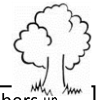
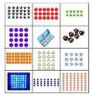
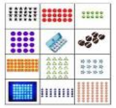
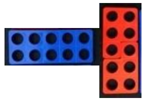
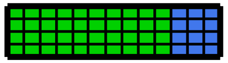
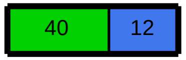
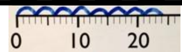
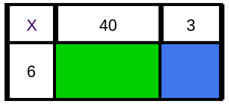
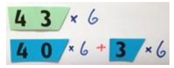
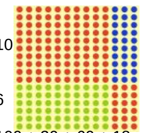
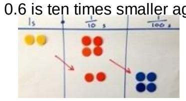
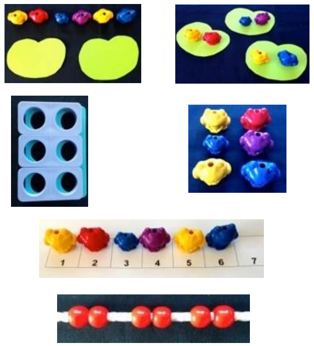
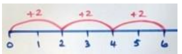
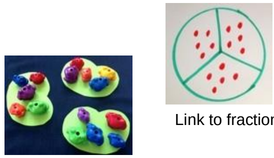
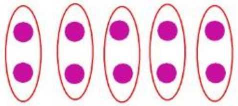
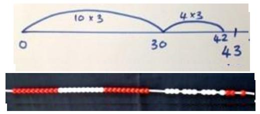
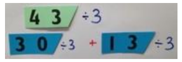
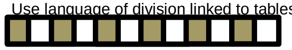
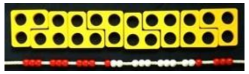
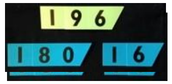
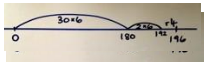
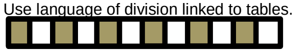
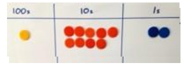
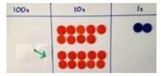
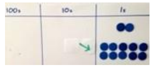
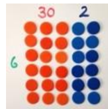
Multiplication



Written Methods		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Write and calculate mathematical statements for ÷ using the x tables they know progressing to formal written methods.	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout 243 x 6 1458 1	Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers 243 x 36 1458 7290 8748	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication 5172 x 38 41376 + 155160 196536 1
Developing conceptual understanding	2 frogs on each lily pad. Using visual arrays to support.       	5 frogs on each lily pad 5 x 3 = 15    5 x 2 = 2 x 5  Build tables on counting stick  Link to repeated addition  	If I know 10 x 8 = 80 then …  So 13 x 4 = 10 x 4 + 3 x 4   Build tables on counting stick   	43 x 6 by partitioning   40 x 6 = 240 3 x 6 = 18 43 x 6 = 258 If I know 4 x 6 = 24 then 40 x 6 is ten times bigger, 40 x 60 is one hundred times bigger. 13 x 16 by partitioning  100 + 30 + 60 + 18 = 208 Build tables on counting stick 	If I know 4 x 6 then 0.4 x 6 is ten times smaller 0.4 x 0.6 is ten times smaller again. 	2 1 5 1 5172 x 38 41376 + 155160 196536 1 5172 x 38 41376 1 51 + 155160 2 196536 1
With jottings … or in your head ….	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations	Multiply and divide numbers mentally drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers establish whether a number up to 100 is prime	Perform mental calculations, including with mixed operations and large numbers
Just know it!	Count in multiples of twos, fives and tens	Recall and use x and ÷ facts for the 2, 5 and 10 x tables, including recognising odd and even numbers.	Recall and use x and ÷ facts for the 3, 4 and 8 times tables.	Recall x and ÷ facts for x tables up to 12 x 12.	Recall prime numbers up to 19 know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	
Year	**1**	**2**	**3**	**4**	**5**	**6**
Foundations	Count in 2s	2 x table	Review 2x, 5x and 10x	4x, 8x tables 10 times bigger	4x, 8x tables 100, 1000 times bigger	Multiplication facts up to 12 x 12
	Count in 10s	10 x table	4x table	3x, 6x and 12x tables	3x, 6x and 12x tables 10, 100, 1000 times smaller	Partition to multiply mentally
	Doubles up to 10	Doubles up to 20 and multiples of 5	Double two digit numbers	Double larger numbers and decimals	Double larger numbers and decimals	Double larger numbers and decimals
	Count in 5s	5 x table	8 x table	3x, 9x tables	3x, 9x tables	Multiplication facts up to 12 x 12
	Double multiples of 10	Count in 3s	3 x table	11x, 7 x tables	11x ,7 x tables Partition to multiply mentally	Partition to multiply mentally
	Count in 2s, 5s and 10s	2 x, 5 x and 10 x tables	6 x table or review others	6x, 12 x tables	6x, 12 x tables	Double larger numbers and decimals

