**Content domain – addition, subtraction, multiplication and division (calculations)**

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| **Strand** | **National Curriculum reference Year 1** | **National Curriculum reference Year 2** | **National Curriculum reference Year 3** | **National Curriculum reference Year 4** | **National Curriculum reference Year 5** | **National Curriculum reference Year 6** |
| **C1**  Add / subtract mentally | **1C1**  Represent and use number bonds and related subtraction facts within 20 | **2C1a**  Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 | 3C1  Add and subtract numbers mentally, including:  - a three-digit number and ones  - a three-digit number and tens  - a three-digit number and hundreds |  | 5C1  Add and subtract numbers mentally with increasingly large numbers |  |
|  | **2C1b**  Add and subtract numbers mentally, including:  - a two-digit number and ones  - a two-digit number and tens  - two two-digit numbers  - adding three one-digit numbers |  |  |  |  |
| **C2**  Add / subtract using written methods | **1C2a**  Add and subtract one-digit and two-digit numbers to 20, including zero | **2C2**  Add and subtract numbers using concrete objects and pictorial representations, including:  - a two-digit number and ones  - a two-digit number and tens  - two two-digit numbers  -adding three one-digit numbers | 3C2  Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction | 4C2  Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate | 5C2  Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) |  |
| **1C2b**  Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs |  |  |  |  |  |
| **C3**  Estimate, use inverses and check |  | **2C3**  recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems | 3C3  Estimate the answer to a calculation and use inverse operations to check answers | 4C3  Estimate and use inverse operations to check answers to a calculation | 5C3  Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy | 6C3  Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy |
| **C4**  Add/subtract to solve problems | **1C4**  Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9 | **2C4**  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 | 3C4  Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction | 4C4  Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | 5C4  Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | 6C4  Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why |
| **C5**  Properties of number (multiples, factors, primes, squares and cubes) [KS2] |  |  |  |  | 5C5a  Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers | 6C5  Identify common factors, common multiples and prime numbers |
|  |  |  |  | 5C5b  Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers |  |
|  |  |  |  | 5C5c  Establish whether a number up to 100 is prime and recall prime numbers up to 19 |  |
|  |  |  |  | 5C5d  Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) |  |
| **C6**  Multiply / divide mentally |  | **2C6**  Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers | 3C6  Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables | 4C6a  Recall multiplication and division facts for multiplication tables up to 12 *×* 12 | 5C6a  Multiply and divide numbers mentally drawing upon known facts | 6C6  Perform mental calculations, including with mixed operations and large numbers |
|  |  |  | 4C6b  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 | 5C6b  Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 |  |
|  |  |  | 4C6c  Recognise and use factor pairs and commutativity in mental calculations |  |  |
| **C7**  Multiply / divide using written methods |  | **2C7**  Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs | 3C7  Write and calculate mathematical statements for multiplication and division using the multiplication tables that children know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods | 4C7  Multiply two-digit and three-digit numbers by a one-digit number using formal written layout | 5C7a  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 | 6C7a  Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication |
|  |  |  |  | 5C7b  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 | 6C7b  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 |
|  |  |  |  |  | 6C7c  Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context |
| **C8**  Solve problems (commutative, associative, distributive and all four operations) | **1C8**  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 | **2C8**  Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts | 3C8  Solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects | 4C8  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 | 5C8a  Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes | 6C8  Solve problems involving addition, subtraction, multiplication and division |
|  |  |  |  | 5C8b  Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign |  |
|  |  |  |  | 5C8c  Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates |  |
| **C9**  Order of operations |  | **2C9a**  Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot |  |  |  | 6C9  Use their knowledge of the order of operations to carry out calculations involving the four operations |
|  | **2C9b**  Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot |  |  |  |  |