Great Linford Primary School

Number and Place Value

	EYFS	1	2	3	4	5	6
Substantive Knowledge	Verbally counting to 20 Subitise up to 5 items	I can read and write numbers from 1 to 20 in numerals and words.	I can count in steps of 2, 3 and 5 from 0, and in 10s from any numbers, forward and backward. …… I recognise the place value of each digit in a two-digit number (10s and 1s). …… I read and write numbers to at least 100 in numerals and words. ……	I can count from 0 in multiples of 4, 8, 50 and 100 and find 10 or 100 more or less than a given number. …… I recognise the place value of each digit in a 3-digit number. …… I can read and write numbers up to 1000 in numerals and words. ……	I can count in multiples of 6, 7, 9, 25 and 1000. …… I can count backwards through 0 to include negative numbers. …… I recognise the place value of each digit in a 4-digit number. ……... I can read Roman numerals to 100 and know that our number system changed over time to include the concept of 0 and place value	I can read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit …… I can count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 …… I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals. ……...	I can read, write, order and compare numbers up to 10,000,000 and determine the value of each digit ……... I can use the whole number system, including saying, reading and writing numbers accurately. ……..
Disciplinary Knowledge		I can count to and across 100, forwards and backwards, beginning with any given number. …….. I can count in multiples of 2s, 5s and 10s. I can identify and represent numbers using concrete and pictorial representations including numberlines.	I can identify, represent and estimate numbers using different representations, including numberlines. …… I can compare and order numbers from 0 to 100 and use < > and = signs. …… I use place value and number facts to solve problems. …… I can partition numbers in different ways.	I can compare and order numbers up to 1000. …… I can identify, represent and estimate numbers using different representations. …… I can solve number problems and practical problems involving these ideas.	I can find 1000 more or less than a given number. …… I can order and compare numbers beyond 1000. …… I can identify, represent and estimate numbers using different representations. …… I can round any number to the nearest 10, 100 or 1000. …… I can solve problems involving all of the above with increasingly large positive numbers. ……...	I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 ……... I can round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 …… I can solve number problems and practical problems that involve all of the above …….. I can recognise and describe linear number sequences, including those involving fractions and decimals, and find the term-to-term rule in words. ……..	I can round any whole number to a required degree of accuracy …….. I can use negative numbers in context, and calculate intervals across 0 ……... I can solve number and practical problems that involve all of the above …….. I can solve problems which require answers to be rounded to specific degrees of accuracy. ……...
Vocabulary		Equal to, more than, less than, fewer, most, least,	Greater than, less than, equals	Inverse, commutative, equals, addend, sum, difference		Prime numbers, prime factors, composite numbers, square numbers, cube numbers, tenths, hundredths, thousandths, decimal	

Great Linford Primary School

Addition and Subtraction

	EYFS	1	2	3	4	5	6
Substantive Knowledge	Devise and record number stories using pictures and symbols	I can read, write and interpret number sentences using the + - = symbols. ……. I can represent and use number bonds and related subtraction facts within 20.	I can recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. …… I can show that addition can be done in any order (commutative) but that subtraction can not. ……	I can add and subtract mentally including: A three-digit number and 1s A three-digit number and 10s A three-digit number and 100s …….			I can use my knowledge of the order of operations to carry out calculations involving the 4 operations. ……
Disciplinary Knowledge		I can add and subtract one and two digit numbers to 20, including 0. …….. I can solve one-step problems using concrete and pictorial, including missing number problems such as 7 = ? – 9.	I can solve addition and subtraction problems using concrete objects and pictorial representations, including those involving numbers, quantities and measures. …… I can add and subtract using concrete objects and pictorial representations to solve problems with: Two- digit number and 1s Two- digit number and 10s 2 two- digit numbers Adding 3 one-digit numbers …… …... I recognise and use the inverse relationship between addition and subtraction to check my work and solve missing number problems. …… I can record addition and subtraction in columns.	I can add and subtract numbers with up to 3 digits using column addition and subtraction. …… I can estimate the answer to a calculation and use inverse operations to check. …….. I can solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction.	I can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. …… I can estimate and use inverse operations to check answers. ……... I can solve two step addition and subtraction problems in contexts, deciding which operations to use.	I can add and subtract whole numbers with more than 4 digits, including using formal written methods. …….. I can add and subtract numbers mentally with increasingly large numbers I can use rounding to check answers. ……... I can solve addition and subtraction multi-step problems in contexts, deciding which operations to use.	I can perform mental calculations, including with mixed operations and large numbers. …….. I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. …… I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. …… I can use the formal written column methods for addition and subtraction. …… I can undertake mental calculations with increasingly large numbers and more complex calculations.
Vocabulary		add, altogether, total, take away, difference between	add, subtract, sum, difference, odd, even	Product, inverse, estimate	Inverse, estimate	Rounding	estimation

