

## Immersion plan – learning sequence 1

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Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 **5N1**  
 Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit, **relating to prior learning**  
 Read Roman numerals to 1000 (M) and recognise years written in Roman numerals **5N3b**  
 Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 *and connect to estimation when calculating*  
*measuring instruments* **5N4**  
 Apply understanding of the number system to decimal numbers and fractions they have met so far  
 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through  
 zero *recognise and describe linear number sequences including those involving fractions and describe the term to term rule*  
 Solve number problems and practical problems that involve all of the above **5N6**

Read and write decimal numbers as fractions [ e.g.  $0.71 = \frac{71}{100}$  ] **5F6a**  
 Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents **5F6b**  
 Round decimals with two decimal places to the nearest whole number and to one decimal place **5F7**  
 Read, write, order and compare numbers with up to three decimal places **5F8**

Multiply and divide numbers mentally drawing upon known facts **5C6a**  
 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 e.g. *multiply and divide by powers of 10 in*  
*multiply and divide by powers of a 1000 in converting between units such as kilometres and metres* **5C6b**

- add and subtract numbers mentally with increasingly large numbers **5C1**
  - know when and how to use jottings to support conservation of number
  - calculate what must be added to any 4 digit number to make the next multiple of 1000 e.g.  $4087 + \square\square\square = 5000$
  - practise mental calculations with increasingly large numbers to aid fluency (e.g.  $12\ 462 - 2\ 300 = 10\ 162$ )
- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) *including extending through* **5C2**
  - varying the place value e.g.  $23456 + 637 + 7503$  or  $642.7 + 75.69 + 6200.09$
  - varying number of times 0 is used as a placeholder e.g.  $70056 - 2399$
  - solving missing number calculations (knowing when they can and cannot use the inverse operation e.g.  $3490 + \square\square\square = 4286$  or  $52901 - \square\square\square\square = 49244$ )
  - applying to a variety of contexts including measurement
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy **5C3**
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **5C4**

- convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) **5M5**

- calculate and compare the area of rectangles (including squares) using centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes
- estimate volume [e.g. using measuring cylinders (including cubes)] **5M8**

- multiply and divide numbers mentally drawing upon known facts
- identify multiples and factors, including finding all factors and common factors of two numbers **5C5a**
- know and use the vocabulary of prime numbers, prime factors (non-prime) numbers **5C5b**
- establish whether a number up to 100 is prime and whether a number up to 19 is a multiple of a prime to 19 **5C5c**
- recognise and use square numbers and cube numbers, and use squared (<sup>2</sup>) and cubed (<sup>3</sup>) **5C5d**
- use understanding of factors, multiples, primes and square numbers to construct equivalence statements (e.g.  $4 \times 270 = 3 \times 3 \times 9 \times 10 = 9^2 \times 10$ )
- use and explain the equals sign to indicate equivalence

## Immersion plan – learning sequence 2

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add and subtract numbers mentally with increasingly large numbers **5C1**

**know when and how to use jottings to support conservation of number**

**practise mental calculations with increasingly large numbers to aid fluency (e.g.  $12\,462 - 2\,300 = 10\,162$ )**

add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) **5C2**

**varying the place value e.g.  $23456 + 637 + 7503$  or  $642.7 + 75.69 + 6200.09$**

**varying number of times 0 is used as a placeholder e.g.  $70056 - 2399$**

**solving missing number calculations (knowing when they can and cannot use the inverse operation e.g.  $3490 + \square\square\square = 4286$  or  $5290 - \square\square\square = 4143$ )**

**applying to a variety of contexts including measurement**

rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy **5C3**

solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **5C4**

identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers **5C5a**

multiply and divide numbers mentally drawing upon known facts **5C6a**

multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 e.g. *multiply and divide by powers of 10 in solving problems* **5C6b**

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 up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately **5C7b**

