

|  |
| --- |
| **Progression of Skills in: Multiplication and Division** |

|  |  |
| --- | --- |
|  | **MULTIPLICATION & DIVISION FACTS** |
| **Skill** | **Reception**  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Multiplication and division facts** | *Recognising doubles of given numbers to 10 using concrete resources to aid* | *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) |  |
| Know half of any given number to 10 using concrete materials to aid |  | 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** |
| **Mental calculation** | **Reception** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| Calculate all doubles to 5 mentally  |  |  | 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) |
|  | **WRITTEN CALCULATION** |
| **Written calculation** | **Reception** | **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 where the answer has up to two decimal places* (copied from Fractions (including decimals)) |
|  |  **PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS** |
| **Properties of numbers: Multiples, factors, Primes**  | **Reception** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
|  |  | recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. | estimate the answer to a calculation and use inverse operations to check answers  | estimate and use inverse operations to check answers to a calculation  | use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy  | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. |
|  | **PROBLEM SOLVING** |
| **Problem Solving**  | **Reception** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| Solve problems involving doubling, halving and sharing.  | solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = 🗆 - 9 | solve problems with addition and subtraction: * using concrete objects and pictorial representations, including those involving numbers, quantities and measures
* applying their increasing knowledge of mental and written methods
 | solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction  | solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why |
|  |  | *solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change* (copied from Measurement) |  |  |  | Solve problems involving addition, subtraction, multiplication and division |