**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  |  |  |  |  |