Great Linford Primary School

Multiplication and Division

	EYFS	1	2	3	4	5	6
Substantive Knowledge	Distribute items fairly		I can recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. ……... I can use the x ÷ and = symbols to write and solve mathematical statements. …….. I can show that multiplication of 2 numbers can be done in any order (commutative) but that division can not.	I can recall and use multiplication and division facts for the 3, 4 and 8 times tables. ……	I can recall multiplication and division facts for multiplication tables up to 12 x 12. …… I can multiply by 0 and 1. …… I can divide by 1 …….. I can recognise and use factor pairs and commutativity in mental calculations.	I can recall prime numbers up to 19. ……..	
Disciplinary Knowledge		I can solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher ……... I can make connections between arrays, number patterns, and counting in 2s, 5s and 10s.	I can solve problems involving multiplication and division using materials, arrays, repeated addition, mental methods and multiplication and division facts. ……... I can connect the 10 times tables to place value and the 5 times tables to the divisions on a clock face.	I can write and calculate mathematical statements for times tables I know, including for two-digit times one-digit numbers, using mental and progressing to formal written methods …… I can solve problems, including missing number problems, involving multiplication and division. …… I can make connections between the 2, 4 and 8 times tables using doubling. …… I can develop mental methods using commutativity and associativity to derive related facts (I know… so…) …… I have developed formal written methods of short multiplication and division. …… I can solve problems in contexts, deciding whether to use addition, subtraction, multiplication and why, including correspondence problems.	I can use place value, known and derived facts to multiply and divide mentally, …… I can multiply 3 single digit numbers together. …….. I can multiply 2 digit and 3 digit numbers by a 1 digit number using a formal written layout. …… I can solve problems involving multiplying and adding, including using the distributive law to multiply 2 digit numbers by 1 digit. …… I am becoming fluent in the formal written methods of short multiplication and division. …… I can write statements about the equality of expressions using distributive and associative law. …… I can solve two step problems in contexts, choosing the appropriate operation to use.	I can identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers ……... I can establish whether a number up to 100 is prime. …… I can 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. …… I can multiply and divide numbers mentally. …….. I can 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. ……... I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000. …… I can recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³). …… I can solve problems involving the above, including problems that have a combination of all four operations and understanding the meaning of the equals sign.	I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. ……... I can divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division. …….. I can interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. …….. I can divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate. ……... I can identify common factors, common multiples and prime numbers. …….. I can solve problems involving addition, subtraction, multiplication and division. ……... I can multiply one digit numbers with up to 2 decimal places by whole numbers. …….. I can use written division methods in cases where the answer has up to 2dp.
Vocabulary		Array, patterns	Odd, even, commutative	Multiple, inverse, commutativity, sum, difference	product, factor	Squared, cubed, decimals, prime	Remainders, prime numbers