**where remainder is a whole number**

**where remainder is expressed as a fraction of the divisor**

**where remainder is expressed as a simplified fraction**

solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates **5C8**

count forwards and backwards with whole numbers, decimals and fractions including bridging zero, for example on a number line

recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements  $> 1$  as a mixed number [ e.g.  $2/5 + 4/5 = 6/5 = 11/5$  ] **5F2a**

identify, name and write equivalent fractions of a given fraction, presented visually, including tenths, hundredths and thousandths **5F2b**

compare and order fractions whose denominators are all multiples of the same number **using the number line and other models** **5F3**

**connect multiplication by a fraction to using fractions as operators (actions of), and to division**

**develop understanding of fractions as numbers, measures and operators** **finding fractions of numbers and quantities**

add and subtract fractions with the same denominator and multiples of the same number **5F4**

**add and subtract tenths, and one-digit whole numbers and tenths, decimals with different numbers of decimal places, and derive complements of 1 (e.g.  $0.83 + 0.17 = 1$ )**

multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams **5F5**

read and write decimal numbers as fractions [ e.g.  $0.71 = 71/100$  ] **5F6a**

round decimals with two decimal places to the nearest whole number and one decimal place **5F7**

- solve problems involving converting between units of time **5M4**

- convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) **5M5**

- use all four operations to solve problems involving measure [e.g. a. money, b. length, c. mass, d. volume,] using decimal notation including scaling **5M9a,b,c,d**

- complete, read and interpret information in tables, including timetables **5S1**

- solve comparison, sum and difference problems using information presented in a line graph **5S2**

- *begin to decide which representations of data are most appropriate and reason why*

- use the properties of rectangles to determine area

## Immersion plan – learning sequence 3

2	3	4	5	6	7	8	9	10
<p>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 <b>5N1</b></p> <p>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit <b>2/3a</b></p> <p>read Roman numerals to 1000 (M) and recognise years written in Roman numerals <b>5N3b</b></p> <p>round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 <b>5N4</b></p> <p>interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero <b>5N5</b></p> <p>recognise and describe linear number sequences including those involving arithmetic operations and describe the term to term rule</p> <p>solve number problems and practical problems that involve all of the above <b>6</b></p>								
								<p>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams <b>5F5</b></p> <p>solve problems involving number up to three decimal places <b>5F10</b></p> <p>recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”, and write percentages as a fraction with denominator 100, and as a decimal <b>5F11</b></p> <p>solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those with a denominator of 10 <b>12</b></p>
								<ul style="list-style-type: none"> <li>add and subtract numbers mentally with increasingly large numbers <b>5C1</b></li> <li>use rounding to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy <b>5C3</b></li> <li>solve addition and subtraction multi-step problems in contexts, deciding which methods to use and why <b>5C4</b></li> <li>multiply and divide numbers mentally drawing upon known facts <b>5C6a</b></li> <li>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 <b>5C6b</b></li> <li>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 <b>5C7a</b></li> <li>divide numbers up to 4 digits by a one-digit number using the formal written method of long division and interpret remainders appropriately for the context <b>5C7b</b> <ol style="list-style-type: none"> <li>where remainder is a whole number</li> <li>where remainder is expressed as a fraction of the divisor</li> <li>where remainder is expressed as a simplified fraction</li> <li>where the remainder is expressed as a decimal number</li> </ol> </li> <li>solve problems involving multiplication and division including using their knowledge of multiples, squares and cubes <b>5C8a</b></li> <li>solve problems involving addition, subtraction, multiplication and division and use their understanding of the meaning of the equals sign <b>5C8b</b></li> <li>solve problems involving multiplication and division, including scaling by simple ratios <b>5C8c</b></li> <li>begin to investigate the impact of brackets on calculation e.g. <math>4 + 3 \times 2</math> could equal 14 or 20</li> </ul>
								<ul style="list-style-type: none"> <li>understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints <b>5M6</b></li> <li>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres <b>5M7a</b></li> <li>calculate and compare the area of rectangles (including squares) using standard units, square centimetres (<math>\text{cm}^2</math>) and square metres (<math>\text{m}^2</math>) and</li> </ul>