**Jarrow Cross CE Primary School Numeracy Assessment – Year 6**

(Notes & guidance; non-statutory)

| **NUMBER & PLACE VALUE** | **E** | **D** | **S** |
|---|---|---|---|
| use negative numbers in context, and calculate intervals across zero | | | |
| read, write, compare and order numbers up to 10 000 000 knowing the value of each digit | | | |
| identify the value of each digit to three decimal places | | | |
| round any number, including decimals, to a required degree of accuracy | | | |
| solve number and practical problems that involve all of the above | | | |
| **ADDITION & SUBTRACTION** | | | |
| know addition and subtraction facts for multiples of 10 to 1000 | | | |
| know addition and subtraction facts for decimal numbers with 1 and 2-decimal places | | | |
| know what must be added to a decimal with two decimal places to make the next whole number | | | |
| perform mental calculations, including with mixed operations and large numbers | | | |
| use their knowledge of the order of operations to carry out calculations involving the four operations | | | |
| solve addition and subtraction multi-step problems in contexts | | | |
| **MULTIPLICATION & DIVISION** | | | |
| multiply 4-digits by 2-digit whole numbers using the formal written method of long multiplication | | | |
| divide 4-digits by 2-digit whole numbers using the formal written method of long division and interpret remainders and whole number remainders, fractions or by rounding, as appropriate for the context | | | |
| divide 4-digits by 2-digit whole numbers using the formal written method of short division and interpret remainders and whole number remainders, fractions or by rounding, as appropriate for the context | | | |
| perform mental calculations including with mixed operations and large numbers | | | |
| identify common factors, common multiples and prime numbers | | | |
| use knowledge of the order of operations to carry out calculations involving the 4 operations | | | |
| double decimals to one decimal place and find corresponding halves | | | |
| divide by 25 and 50 | | | |
| multiply pairs of multiples of 10 and 100 | | | |
| multiply & divide one-digit numbers with up to two decimal places by whole numbers | | | |
| solve multiplication and division multi-step problems in context | | | |
| multiply & divide numbers by 10, 100 & 100 where the answers are up to three decimal places | | | |
| use estimation to check answers to calculations | | | |
| solve mental calculations with increasingly large numbers & more complex calculations | | | |
| apply all multiplication tables fluently | | | |
| round answers to a specified degree of accuracy (nearest 10, 20, 50 etc) but not to a specified number of significant figures | | | |
| explore the order of operations using brackets | | | |
| **FRACTIONS** | | | |
| use common factors to simplify fractions; use common multiples to express fractions in the same denomination | | | |
| compare and order fractions, including fractions >1 | | | |
| add & subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions | | | |
| multiply simple pairs of proper fractions, writing the answer in its simplest form | | | |
| divide proper fractions by whole numbers | | | |
| associate a fraction with division and calculate decimal fraction equivalents | | | |
| identify the value of each digit in numbers up to 3 decimal places | | | |
| multiply & divide numbers by 10, 100 & 1000 giving answers up to 3 decimal places | | | |
| multiply 1-digit numbers with up to 2 decimal places by whole numbers | | | |
| use written division methods in cases where the answer has up to 2 decimal places | | | |
| solve problems which require answers to be rounded to specified degrees of accuracy | | | |
| recall and use equivalences between simple fractions, decimals and percentages, including in different contexts | | | |

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| use of variety of images to support understanding of multiplication with fractions | | | |
| apply understanding of the relationship between unit fractions & division to work backwards by multiplying a a unit fraction to find the whole quantity (1/4 is 36cm, what is the whole?) | | | |
| **ALGEBRA** | | | |
| use simple formulae | | | |
| express missing number problems algebraically | | | |
| find pairs of numbers that satisfy number sentences involving two unknowns | | | |
| enumerate all possibilities of combinations of two variables | | | |
| generate and describe linear number sequences | | | |
| make generalisations of number patterns | | | |
| **RATIO & PROPORTION** | | | |
| solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts | | | |
| solve problems involving the calculation of percentages | | | |
| solve problems involving similar shapes where the scale factor is known or can be found | | | |
| solve problems involving unequal sharing & grouping using knowledge of fractions &multiples | | | |
| link percentages or 360º to calculating angles of pie charts | | | |
| **MEASURES** | | | |
| solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate | | | |
| use, read, write and convert between standard units, converting measurements of **length, mass, volume & time** from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places | | | |
| convert between miles and kilometres | | | |
| recognise that shapes with the same areas can have different **perimeters** and vice versa | | | |
| recognise when it is possible to use formulae for are & volume of shapes | | | |
| calculate the area of parallelograms and triangles | | | |
| estimate, compare & calculate the volume of cubes & cuboids using standard units, including cm cubed ($cm^3$) and cubic m ($m^3$), and extending to other units such as $mm^3$ and $km^3$. | | | |
| connect conversion to a graphical representation | | | |
| know approximate conversions and say if an answer is sensible | | | |
| add & subtract positive & negative integers on the number line for measures (eg temperature) | | | |
| relate the area of rectangles to parallelograms & triangles & calculate their areas | | | |
| **GEOMETRY: PROPERTIES OF SHAPE** | | | |
| draw 2-D shapes using given dimensions and angles | | | |
| recognise and describe simple 3-D shapes, including nets | | | |
| build simple 3-D shapes, including making nets | | | |
| compare and classify geometric shapes based on their properties and sizes | | | |
| find unknown angles in any triangles, quadrilaterals, and regular polygons | | | |
| illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius | | | |
| recognise angles where they meet at a point, are on a straight line, or are vertically opposite | | | |
| express relationships algebraically (d = 2xr) | | | |
| **GEOMETRY: DIRECTION & MOVEMENT** | | | |
| describe positions on the full coordinate grid (all four quadrants) | | | |
| draw and translate simple shapes on the coordinate plane, and reflect them in the axes | | | |
| draw and label quadrilaterals specified by coordinates in the 4 quadrants, predicting missing coordinates | | | |
| **STATISTICS** | | | |
| interpret & construct pie charts & line graphs and use these to solve problems | | | |
| calculate and interpret the mean as an average | | | |
| connect conversion from km to miles in measurement to its graphical equivalent | | | |