**Year 6 – Maths age related expectations**

**Number – Number and Place Value**

* read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
* round any whole number to a required degree of accuracy
* solve number and practical problems that involve all of the above.

**Number – Addition and Subtraction**

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

**Number – multiplication and division**

* multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
* 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
* 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
* identify common factors, common multiples and prime numbers
* perform mental calculations, including with mixed operations and large numbers
* use my knowledge of the order of operations to carry out calculations involving the four operations
* solve problems involving 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

**Number – Fractions**

* use common factors to simplify fractions; use common multiples to express fractions in the same denominationcompare and order fractions, including fractions > 1
* add and 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 [for example, 1/4 x 1/2 = 1/8]
* divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6]
* associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]
* identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
* multiply one-digit numbers with up to two decimal places by whole numbers
* use written division methods in cases where the answer has up to two 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.

**Measurement**

* solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
* 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
* 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 area and volume of shapes

**Geometry – Properties of Shapes**

* draw 2-D shapes using given dimensions and angles
* recognise, describe and build simple 3-D shapes, including making nets
* compare and classify geometric shapes based on their properties and sizes and 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, and find missing angles

**Geometry – Position and Direction**

* 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

**Statistics**

* interpret and construct pie charts and line graphs and use these to solve problems
* calculate and interpret the mean as an average

**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
* solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
* solve problems involving similar shapes where the scale factor is known or can be found
* solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

**Algebra**

* use simple formulae
* generate and describe linear number sequences
* express missing number problems algebraically
* find pairs of numbers that satisfy an equation with two unknowns
* enumerate possibilities of combinations of two variables