Great Linford Primary School **Fractions**

	EYFS	1	2	3	4	5	6
Substantive Knowledge Disciplinary Knowledge		I can recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity. …….. I can recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity. ……. I can make connections between halves and quarters and the equal sharing and grouping of sets of objects as well as measures. …….. I recognise halves and quarters as parts of a whole.	I can recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. ……. I can count in fractions up to 10, starting from any number and using the 1/2 and 2/4 equivalence on the numberline.	I can count up and down in tenths, recognising that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers by 10. ……. I can add and subtract fractions with the same denominator within one whole. ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, I can compare and order unit fractions, and fractions with the same denominators. …….. I can solve problems involving the above. …….. I can connect tenths to place value and decimal measures. …….. I am beginning to understand unit and non-unit fractions as numbers on the number line.	I can count up and down in hundredths, recognising that hundredths arise when dividing an object by 100 and dividing tenths by 10. …….. I can recognise and write decimal equivalents of any number of tenths or hundredths. …… I can recognise and write decimal equivalents to quarter, half and three quarters. ……	I can read and write decimal numbers as fractions. …… I can read, write, order and compare numbers with up to 3 decimal places. ……. I can recognise the % symbol and understand that it relates to 'number of parts per 100' ……... I can write percentages as a fraction with denominator 100, and as a decimal.	
Vocabulary			I can write simple fractions, for example ½ of 6 = 3 and recognise the equivalence of 2/4 and 1/2. ……. I can connect unit fractions to equal sharing and grouping, to numbers where they can be calculated, and to measures.	I can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. ……. I can recognise and show, using diagrams, equivalent fractions with small denominators. …….	I can recognise and show, using diagrams, families of common equivalent fractions. …… I can 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. …… I can add and subtract fractions with the same denominator. …….. I can find the effect of dividing one or two digit numbers by 10 and 100, identifying the value of the digits in the answer as ones, tenths or hundredths. …… I can round decimals with 1dp to the nearest whole number. …… I can compare numbers with the same number of dp up to 2dp. …… I can use a numberline to connect fractions, numbers and measures.	I can compare and order fractions whose denominators are all multiples of the same number …….. I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. …….. I can recognise mixed numbers and improper fractions and convert from one form to the other. …….. I can add and subtract fractions with the same denominator, and denominators that are multiples of the same number. ……. I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams ……. I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. …… I can round decimals with 2 decimal places to the nearest whole number and to 1 decimal place. ……. I can solve problems involving number up to 3dp. ……. I can solve problems using % and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	I can use common factors and multiples to simplify fractions and express fractions in the same denomination. ……. I can compare and order fractions, including fractions >1. ……... I can add and subtract fractions with different denominators and mixed numbers. …… I can multiply simple pairs of proper fractions. …….. I can write a fraction answer in its simplest form. ……. I can divide proper fractions by whole numbers. ……. I can associate a fraction with division and calculate decimal fraction equivalents. …….. I can identify the value of each digit in numbers given to 3dp. …….. I can multiply and divide numbers by 10, 100 and 1000 giving answers up to 3dp. ……. I can recall and use equivalences between simple fractions, decimals and percentages.
		half, quarter, double	Equivalent, half, double , thirds	tenths, numerator, denominator, unit, non-unit,	equivalent, tenth, hundredth, numerator, denominator, decimals	decimal, equivalent, numerator, denominator, mixed number, improper fraction, percentage,	Tenth, hundredth, thousandth, factors, multiples, prime, square, composite, equivalent, percentage, improper fractions, mixed numbers, numerator, denominator

Great Linford Primary School

Measurement

	EYFS	1	2	3	4	5	6
Substantive Knowledge		I recognise and know the value of different denominations of coins and notes. …… I know the number of minutes in an hour and hours in a day.	I can recognise and use symbols for £ and p …… I know the number of minutes in an hour and hours in a day.	I can use time vocabulary …… I know the number of seconds in a minute and days in each month, year and leap year. ……..	I can read, write and convert time between analogue and digital 12 and 24 hour clocks. ……		I can recognise that shapes with the same areas can have different perimeters and vice versa. ……...
Disciplinary Knowledge Vocabulary		I can sequence events in chronological order using chronology vocabulary …… I can tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. …… I am beginning to use measuring tools such as a ruler, weighing scales and containers. …….. I can compare, describe and solve practical problems for, and begin to measure: lengths/ heights mass/ weight capacity/ volume Time ……	I can choose and use appropriate standard units to estimate and measure to the nearest appropriate unit: length/height (m/cm) mass (g/kg) temperature (°C) capacity (l/ml) …… I can use rulers, scales, thermometers and measuring vessels. …… I can compare and order measurements and record using < > = …… I can combine amounts of money to make a particular value. …… I can find different combinations of coins that equal the same amounts of money. …… I can solve problems involving addition and subtraction of money of the same unit, including giving change. …… I can compare and sequence intervals of time. …… I can tell and write the time to five minutes, including quarter past/ to the hour and draw hands on a clock to show these times.	I can measure, compare, add and subtract lengths, mass and volume/capacity. …… I can measure the perimeter of simple 2D shapes. …… I can add and subtract money to give change, using £ and p in practical contexts. …… I can tell and write the time from an analogue clock, including using Roman numerals up to XII, and 12-hour and 24-hour clocks. …… I can estimate and read time to the nearest minute. …… I can read and compare time in terms of second, minutes and hours. …….. I can compare durations of events. …… I can compare and use mixed units e.g. 1kg and 200g and simple equivalents of mixed units. …… I can compare measures using scaling and connect this to multiplication. ……	I can convert between different units of measure. …… I can measure and calculate the perimeter of a rectilinear figure in cm and m. ……... I can find the area of rectilinear shapes by counting squares. ……... I can estimate, compare and calculate different measures, including money in pounds and pence. …… I can solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days. …… I can relate area to arrays and multiplication. …….. I can connect estimation and rounding to the use of measuring instruments …….. I can solve simple measure and money problems involving fractions and decimals to 2dp.	I can convert between different units of metric measure. …… I can understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. …… I can measure and calculate the perimeter of composite rectilinear shapes in cm and m. …… I can calculate and compare the area of rectangles and estimate the area of irregular shapes. …… I can estimate volume and capacity. ……... I can solve problems involving converting between units of time. …….. I can use all four operations to solve measurement problems using decimal notation, including scaling.	I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3dp. …… I can use, read, write and convert between standard units. …… I can convert between miles and kilometers. …….. I can recognise when it is possible to use formulae for area and volume of shapes. …….. I can calculate the area of parallelograms and triangles. …… I can calculate, estimate and compare volume of cubes and cuboids using standard units. …….. I can connect conversion to a graphical representation.
		long, short, tall, heavy, light, full, empty, quicker, slower, earlier, later, before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening, days of the week, months of the year,	centimetre, metre, grams, kilograms	o'clock, am/pm, morning, afternoon, noon, midnight	perimeter, area, analogue, digital	Perimeter, area, metric, imperial , estimate, volume, capacity	metric, imperial, perimeter, area, miles, kilometres, volume,

