Y6 medium-term immersion plan – Autumn

Week	1	2	3	4	5	6	7	8	9	10	11	12

Number and place value

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit **6N2**
- determine the value of each digit in numbers up to 10 000 000 **6N3 (1)**
- round any whole number to a required degree of accuracy **to the nearest power of 10 6N4 (1)**
- solve number and practical problems that involve all of the above **6N6 (1)**
- **apply understanding of the number system to decimal numbers and fractions they have met so far**
- **recognise and describe linear number sequences including those involving fractions and describe the term to term rule**
- **develop skills of rounding, estimating, predicting and checking the reasonableness of answers**

Fractions (including decimals and percentages)

- identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places **6F9a (1)**
- solve problems which require answers to be rounded to specified degrees of accuracy **6F10 (1)**
  - **learn about why we round recurring decimals**
  - *rounding to 3 decimal places*
  - *checking the reasonableness of their answers* **using knowledge of decimal place value**
- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts **6F11**
  - *explore and make conjectures about converting a simple fraction to a decimal fraction (for example, 3 ÷ 8 = 0.375)*
- **calculate with increasing accuracy**
  - **multiply a one digit decimal number by a single digit number (e.g. 0.6 x 8)**
  - **add and subtract decimal numbers that have the same number of decimal places**

- **recognise and use equivalent fractions**
- use common factors to simplify fractions; use common multiples to express fractions in the same denomination **6F2**
- compare and order fractions, including fractions >1 **6F3**
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions **6F4**
- multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8] **using concrete resources and pictorial representation to aid understanding 6F5a**
- divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6] **using concrete resources and pictorial representation to aid understanding 6F5b**
- associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] **6F6**
- **solve problems that require finding simple fractions and percentages of whole numbers and quantities**

- multiply one-digit numbers with up to two decimal places by whole numbers **6F9b**
- use written division methods in cases where the answer has up to two decimal places **6F9c**

Measurement

- use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places **6M7a**
  - *could be introduced to compound units for speed such as miles per hour and apply their knowledge in science or other appropriate subjects*
- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate **6M9**

Algebra

- **begin to use** *symbols and letters to represent variables and unknowns in mathematical situations they already understand*
- express missing number problems algebraically **and relate to missing number problems and the use of the inverse in previous years 6A1**
- **begin to** generalise and describe linear number sequences **6A3**
- **rehearse** finding pairs of numbers that satisfy an equation with two unknowns *e.g. Ben thinks of two numbers: the sum of the two numbers is 10: multiplied together they make 24: what are Ben's numbers?* **6A4**
- enumerate possibilities of combinations of two variables *e.g. number puzzles - which two numbers could add up to …?* **6A5**

Addition, subtraction, multiplication and division

- **continue to develop fluency in multiplication and division facts to 12 x 12 and derive related facts**
- **multiply and divide numbers mentally drawing on known facts and strategies with increasing efficiency**
- perform mental calculations, including with mixed operations and large numbers **6C6**
- *recognise and use multiples, factors, prime numbers less than 20 and square numbers up to* ***144***
- identify common factors, common multiples and prime numbers **6C5**
- use their knowledge of the order of operations to carry out calculations involving the four operations **relate to understanding of commutativity, associative and distributive law 6C9**

Ratio and proportion

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts **and relate to scaling from years 3 – 5 6R1**
- solve problems involving unequal sharing and grouping using knowledge of fractions and multiples *e.g. 'for every egg you need 3 spoonfuls of flour'* **6R4**
  - *begin to use a:b notation to record their work*

