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**Bedfield and Wetheringsett C of E Primary Schools: Progression of Knowledge and Skills**

**Subject: Mathematics**

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| **Reception** |  | | |
|  | * Count objects, actions and sounds * Subitise * Link the number symbol (numeral) with its cardinal number value * Count beyond 10 * Compare numbers * Understand the ‘one more than/one less than’ relationship between consecutive numbers * Explore the composition of numbers to 10 * Automatically recall number bonds for numbers 0 – 5 and some to 10 * Select, rotate and manipulate shapes to develop spatial reasoning skills * Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can * Continue, copy and create repeating patterns * Compare length, weight and capacity   **Mathematics ELG: Number**   * Have a deep understanding of number to 10, including the composition of each number * Subitise (recognise quantities without counting) up to 5 * Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts   **ELG: Numerical Patterns**   * Verbally count beyond 20, recognising the pattern of the counting system * Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity * Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally | | |
| **Years 1&2** | **Year 1** | **Year 2** | |
|  | **Counting**   * Count to and across 100, forwards and backwards, beginning with 0 or 1, from any given number * Count, read and write numbers to 100 in numerals * Count in multiples of twos, fives and tens * **Representing Number** * Identify and represent numbers using objects and pictorial representations including number lines * Use the language of equal to, more than/less than, most and least * Read and write numbers from one to twenty in numerals and words   **Number Facts (addition and subtraction)**   * Identify one more or one less from a given number * Read, write and interpret mathematical statements involving addition, subtraction and equals signs * Represent and use number bonds and related subtraction facts within 20   **Mental addition and subtraction**   * Add and subtract one and two digit numbers to 20, including zero   **Addition and subtraction problems**   * Solve one step problems using addition and subtraction using concrete objects and pictorial representations * Solve missing number problems   **Multiplication and division problems**   * Solve one step problems using multiplication and division by calculating the answer using concrete objects, pictorial representations and arrays with support from the teacher   **Recognising fractions**   * Recognise, find and name a half as one of two equal parts of an object, shape or quantity * Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity   **Measures**   * Compare, describe and solve practical problems involving length/heights/weights/mass/   capacity/volume/time   * Measure and begin to record length/height/mass/weight/capacity/volume/time   **Money**   * Recognise and know the value of different denominations of coins and notes   **Time**   * Sequence events in chronological order * Recognise and use language relating to dates, including days of the week, weeks, months and years * Tell the time t the hour and half past the hour and draw the hands on a clock face to show these times   **Properties of 2D shape**   * Recognise and name common 2D shapes including squares, rectangles, triangles and circles   **Properties of 3D shape**   * Recognise and name common 3D shapes including cubes, cuboids, pyramids and spheres   **Position and direction**   * Describe position, direction and movement, including whole, half and three quarter turns | **Counting**   * Count in 2s,3s 5 from zero and 10s from any number forwards and backwards   **Place Value**   * Recognise place value in a 2 digit number * Compare and order numbers 0-100 * Use <, > and = signs * Read and write numbers 0-100 in numerals and words   **Representing Number**   * Identify, estimate and represent numbers using different representations including the number   **Number Facts (addition and subtraction)**   * Use place value and number facts to solve problems * Recall and use addition and subtraction number facts to 20 fluently * Derive and use related facts up to 100   **Mental addition and subtraction**   * Add and subtract numbers using concrete objects, pictorial representations, and mentally, including two digit number and ones, a two digit number and tens, two 2 digit numbers and adding three 1 digit numbers * Show that additona can be done in any order (commutative) and subtraction of one number from another cannot   **Addition and subtraction problems**   * Solve problems with addition and subtraction using concrete objects and pictorial representations * Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems   **Number facts (Multiplication and division)**   * Recognise and use multiplication and division facts for the 2, 5 and 10 times table, recognising odd and even numbers   **Mental multiplication and division**   * Calculate mathematical statements for multiplication and division within the multiplication tables and write them using multiplication, division and equals signs * Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot   **Multiplication and division problems**   * Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts   **Recognising fractions**   * Recognise, name, find, read and write fractions 1/3. ¼, 2/4 and ¾ of a length, shape, set of objects or a quantity   **Calculating fractions**   * Write simple fractions eg ½ of 6 =3 and write the equivalence of ½ = 2/4   **Measures**   * Choose and use appropriate standard units to estimate and measure length, height, mass, temperature and capacity to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels * Compare and order lengths, mass and volume, capacity and record the results using <,> and +   **Money**   * Recognise and use symbols for pounds and pence * Combine amounts to make a particular value * Solve simple problems in a practical context involving addition and subtraction of