NUMERACY	✓= Year 6 Objective ✓ = Year 5 Objective	Year 5&6 2015/16
Autumn Term	Spring Term	Summer Term
Arithmetic Mental ✓ Perform mental calculations, including with mixed operations and large numbers Geometry – Properties of Shape ✓ Use the properties of rectangles to deduce related facts and find missing lengths and angles ✓ **Distinguish between regular and irregular polygons based on reasoning about equal sides and angles (KPI)** ✓ Identify 3-D shapes, including cubes and other cuboids, from 2-D representations ✓ Recognise, describe and build simple 3-D shapes, including making nets Geometry – Position & Direction ✓ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	Arithmetic Mental ✓ Multiply and divide numbers mentally drawing upon known facts Geometry – Properties of Shape ✓ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles ✓ **Draw given angles, and measure them in degrees (°)(KPI)** ✓ Identify angles at a point and one whole turn (total 360°); at a point on a straight line and 1/2 a turn (total 180°); other multiples of 90° ✓ Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles ✓ **Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons (KPI)** Geometry – Position & Direction ✓ Describe positions on the full	Arithmetic Mental ✓ **Add and subtract numbers mentally with increasingly large numbers (KPI)** Geometry – Properties of Shape ✓ 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 & Direction ✓ **Draw and translate simple shapes on the coordinate plane, and reflect them in the axes (KPI)** ✓ Draw 2-D shapes using given dimensions and angles Number and Place Value ✓ **Use negative numbers in context, and calculate intervals across zero (KPI)**

Number and Place Value ✓ **Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (KPI)** ✓ Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 ✓ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 ✓ Solve number problems and practical problems that involve all of the above ✓ **Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero (KPI)** ✓ Read Roman numerals to 1000 (M) and recognise years written in Roman numerals Number – Addition & Subtraction ✓ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ✓ **Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) (KPI)**	coordinate grid (all four quadrants) 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 (KPI)** ✓ Solve number and practical problems that involve all of the above Number – Addition & Subtraction ✓ **Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why (KPI)** ✓ Use their knowledge of the order of operations to carry out calculations involving the four operations Number – multiplication & Division ✓ **Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication (KPI)** ✓ 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 ✓ **Solve problems involving**	Number – Addition & Subtraction ✓ 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 (KPI)** Number – multiplication & Division ✓ **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 (KPI)** ✓ Use their knowledge of the order of operations to carry out calculations involving the four operations ✓ **Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates (KPI)** ✓ Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) ✓ **Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers (KPI)** ✓ Know and use the vocabulary of prime

✓ Add and subtract numbers mentally with increasingly large numbers ✓ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Number – multiplication & Division ✓ Identify common factors, common multiples and prime numbers ✓ Establish whether a number up to 100 is prime and recall prime numbers up to 19 ✓ Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers ✓ Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context Number – Fractions (Decimals and Percentages) ✓ 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	**multiplication and division including using their knowledge of factors and multiples, squares and cubes (KPI)** ✓ Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign ✓ Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 ✓ 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 Number – Fractions (Decimals and Percentages) ✓ **Solve problems which require answers to be rounded to specified degrees of accuracy (KPI)** ✓ **Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25 (KPI)** ✓ Identify, name and write equivalent fractions of a given fraction,	numbers, prime factors and composite (non-prime) numbers Number – Fractions (Decimals and Percentages) ✓ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination ✓ Compare 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 ✓ Divide proper fractions by whole numbers ✓ Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction ✓ Multiply one-digit number with up to two decimal places by whole numbers ✓ **Use written division methods in cases where the answer has up to two decimal places (KPI)** ✓ **Recall and use equivalences between**

✓ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents ✓ Solve problems involving number up to three decimal places ✓ Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number ✓ **Compare and order fractions whose denominators are all multiples of the same number (KPI)** Statistics ✓ Solve comparison, sum and difference problems using information presented in a line graph ✓ **Complete, read and interpret information in tables, including timetables (KPI)** Measurement ✓ **Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) (KPI)** ✓ Solve problems involving converting	represented visually, including tenths and hundredths ✓ Add and subtract fractions with the same denominator and denominators that are multiples of the same number ✓ **Read and write decimal numbers as fractions** ✓ **Read, write, order and compare numbers with up to three decimal places (KPI)** ✓ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams ✓ Round decimals with two decimal places to the nearest whole number and to one decimal place ✓ Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal Algebra ✓ **Use simple formulae (KPI)** ✓ 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	**simple fractions, decimals and percentages, including in different contexts (KPI)** 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 (KPI)** ✓ 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 (KPI)** Statistics ✓ Calculate and interpret the mean as an average Measurement ✓ Solve problems involving the calculation and conversion of units of measure, using decimal notation up to

between units of time ✓ **Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres (KPI)** ✓ **Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes (KPI)**	Statistics ✓ **Interpret and construct pie charts and line graphs and use these to solve problems (KPI)** Measurement ✓ Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] ✓ Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling ✓ **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 (KPI)** ✓ Calculate the area of parallelograms and triangles	three decimal places where appropriate ✓ 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 ✓ **Convert between miles and kilometres (KPI)** ✓ Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints ✓ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]

KPIs **KPIs are identified in the term in which they will be a primary focus (as they feature in the curriculum plan) and must be assessed (on the Arbor Curriculum tracker) for every child. However all KPIs for the year group can be assessed and updated at any point in the academic year.**

By the end of the summer term, in preparation for a summative assessment, teachers will need to revisit KPIs from the autumn and spring terms to revise and update judgements.