Division

Written Methods		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Write and calculate mathematical statements for ÷ using the x tables they know progressing to formal written methods.		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 194 ÷ 6 3 2 6) 19 [1]2 192 ÷ 6 = 32	Divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context 564 ÷ 13 4 3 r 5 13) 5 6[4] 4 Using known multiplication facts 1 13; 2 26; 4 52; 5 130; 8 104; 10 260 564 ÷ 13 = 43 r 5 = 43 !" 4 3 . 3 8 … 13) 5 6 [4]4 . [5]0 [11]0 = 43.38… Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context 564 ÷ 13 4 3 . 3 8 … 13) 5 6 4 . 0 0 … 5 2 4 4 – 3 9 5 0 – 3 9 1 1 0 – 1 0 4 6 = 43 r 5 = 43 !" = 43.4 (to 1dp)
Developing conceptual understanding	6 ÷2 = 3 by sharing into 2 groups and by grabbing groups of 2  How many 2s? 	15 ÷ 3 = 5 in each group (sharing)  Link to fractions  15 ÷ 3 = 5 groups of 3 (grouping)  10 ÷2 = 5  Use language of division linked to tables e.g. 2 x 6 = 12 so 12÷2 = 6 How many 2s? 	Grouping using partitioning 43 ÷ 3 If I know 10 x 3 …   Use language of division linked to tables  How many 3s?  	Grouping using partitioning 196 ÷ 6 If I know 3 x 6 … then 30 x 6…  'Chunking up' on a number line 196 ÷ 6 = 32 r 4  Use language of division linked to tables. 	192 ÷ 6 using place value counters to support written method  Exchange 100 for ten 10s  19 tens into groups of 6  3 groups so that is 30 x 6, exchange remaining 10 for ten 1s   So 192 ÷ 6 = 32 	
With jottings … or in your head ….	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations	Multiply and divide numbers mentally drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	Perform mental calculations, including with mixed operations and large numbers
Just know it!	Count in multiples of twos, fives and tens	Recall and use x and ÷ facts for the 2, 5 and 10 x tables, including recognising odd and even numbers.	Recall and use x and ÷ facts for the 3, 4 and 8 times tables.	Recall x and ÷ facts for x tables up to 12 x 12.	Recall prime numbers up to 19 know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	
Year	**1**	**2**	**3**	**4**	**5**	**6**
Foundations	Count back in 2s	Division facts (2 x table)	Review division facts (2x, 5x, 10x table)	Division facts (4x, 8x tables) 10 times smaller	Division facts (4x, 8x tables) 100, 1000 times smaller	Division facts (up to 12 x 12)
	Count back in 10s	Division facts (10 x table)	Division facts (4 x table)	Division facts (3x, 6 x, 12x tables)	Division facts (3x, 6 x, 12x tables) Partition to divide mentally	Partition to divide mentally
	Halves up to 10	Halves up to 20	Halve two digit numbers	Halve larger numbers and decimals	Halve larger numbers and decimals	Halve larger numbers and decimals
	Count back in 5s	Division facts (5 x table)	Division facts (8 x table)	Division facts (3x, 9x tables)	Division facts (3x, 9x tables) 100, 1000 times smaller	Division facts (up to 12 x 12)
	Halve multiples of 10	Count back in 3s	Division facts (3 x table)	Division facts (11x, 7x tables)	Review division facts (11x, 7x tables) Partition decimals to divide mentally	Partition to divide mentally
	How many 2s? 5s? 10s?	Review division facts (2x, 5x, 10x table)	Division facts (6 x table) or review others	Division facts (6x, 12x tables)	Review division facts (6x, 12x tables) Halve larger numbers and decimals	Halve larger numbers and decimals