money in the same units, including giving change   **Time**   * Compare and sequence units of time * Tell and write the time to the nearest five minutes, including a quarter past and to the hour. Draw the hands of a clock face to show these times * Know the number of minutes in an hour and the number of hours in a day   **Properties of 2D shape**   * Identify and describe the properties of 2D shapes, including the number of sides and vertical line symmetry * Compare and sort common 2D and 3D shapes and everyday objects   **Properties of 3D shape**   * Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces * Identify 2D shapes on the surface of 3D shapes, for example a circle on a cylinder and a triangle on a pyramid * Compare and sort common 2D and 3D shapes and everyday objects   **Position and direction**   * Order and arrange combinations of mathematical objects in patterns and sequences * Use mathematical vocabulary to describe position, direction and movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for a quarter, half and three-quarter turns, clockwise and anti-clockwise   **Interpreting data**   * Construct and interpret simple pictograms, tally charts, block diagrams and simple tables   **Extracting information from data**   * Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity * Ask and answer questions about totalling and comparing categorical data | |
| **Years 3&4** | **Year 3** | | **Year 4** |
|  | **Counting**   * Count from 0 in multiples of 4,8,50 and 100 * Find 10 or 100 more or less than a given number   **Place Value**   * Recognise the place value of each digit in a three -digit number (hundreds, tens and ones) * Compare and order numbers up to 1000 * Read and write in numerals and words numbers up to 1000   **Representing Number**   * Identify, represent and estimate numbers up to 1000 using different representations   **Mental addition and subtraction**   * Add and subtract numbers mentally including three- digit numbers and ones, three- digit numbers and tens and three-digit numbers and hundreds   **Written addition and subtraction**   * Add and subtract numbers with up to three-digits, using formal methods of column addition and subtraction   **Addition and subtraction problems**   * Estimate the answer to a calculation and use the inverse to check answers * Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction   **Number facts (Multiplication and division)**   * Use and recall multiplication and division facts for the 3, 4 and 9 multiplication tables   **Mental multiplication and division**   * Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including two -digit numbers times one- digit numbers, including mental methods   **Written multiplication and division**   * Progress to using formal written methods to multiply two-digit numbers by one-digit numbers   **Multiplication and division problems**   * Solve problems, including missing number problems involving multiplication and division, including positive integer scaling problems and correspondence problems   **Recognising fractions**   * Count up and down in 1/10s * Recognise that tenths arise from dividing an object into ten equal parts and in dividing one-digit numbers or quantities by ten   **Comparing fractions**   * Compare and order unit fractions and fractions with the same denominator * Recognise and show, using diagrams, equivalent fractions with small denominators   **Finding fractions of quantities**   * Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators * Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators   **Calculating fractions**   * Add and subtract fractions with the same denominator within one whole   **Fraction problems**   * Solve problems using all fraction knowledge   **Measures**   * Measure, compare, add and subtract lengths/mass/volume/capacity   **Money**   * Add and subtract amounts of money to give change, using both pounds and pence in different contexts   **Time**   * Tell and write the time from an analogue clock, including Roman numerals and 12 and 24 hour clocks * Estimate and read time with increasing accuracy to the nearest minute * Record and compare time in terms of seconds, minutes and hours * Use vocabulary such as o’clock, am/pm, morning, afternoon, noon and midnight * Know the number of seconds in a minute and the number of days in each month, year and leap year * Compare duration of events   **Perimeter**   * Measure the perimeter of simple 2D shapes   **Properties of 2D shape**   * Draw 2D shapes   **Properties of 3D shape**   * Make 3D shapes using modelling materials * Recognise 3D shapes in different orientations and describe them   **Angles**   * Recognise angles as a property of a shape or the position of a turn * Identify right angles * Identify whether angles are more or less than a right angle * Recognise that two right angles make a half turn, three make three quarters and four a complete turn * Identify horizontal and vertical lines and pairs of perpendicular and parallel lines   **Interpreting data**   * Interpret and present data using bar charts, pictograms and tables   **Extracting information from data**   * Solve one and two step questions (eg how many fewer/how many more?) using information presented in scaled bar charts, pictograms and tables | | **Counting**   * Count in multiples of 6,7,9,25 and 1000 * Find 1000 more or less than a given number * Count backwards through zero to include negative numbers   **Place Value**   * Recognise the place value of each digit in a 4-digit number (thousands, hundreds, tens and ones) * Compare and order numbers beyond 1000 * Round any number to the nearest 10, 100 and 1000   **Representing Number**   * Identify, represent and estimate numbers up to 1000 using different representations * Read Roman Numerals to 100 (I – C) and know that over time, the numeral system changed to unclude zero and place value   **Written addition and subtraction**   * Add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate   **Addition and subtraction problems**   * Estimate and use the inverse operation to check answers