nmersion plan – learning sequence 1

1	2	3	4	5	6	7	8	9	10

ead, write, order and compare numbers up to 10 000 000 and determine the value of each digit **6N2**
etermine the value of each digit in numbers up to 10 000 000 **6N3**
ound any whole number to a required degree of accuracy **to the nearest power of 10** **6N4**
olve number and practical problems that involve all of the above **6N6**
pply understanding of the number system to decimal numbers and fractions they have met so far
ecognise and describe linear number sequences including those involving fractions and describe the term to term rule
evelop skills of rounding, estimating, predicting and checking the reasonableness of answers

dentify the value of each digit to three decimal laces and multiply and divide numbers by 10, 00 and 1000 giving answers up to three ecimal places **6F9a**
olve problems which require answers to be ounded to specified degrees of accuracy **F10**
- **– learn about why we round recurring decimals**
- *– rounding to 3 decimal places*
- *– checking the reasonableness of their answers* **using knowledge of decimal place value**

ecall and use equivalences between simple actions, decimals and percentages, including different contexts **6F11**
- *– explore and make conjectures about converting a simple fraction to a decimal fraction (for example, 3 ÷ 8 = 0.375)*

alculate 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 up to tw whole nu
- use writt cases w to two d

se, read, write and convert between standard nits, converting measurements of length, ass, volume and time from a smaller unit of easure to a larger unit, and vice versa, using ecimal notation to up to three decimal places **M7a**
- *– could be introduced to compound units for speed such as miles per hour and apply their knowledge in science or other appropriate subjects*

olve problems involving the calculation and onversion of units of measure, using decimal otation up to three decimal places where ppropriate **6M9**

- **begin to use** *symbols and letters to represent variables and unknowns in mathematical situations they*
- express missing number problems algebraically **and relate to missing number problems and the use of th 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 n 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 co*

- **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***

nmersion plan – learning sequence 2

1	2	3	4	5	6	7	8	9	10

- ompare and classify geometric shapes based on their properties and izes and find unknown angles in any triangles, quadrilaterals, and egular polygons **6G2a/4a**
  - *relationships might be expressed algebraically for example a=180 – (b+c)*
- raw 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°**
- ecognise, describe and build simple 3-D shapes, including making nets **G2b/3b**
- ecognise angles where they meet at a point, are on a straight line, or re vertically opposite, and find missing angles **6G4b**
- llustrate and name parts of circles, including radius, diameter and ircumference 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 s coordinate plane, and reflect them in the axes **6**
- **identify,** describe **and represent the position of a sh** 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), pa rhombuses, specified by coordinates in the four c missing coordinates using the properties of shap*

- 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*

- 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**

- 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**

- 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 operations and methods to use and why **6C4**
- multiply multi-digit numbers up to 4 digits by a two-digit whole formal written method of long multiplication **6C7a**
- divide numbers up to 4 digits by a two-digit whole number usir method of long division, and interpret remainders as whole nu fractions, or by rounding, as appropriate for the context **6C7b**
- divide numbers up to 4 digits by a two-digit number using the f short division where appropriate, interpreting remainders acco **6C7c**
- solve problems involving addition, subtraction, multiplication a

- interpret and construct pie charts and line graphs and use these to solve problems **6S1**

- add and subtract fractions with different denominators and

nersion plan – learning sequence 3

1	2	3	4	5	6	7	8	9	10

se estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
olve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **6C4**
dentify common factors, common multiples and prime numbers **6C5**
erform mental calculations, including with mixed operations and large numbers **6C6**
ultiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication **6C**
ivide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remair
emainders, fractions, or by rounding, as appropriate for the context **6C7b**
ivide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpre
ccording to the context **6C7c**
olve problems involving addition, subtraction, multiplication and division **6C8**
se their knowledge of the order of operations to carry out calculations involving the four operations **6C9**

alculate 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)**

nterpret 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**

- 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**

- *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**

- 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**

- 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**

- solve problems involving the relative sizes of