					
	decimal by a decimal	37.7 (1 decimal place)					
		<u>x 2.8</u> (1 decimal place) 3016					
		<u>+754</u> (2 decimal places, move point 2 places left) 105.56					
		Original: 1 2 3					
		Move: Moves: Moves:					
		$\begin{array}{cccccccccccccccccccccccccccccccccccc$					
		Then we do the (now easy) multiplication:					
		3.0 × 11.0 = 33.					
		But remember, we did 3 Moves of the decimal point, so we need to undo that:					
		3 2 1 Correct					
		Moves: Moves: Move:					
		33.0 🔿 3.3 🔿 0.33 🔿 0.033					
13.3	Interpret	125 ÷ 4 = 31 remainder 1.					
	whole	Or 31 remainder 1/4 (0.25)					

	whole numbers, fractions or by rounding.	Or 31.25				
13.4	Use BODMAS	B Brackets first				
		o Orders (ie Powers and Square Roots, etc.)				
		DM Division and Multiplication (left- to-right)				
		AS Addition and Subtraction (left- to-right)				
		Brackets		6 × (5 + 3) = 6 × 8 = 48		
		Orders		$5 \times 22 = 5 \times 4 = 20$	-	
		Division		$30 \div 5 \times 3 = 6 \times 3 =$		
		Multiplicatio	on	18		
		Addition		2 + 5 × 3 = 2 + 15 =		
		Subtraction		17		
14	Multiply two	minus × minus (two negatives make a positive):				
	negative					
	numbers	$(-3) \times (-2) = 6$				
	together.					
14.1	Divide a	Divide 6.4 by 0.4				
	decimal by a decimal.	6.4÷0.4 is exactly the same as 64÷4, just multiply both by 10!				
		$64 \div 4 = 16$ so $6.4 \div 0.4 = 16$				