HfL Assessment Criteria for Phase C Steps 4/5/6 (based on curriculum expectations for Year 6)

Maths – Number

Understanding the number system

Fluency Focus

Numbers up to 10 million (whole numbers, negative numbers and decimals with up to 3 decimal places) through a wide variety of models and representations

Number and place value

- reads, writes, orders and compares numbers within the fluency focus:
  - uses this knowledge to develop their skills of rounding to any degree of accuracy, estimating, predicting and checking the reasonableness of answers (6N2, 6N4)
- identifies the value of each digit in numbers to 10 000 000 and numbers with up to 3 decimal places and multiplies and divides by 10, 100 and 1000, giving answers to three decimal places (6N3, 6F9a)
- compares and orders fractions, including fractions >1 (6F3)
- recognises, describes and uses number patterns and relationships to make generalisations about sequences within the whole number system
- uses negative numbers in context, and calculates intervals across zero (6N5)
- uses common multiples to express fractions in the same denomination (6F2)
- recalls and uses equivalences between simple fractions, decimals and percentages including in different contexts (6F11)
- solves number problems and practical problems within the context of the fluency focus (6N6)

Calculating

Arithmetical laws and relationships

- uses their knowledge of the order of operations to carry out calculations involving the four operations *e.g.* *2 + 1 x 3 = 5 and (2 + 1) x 3 = 9* (6C9)

Mental fluency

- uses estimation to check answers to calculations and determines in the context of a problem, an appropriate degree of accuracy (6C3)
- identifies common factors, common multiples and prime numbers (6C5)
- performs mental calculations, including with mixed operations and large numbers (6C6)
- continues to use all known facts to calculate mathematical statements with increasing complexity

Written fluency

- solves addition and subtraction problems within the fluency focus and gives reasons why operations and methods are appropriate (6C4)
- multiplies multi-digit numbers up to four digits by a two digit number using the formal written method of long multiplication (6C7a) and divides numbers up to four digits by a two digit number using the formal written methods of long and short division and interprets remainders as whole numbers, fractions, or by rounding, as appropriate for the context (6C7b, 6C7c)

Fractions, decimals and percentages

- uses common factors to simplify fractions (6F2)
- adds and subtracts fractions with different denominators and mixed numbers, using the concept of equivalent fractions (6F4)
- multiplies simple pairs of proper fractions, writing the answer in its simplest form [e.g. ¼ x ½ = 1/8] (6F5a)
- divides proper fractions by whole numbers *e.g. 1/3 ÷2=1/6* (6F5b)
- associates a fraction with division and calculates decimal fraction equivalents for a simple fraction *e.g.* *3 ÷ 5 = 0.6 = 3/5* (6F6)
- multiplies one-digit numbers with up to two decimal places by whole numbers (6F9b)
- uses written division methods in cases where the answer has two decimal places (6F9c)

Ratio and proportion

Solves problems involving:

- relative sizes of two quantities where missing values can be found by using integer multiplication and division (6R1)
- calculation of percentages and the use of percentages for comparison (percentages of 360° to calculate angles on a pie chart) (6R2)
- similar shapes where the scale factor is known or can be found (6R3)
- unequal quantities (e.g. for every egg you need three spoonful of flour) (6R4)

Algebra

- uses simple formulae to generate, express and describe: (6A1, 6A2, 6A3)
  - linear number sequences
  - mathematical formula
  - missing number, lengths, coordinates and angles problems
  - equivalent expressions (a + b = b + a)
- finds pairs of numbers that satisfy an equation with two unknowns (6A4)
- finds all possibilities of combinations of two variables (6A5)

Solving numerical problems (using a range of mental and written methods across routine and non-routine problems)

- solves increasingly complex numerical problems (including multistep) within the fluency focus and through a range of contexts using estimation to check answers and an appropriate degree of accuracy (6C3, 6C8)
- solves problems which require answers to be rounded to specified degrees of accuracy (6F10)

Measurement

Metric / imperial measures

- uses, reads, writes and converts 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)
- converts between miles and kilometres (6M6)
  - connects conversion from kilometres to miles in measurement to its graphical representation

Perimeter, Area, Volume

- recognises that shapes with the same areas can have different perimeters and vice versa (6M7a)
- calculates the area of parallelograms and triangles (6M7b)
- recognises when it is possible to use the formulae for the area of shapes (6M7c)
- calculates, estimates and compares volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units *e.g. mm^3 and km^3* (6M8a)
- recognises when it is possible to use the formulae for the volume of shapes (6M8b)

Solve problems

- solves problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate **(**6M9)

Geometry

Properties of shape

- compares and classifies geometric shapes based on their properties and sizes (6G2a)
- describes simple 3D shapes (6G2b)
- draws 2D shapes using given dimensions and angles (6G3a)
- recognises and builds simple 3D shapes including making nets (6G3b)
- visualises a 3D shape from its net and matches vertices that will be joined
- visualises where patterns drawn on a 3D shape will occur on its net
- finds unknown angles in any triangles, quadrilaterals and regular polygons (6G4a)
- recognises angles where they meet at a point, are on a straight line, or are vertically opposite, and finds missing angles (6G4b)
- *explains how unknown angles and lengths can be derived from known measurements*
- *relationships might be expressed algebraically e.g. $d = 2 \times r$; $a = 180 – (b + c)$*
- illustrates and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius (6G5)

Position and direction

- draws and translates simple shapes on the coordinate plane, and reflects them in the axis (6P2)
- *predicts missing coordinates using the properties of shapes. These might be expressed algebraically for example, translating vertex (a, b) to (a-2, b+3); (a, b) and (a+d, b+d) being opposite vertices of a square of side d*
- describes positions on the full coordinate grid (all four quadrants) (6P3)

Statistics

Processing, representing and interpreting data

- interprets and constructs pie charts and line graphs and uses these to solve problems (6S1)
  - connects work on angles, fractions and percentages to the interpretation of pie charts
- recognises the difference between discrete and continuous data
- recognises when information is presented in a misleading way, e.g. compares two pie charts where the sample sizes are different
- when drawing conclusions, identifies further questions to ask
  - begins to decide which representation of data is most appropriate and why
- calculates and interprets the mean as an average (6S3)
- *knows when it is appropriate to find the mean* median and mode *of a data set*

Evidence of none or just a few of these skills – refer to C1/2/3 sheet	**Entering** (some of these aspects secure, or occasional evidence across most skills) = **C3**	**Developing** (many of these aspects secure, or more frequent evidence across most skills) = **C4**	**Securing** (most of these aspects secure most of the time) = **C5**	**Deepening** (almost all of these aspects secure) = **C6**	All aspects secure, now going 'broader and deeper' = **C+**

Please refer to the introduction to this document for further guidance about making judgements for tracking progress.