to calculations * Solve addition and subtraction two-step problems in contexts, deciding what operations and methods to use and why   **Number facts (Multiplication and division)**   * Recall multiplication and division facts for multiplication tables up to 12x 12   **Mental multiplication and division**   * Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1: multiplying together three numbers * Recognise and use factor pairs and commutativity in mental calculations   **Written multiplication and division**   * Multiply two-digit and three-digit numbers by a one -digit number using formal written layout   **Multiplication and division problems**   * Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one -digit, integer scaling problems and harder correspondence problems   **Recognising fractions**   * Count up and down in hundredths * Recognise that hundredths occur when dividing an object by one hundred or tenths by ten   **Comparing fractions**   * Recognise and show, using diagrams, families of common equivalent fractions   **Finding fractions of quantities**   * Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number   **Calculating fractions**   * Add and subtract fractions with the same denominator   **Decimals as fractional amounts**   * Recognise and write decimal numbers equivalent to any number of tenths or hundredths * Recognise and write decimal equivalents of ½, ¼, ¾ * Find the effect of dividing a one or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths   **Ordering decimals**   * Round decimals with one decimal place to the nearest whole number * Compare numbers with the same number of decimal places, up to two decimal places   **Fraction and decimal problems**   * Solve simple measures and money problems involving fractions and decimals to two decimal places   **Measures**   * Convert between different units of measure, for example, kilometres to metres and hours to minutes * Estimate, compare and calculate different measures, including money in pounds and pence   **Time**   * Convert between different units of measures, for example hours to minutes * Read, write and convert time between analogue and digital 12 and 24 hour clocks * Solve problems including converting hours to minutes; minutes to seconds; years to months and weeks to days   **Area, perimeter and volume**   * Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres * Find the area of rectilinear shapes by counting squares   **Properties of 2D shape**   * Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties and sizes * Identify lines of symmetry in 2D shapes presented in different orientations * Complete a simple symmetric figure with respect to a specific line of symmetry   **Angles**   * Identify acute and obtuse angels and compare and order angles up to two right angles by size   **Position and direction**   * Describe position and direction on a 2D grid as coordinates in the first quadrant * Describe movements between positions as translations of a given unit to the left/right and up/down * Plot specified points and draw sides to complete a given polygon   **Interpreting data**   * Interpret and present discrete and continuous data using appropriate graphical methods including bar charts and time graphs   **Extracting information from data**   * Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs |
| **Years 5&6** | **Year 5** | | **Year 6** |
|  | **Counting**   * Count forwards and backwards in steps of powers of 10 from any given number up to 1,000,000 * Count forwards and backwards with positive and negative whole numbers, including through zero   **Place Value**   * Read, write, order and compare, and identify the value of each digit in any number up to at least 1,000,000 * Interpret negative numbers in context * Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000   **Representing Number**   * Read Roman numerals up to 1000 (M) and identify and recognise years in Roman numerals   **Mental addition and subtraction**   * Add and subtract mentally with increasingly high numbers   **Written addition and subtraction**   * Add and subtract whole numbers with more than 4-digits using a range of formal written methods   **Addition and subtraction problems**   * Use rounding to check answers to calculations and determine, in the context of problems, accuracy of answers * Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why   **Number facts (Multiplication and division)**   * Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers * Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers * Establish whether a number up to 100 is a prime and recall prime numbers up to 19 * Recognise and use square numbers and cube numbers, and the notation for squared and cubed   **Mental multiplication and division**   * Multiply and divide numbers mentally drawing on known facts * Multiply and divide whole numbers and those with decimals by 10, 100 and 1000   **Written multiplication and division**   * Multiply numbers up to 4 digits by a one or two-digit number using a formal 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   **Multiplication and division problems**   * Solve problems using knowledge of addition, subtraction multiplication and division, including using knowledge of factors and multiples, squares and cubes * Solve problems using knowledge of addition, subtraction multiplication and division and a combination of these, showing understanding of the meaning of the equals sign * Solve problems using knowledge of addition, subtraction multiplication and division, including scaling by simple fractions and problems involving simple rates   **Recognising fractions**   * Recognise mixed numbers and improper fractions and convert one form to the other and write mathematical statements >1 as a mixed number * Compare and order fraction when denominators are all multiples of the same number * Identify, name and write equivalent fractions of a given fraction represented visually, including tenths and hundredths   **Calculating fractions**   * Add and subtract fractions with the same denominator and denominators