

Number: Multiplication and Division - National Curriculum and RTP mapping with White Rose Small Steps

Recall and Use					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall multiplication and division facts for multiplication tables up to $12 \times 12$	identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	identify common factors, common multiples and prime numbers
	show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		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 (appears also in Properties of Numbers)	establish whether a number up to 100 is prime and recall prime numbers up to 19 recognise and use square numbers and cube numbers, and the notation for squared ( $^2$ ) and cubed ( $^3$ )	use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
	Spring 2	Autumn 3, Spring 1	Autumn 4, Spring 1	Autumn 3	Autumn 2

CALCULATIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs	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 and progressing to formal written methods (appears also in Written Methods)	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
				multiply and divide numbers mentally drawing upon known facts	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
				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 numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context
				multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	perform mental calculations, including with mixed operations and large numbers
	Spring 2	Autumn 1, Spring 1	Spring 1	Autumn 1, Spring 1	Autumn 2

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PROBLEM SOLVING					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which $n$ objects are connected to $m$ objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as $n$ objects are connected to $m$ objects	solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	solve problems involving addition, subtraction, multiplication and division
				solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	
				Solve problems involving addition, subtraction and multiplication and division and a combination of these, including understanding the meaning of the equals sign	
Summer 1	Spring 2	Spring 1	Spring 1	Autumn 1 Spring 1	Autumn 1

### Year 1 RTP Number facts

Ready to progress criteria	Block	Steps
1NF-1 Develop fluency in addition and subtraction facts within 10	See under Addition & subtraction	
1NF-2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.	Summer 1	1 – Count in 2s 2 – Count in 10s 3 – Count in 5s
	Summer 4	2 – Tens to 100
	Summer 5	4 – Count in coins

### Year 3 RTP Number facts

Ready to progress criteria	Block	Steps
3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	See under Addition & subtraction	
3NF-2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.	Autumn Block 3	3 – Multiples of 2 4 – Multiples of 5 and 10 5 – Sharing and grouping 9 – Multiply by 4 10 – Divide by 4 11 – The 4 times-table
3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).	Spring 1	1 – Multiples of 10 2 – Related calculations 10 – Scaling
	Spring 3	6 – Fractions and scales 9 – Equivalent fractions on a number line 10 – Equivalent fractions as bar models

Year 4 RTP Number facts

Ready to progress criteria	Block	Steps
4NF-1 Recall multiplication and division facts up to $12 \times 12$ and recognise products in multiplication tables as multiples of the corresponding number.	Autumn 4	All 13 steps in this block relate to this criterion
	Spring 1	1 – Factor pairs 2 – Use factor pairs 7 – Related facts – multiplication and division 8 – Informal written methods for multiplication 9 – Multiply a 2-digit number by a 1-digit number 10 – Multiply a 3-digit number by a 1-digit number
4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.	Autumn 4	All 13 steps in this block relate to this criterion
	Spring 1	11 – Divide a 2-digit number by a 1-digit number (1) 12 – Divide a 2-digit number by a 1-digit number (2) 13 – Divide a 3-digit number by a 1-digit number
4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100).	Spring 1	4 – Multiply by 100 6 – Divide by 100
	Spring 4	10 – Divide a 1- or 2-digit number by 100

Year 5 RTP Number facts

Ready to progress criteria	Block	Steps
5NF-1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.	Autumn 3	1 – Multiples 2 – Common multiples 3 – Factors 4 – Common factors 6 – Square numbers
	Spring 1	All 11 steps in this block relate to this criterion
	Spring 2	All 7 steps in this block relate to this criterion
5NF-2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).	Autumn 3	10 – Divide by 10, 100 and 1,000

## Year 2 RTP Multiplication & division

Ready to progress criteria	Block	Steps
2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	Spring 2	4 – Introduce the multiplication symbol 5 – Multiplication sentences 9 – The 2 times-table 13 – The 10 times-table 15 – The 5 times-table 17 – The 5 and 10 times-tables
	Spring 4	8 – Four operations with volume and capacity
	Summer 2	5 – Tell the time to 5 minutes 6 – Minutes in an hour
2MD-2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).	Spring 2	2 – Make equal groups 7 – Make equal groups – grouping 8 – Make equal groups – sharing 10 – Divide by 2 14 – Divide by 10 16 – Divide by 5

## Year 3 RTP Multiplication & division

Ready to progress criteria	Block	Steps
3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.	Autumn 3	All 15 steps in this block relate to this criterion
	Spring 1	All 11 steps in this block relate to this criterion

Year 4 RTP Multiplication & division

Ready to progress criteria	Block	Steps
4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.	Spring 1	3 – Multiply by 10 4 – Multiply by 100 5 – Divide by 10 6 – Divide by 100
4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	Autumn 4	All 13 steps in this block relate to this criterion
4MD-3 Understand and apply the distributive property of multiplication.	Spring 1	8 – Informal written methods for multiplication 9 – Multiply a 2-digit number by a 1-digit number 10 – Multiply a 3-digit number by a 1-digit number



## Year 5 RTP Multiplication & division

Ready to progress criteria	Block	Steps
5MD-1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.	Autumn 3	8 – Multiply by 10, 100 and 1,000 9 – Divide by 10, 100 and 1,000 10 – Multiples of 10, 100 and 1,000
	Summer 3	10 – Multiply by 10, 100 and 1,000 11 – Divide by 10, 100 and 1,000 12 – Multiply and divide decimals - missing values
5MD-2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.	Autumn 3	1 – Multiples 2 – Common multiples 3 – Factors 4 – Common factors 6 – Square numbers
5MD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.	Spring 1	1 – Multiply up to a 4-digit number by a 1-digit number 2 – Multiply a 2-digit number by a 2-digit number (area model) 3 – Multiply a 2-digit number by a 2-digit number 4 – Multiply a 3-digit number by a 2-digit number 5 – Multiply a 4-digit number by a 2-digit number
5MD-4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.	Spring 1	7 – Short division 8 – Divide a 4-digit number by a 1-digit number 9 – Divide with remainders

Y6 RTP - Addition, subtraction, multiplication and division

Ready to progress criteria	Block	Steps
6AS/MD-1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).	Spring 1	1 – Add or multiply? 5 – Scale drawing 6 – Use scale factors 7 – Similar shapes 8 – Ratio problems 9 – Proportion problems 10 – Recipes
6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	Autumn 2	8 – Solve problems with multiplication 10 – Division using factors 13 – Solve problems with division 14 – Solve multi-step problems 17 – Reason from known facts
6AS/MD-3 Solve problems involving ratio relationships.	See under Ratio and proportion	
6AS/MD-4 Solve problems with 2 unknowns.	See under Algebra	