






SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION







MULTIPLICATION & DIVISION FACTS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 (see AS for Y6 Ready to Progress)
 <p>LINK IT (Place Value): count in multiples of twos, fives and tens</p> <p>(Also found in Number: Place Value) 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.</p>	 <p>LINK IT (Place Value): count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</p> <p>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p> <p>2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.</p>	 <p>LINK IT (Place Value): count from 0 in multiples of 4, 8, 50 and 100</p> <p>recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p> <p>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.</p>	 <p>LINK IT (Place Value): count in multiples of 6, 7, 9, 25 and 1000</p> <p>recall multiplication and division facts for multiplication tables up to 12×12</p> <p>4NF-1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number.</p>	 <p>LINK IT (Place Value): count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>5NF-1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.</p>	

SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION



MENTAL CALCULATION					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION

	<p>show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p>	<p>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)</p> <p></p> <p>LINK IT (Fractions): recognise that tenths arise from dividing one-digit numbers or quantities by 10</p>	<p>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</p> <p>recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)</p> <p></p> <p>LINK IT (Fractions): find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths</p> <p>4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.</p>	<p>multiply and divide numbers mentally drawing upon known facts</p> <p></p> <p>LINK IT (Place value, Fractions): multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>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. (Also in Number: Place Value)</p> <p>5NF-2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).</p>	<p>perform mental calculations, including with mixed operations and large numbers</p> <p></p> <p>LINK IT (Fractions): identify the value of each digit to three decimal places</p> <p></p> <p>LINK IT (Fractions): multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places</p> <p></p> <p>LINK IT (Fractions): associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)</p>
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WRITTEN CALCULATION

SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs</p>	<p>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 Mental Methods)</p>	<p>multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p>	<p>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</p> <p>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</p> <p style="background-color: yellow;">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</p> <p style="background-color: yellow;">5MD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method</p>	<p>multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>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</p> <p>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</p> <p style="color: red; text-align: center;"></p> <p style="color: green;">LINK IT (Fractions): use written division methods in cases where the answer has up to two decimal places</p> <p style="color: red; text-align: center;"></p> <p style="color: green;">LINK IT (Fractions): multiply one-digit numbers with up to two decimal places by whole numbers</p>

SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION

PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<p>recognise and use factor pairs and commutativity in mental calculations (repeated)</p>	<p>identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p> <p>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</p> <p> LINK IT (Measurement): recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p> <p>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.</p>	<p>identify common factors, common multiples and prime numbers</p> <p> LINK IT (Fractions): use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p> LINK IT (Measurement): calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3</p>









SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION

ORDER OF OPERATIONS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION

					use their knowledge of the order of operations to carry out calculations involving the four operations
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
PROBLEM SOLVING					

SPJS CURRICULUM LADDER - MATHS - MULTIPLICATION AND DIVISION

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 LINK IT (Algebra): 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	 LINK IT (Algebra): 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	 LINK IT (Algebra): 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	 LINK IT (Ratio and Proportion): solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign  LINK IT (Measurement): use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling  LINK IT (Measurement): calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes	 LINK IT (Addition and Subtraction): solve problems involving addition, subtraction, multiplication and division  LINK IT (Ratio and Proportion): solve problems involving similar shapes where the scale factor is known or can be found

Main objectives are taken from the National Curriculum.

Highlighted objectives are non-statutory and are taken from the Ready to Progress documents.



LINK IT: Indicates a link with another unit of work

Objectives written with a **red heading** and black writing **MUST** be taught within the unit

Objectives written in **green** are optional links - Discuss when possible and use for mental starters, extension tasks etc.