that are multiples of the same number * Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams   **Decimals as fractional amounts**   * Read and write decimal numbers as fractions   **Ordering decimals**   * Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents * Round decimals with two decimal places to the nearest whole number and to one decimal place * Read, write, order and compare numbers with up to three decimal places   **Percentages**   * Recognise the percent symbol and understand that percent relates to the number of parts per hundred * Write percentages as a fraction with a denominator 100 and as a decimal   **Fraction and decimal problems**   * Solve problems involving numbers with up to three decimal places * Solve problems which require percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5, and fractions with a denominator of a multiple of 10 or 25   **Measures**   * Convert between different units of metric measure (km/m, cm/mm, g/kg, l/ml) * Understand and use approximate equivalence between metric units and common imperial units such as inches, pounds and pints * Use all four operations to solve problems involving measure, using decimal notation, including scaling   **Time**   * Solve problems converting between units of time   **Area, perimeter and volume**   * Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres * Calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres and square metres * Estimate the area of irregular shapes * Estimate volume and capacity   **Properties of 2D 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   **Properties of 3D shape**   * Identify 3D shapes eg cubes and cuboids from 2D representations   **Angles**   * Know angles are measured in degrees * Estimate and compare acute, obtuse and reflex angles * Know angles are measured in degrees * Draw given angels and measure them in degrees * Identify angels at a point and one whole turn; angels at a point on a straight line and half a turn and other multiples of 90 degrees   **Position and direction**   * Identify, describe and represent the position of a shape following a reflective translation, using the appropriate language and know the shape has nit changed   **Interpreting data**   * Complete, read and interpret information in tables, including timetables   **Extracting information from data**   * Solve comparison, sum and difference problems using information presented in a line graph | | **Counting**   * Use negative numbers in context and calculate intervals through zeros   **Place Value**   * Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit * Round any number to the required degree of accuracy   **Mental addition and subtraction**   * Perform mental calculations, including mixed operations and large numbers   **Addition and subtraction problems**   * To solve multi-step problems involving addition and 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 facts (Multiplication and division)**   * Identify common factors, common multiples and prime numbers   **Mental multiplication and division**   * Perform mental calculations, including with mixed operations and large numbers   **Written 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 two-digit numbers using the formal written method of short division, where appropriate interpreting remainders according to the context   **Multiplication and division problems**   * Use knowledge of the order of operations to carry out calculations involving four operations * Solve problems involving addition, subtraction, multiplication and division * Use estimation to check the answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy   **Comparing fractions**   * Use common factors to simplify fractions * Use common multiples to express fractions in the same denomination * Compare and order fractions, including fractions >1   **Calculating fractions**   * Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions * Simplify simple pairs of proper fractions writing the answer in its simplest form * Divide proper fractions by whole numbers   **Decimals as fractional amounts**   * Associate a fraction with division and calculate fraction equivalents for a simple fraction * Identify the value of each digit in numbers with three decimal places   **Calculating with decimals**   * Multiply and divide numbers by 10, 100 and 1000 giving answers of 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   **Percentages**   * Solve problems involving the calculation of percentages and use the percentage for comparison   **Fraction and decimal problems**   * Solve problems which require answers to be rounded to specified degree of accuracy * Recall and use equivalences between simple fractions, decimals and percentages including in different contexts   **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 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   **Measures**   * 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, suing decimal notation, up to three decimal places * Convert between miles and kilometres   **Area, perimeter and volume**   * 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 * Calculate the area of parallelograms and triangles * Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres and extending to other units   **Properties of 2D shape**   * Draw 2D shapes using given dimensions and angles * Compare and classify geometric shapes based on their properties and sizes * Find unknown angels in any triangles, quadrilaterals and regular polygons * Illustrate and name pats of circles, including radius, diameter and circumference and know the diameter is twice the radius   **Properties of 3D shape**   * Recognise, describe and build simple 3D shapes including making nets   **Angles**   * Recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles   **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   **Interpreting data**   * Interpret and construct pie charts and line graphs * Calculate and interpret the mean as an average   **Extracting information from data**   * Use pie charts and line graphs to solve problems |