Y6 medium-term immersion plan – Spring

Week	1	2	3	4	5	6	7	8	9	10	11	12
Geometry	• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons **6G2a/4a** – *relationships might be expressed algebraically for example a=180 – (b+c)* • draw 2-D shapes using given dimensions and angles **6G3a** – *using measuring tools and conventional markings for lines and angles* – **sides that are accurate to +/- 2mm** – **angles that are multiples of 5° and accurate to +/- 2°** • recognise, describe and build simple 3-D shapes, including making nets **6G2b/3b** • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles **6G4b** • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius **6G5** – *relationships might be expressed algebraically for example d = 2 x r*						• **identify, describe and draw translations of** simple shapes on the coordinate plane, and reflect them in the axes **6P2** • **identify,** describe **and represent the position of a shape** on the full coordinate grid (all four quadrants) **6P3** – *where the quadrants have equal scaling* – *including the use of negative numbers* – **with increasing confidence in all four quadrants** • *draw and label rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes*					
Ratio and proportion	• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts **6R1** • solve problems involving the calculation of percentages [for example, of measures such as 15% of 360] and the use of percentages for comparison **6R2** • solve problems involving similar shapes where the scale factor is known or can be found **6R3** – *consolidate understanding by solving a variety of problems comparing quantities, sizes and scale drawings* – *estimate distance on a map using a simple scale* – *use a:b notation to record their work*											
Algebra	• express missing number problems algebraically **6A1** • use simple formulae **6A2** • generate and describe linear number sequences **6A3** • find pairs of numbers that satisfy an equation with two unknowns **6A4** • enumerate possibilities of combinations of two variables **6A5**											
Measurement	• recognise that shapes with the same areas can have different perimeters and vice versa **6M7a** • calculate the area of parallelograms and triangles **6M7b** • recognise when it is possible to use formulae for area and volume of shapes **6M7c/8b** • 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 [for example mm^3 and km^3] **6M8a**											
Addition, subtraction, multiplication and division	• identify common factors, common multiples and prime numbers **6C5** • perform mental calculations, including with mixed operations and large numbers **6C6** • **use jottings where necessary to speed up a the process of calculating mentally** • use their knowledge of the order of operations to carry out calculations involving the four operations **and relate to understanding of commutativity and associative and distributive law 6C9**						• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **6C4** • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication **6C7a** • 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 **6C7b** • 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 **6C7c** • solve problems involving addition, subtraction, multiplication and division **6C8**					
Statistics							• interpret and construct pie charts and line graphs and use these to solve problems **6S1**					
Fractions (including decimals and percentages)							• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions **6F4** • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $^1/_4 \times {}^1/_2 = {}^1/_8$] **6F5a** • divide proper fractions by whole numbers [for example, $^1/_3 \div 2 = {}^1/_6$] **6F5b** • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $^3/_8$] **6F6** • identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places **6F9a** • multiply one-digit numbers with up to two decimal places by whole numbers **6F9b** • use written division methods in cases where the answer has up to two decimal places **6F9c** • solve problems which require answers to be rounded to specified degrees of accuracy **6F10** • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts **6F11**					

Y6 medium-term immersion plan – Summer

Week	1	2	3	4	5	6	7	8	9	10	11	12
Addition, subtraction, multiplication and division	• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy **6C3** • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **6C4** • identify common factors, common multiples and prime numbers **6C5** • perform mental calculations, including with mixed operations and large numbers **6C6** • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication **6C7a** • 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 **6C7b** • 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 **6C7c** • solve problems involving addition, subtraction, multiplication and division **6C8** • use their knowledge of the order of operations to carry out calculations involving the four operations **6C9**											
Statistics	• calculate and interpret the mean as an average **6S3** – *know when it is appropriate to find the mean of a data set* – **for simple sets of discrete data (e.g. find the mean mass of three food packets weighing 2kg, 7kg and 10kg)** • interpret and construct pie charts, line graphs **and tables** and use these to solve problems **6S1** – *connect conversion from kilometres to miles in measurement to its graphical representation* – **continue to read and interpret information using various graphs** – **construct tables, charts and graphs that help to answer their questions** – **solve comparison, sum and difference problems using information presented in charts and graphs**											
Number and place value		• use negative numbers in context, and calculate intervals across zero **6N5** • solve number and practical problems that involve **understanding of negative numbers such as temperature and plotting coordinates on four quadrants** **6N6**										
Measurement		• *use, add and subtract positive and negative integers for measures such as temperature* • *connect conversion (for example, from kilometres to miles) to a graphical representation* **see statistics** • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation of up to three decimal places **6M5** • **continue to rehearse** using approximate equivalences between metric measures and common imperial units such as inches, pounds and pints **5M6 (continued from Y5)** • convert between miles and kilometres **6M6**										
Geometry		• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons **6G2a** • draw and translate simple shapes on the coordinate plane, and reflect them in the axes **6P2** • describe positions on the full coordinate grid (all four quadrants) **6P3**										
Algebra			• express missing number problems algebraically **6A1** • use simple formulae **6A2** • generate and describe linear number sequences **6A3** • find pairs of numbers that satisfy an equation with two unknowns **6A4** • enumerate possibilities of combinations of two variables **6A5**									
Ratio and proportion					• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts **6R1** • solve problems involving the calculation of percentages [for example, of measures such as 15% of 360] and the use of percentages for comparison **6R2** • solve problems involving similar shapes where the scale factor is known or can be found **6R3** • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples **6R4**					