# Number: Multiplication and Division

| MULTIPLICATION & DIVISION FACTS | | | | | |
|---|---|---|---|---|---|
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| *count in multiples of twos, fives and tens* (copied from Number and Place Value) | *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value) | *count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value) | *count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value) | *count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000* (copied from Number and Place Value) | |
| | 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 × 12 | | |
| MENTAL CALCULATION | | | | | |
| | | 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) | 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 | multiply and divide numbers mentally drawing upon known facts | perform mental calculations, including with mixed operations and large numbers |
| | show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot | | recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers) | multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | *associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$)* (copied from Fractions) |

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| | | | WRITTEN CALCULATION | | |
|---|---|---|---|---|---|
| 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 (×), division (÷) 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 Mental 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 |
| | | | | 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 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 |
| | | | | | *use written division methods in cases* |

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| | | | | | *where the answer has up to two decimal places* (copied from Fractions (including decimals)) |
|---|---|---|---|---|---|
| **PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | recognise and use factor pairs and commutativity in mental calculations (repeated) | identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. | identify common factors, common multiples and prime numbers |
| | | | | know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers | *use common factors to simplify fractions; use common multiples to express fractions in the same denomination* (copied from Fractions) |
| | | | | 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 ($^3$) | *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$^3$* (copied from Measures) |

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|---|---|---|---|---|---|
| **ORDER OF OPERATIONS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | | use their knowledge of the order of operations to carry out calculations involving the four operations |
| **INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS** | | | | | |
| | | *estimate the answer to a calculation and use inverse operations to check answers* (copied from Addition and Subtraction) | *estimate and use inverse operations to check answers to a calculation* (copied from Addition and Subtraction) | | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy |

# Number: Multiplication and Division

| | 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 addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign | |
| | | | | solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | *solve problems involving similar shapes where the scale factor is known or can be found* (copied from Ratio and Proportion) |