Great Linford Primary School

Geometry

	EYFS	1	2	3	4	5	6
Substantive Knowledge Disciplinary Knowledge Vocabulary	See and explore different shapes in different orientations	I can recognise and name common 2D and 3D shapes including: 2D shapes – rectangles, including squares, circles and triangles. 3D shapes – cuboids, including cubes, pyramids and spheres. …… I recognise common shapes in different orientations and sizes and know that rectangles, triangles, cuboids and pyramids are not always similar to each other (familiar with non-regular versions). ..... I can describe positions, direction and movement, including whole, half, quarter and three-quarter turns. …… I can use positional language e.g. left, right, up, down …… I can make turns in both directions and connect turning clockwise with movement on a clock face.	I can identify and describe the properties of 2D shapes including the number of sides and line symmetry in a vertical line. …… I can identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. …… I can identify 2D shapes on the surface of 3D shapes. …… I can name 2D and 3D shapes including: quadrilaterals, polygons, cuboids, prisms and cones. I can draw lines and shapes using a straight edge. …… I can use vocabulary to describe position, direction and movement including movement in a straight line. …… I can distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).	I can recognise 3D shapes in different orientations and describe them. …… I can recognise angles as a property of shape or a description of a turn. …… I can identify right angles and that 2 right angles make a half turn, 3 make three-quarters of a turn and 4 complete a turn. …… I can identify whether angles are greater than or less than a right angle. …… I can identify horizontal and vertical lines and pairs of perpendicular and parallel lines. …… I can identify symmetrical and non-symmetrical polygons	I can compare and classify geometric shapes including quadrilaterals and triangles, based on their properties and sizes. …… I can identify acute and obtuse angles and compare and order angles up to 2 right angles by size. …… I can identify lines of symmetry in 2D shapes presented in different orientations and where the line of symmetry does not dissect the original shape. …… I can name different triangles including isosceles, equilateral and scalene triangles. …… I can name different quadrilaterals including parallelogram, rhombus and trapezium. …… I can compare lengths and angles to decide if a polygon is regular or irregular. …… I can describe positions on a 2D grid as coordinates in the first quadrant. …… I can describe movements between positions as translations of a given unit to the left/right and up/down. ……	I can identify 3D shapes, including cubes and other cuboids, from 2D representations. …… I know that angles are measured in degrees and can estimate and compare acute, obtuse and reflex angles. …… I can identify: Angles at a point and 1 whole turn Angles at a point on a straight line and half a turn. Other multiples of 90 degrees. …… I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles. …… I can use conventional markings for parallel lines and right angles. …….. I can identify, describe and represent the position of a shape following a reflection or translation. …… I know that after reflection or translation the shape has not changed.	I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. …… I can illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. …… I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite …… I can describe positions on the full coordinate grid.
			I can compare and sort common 2D and 3D shapes and everyday objects ……..… I can order and arrange combinations of mathematical objects in patterns and sequences.	I can draw 2D shapes and make 3D shapes using modeling materials. …… I can connect decimals and rounding to drawing and measuring straight lines in centimetres	I can complete a simple symmetric figure with respect to a specific line of symmetry. …… I can plot specified points and draw sides to complete a given polygon. …… I can draw pairs of axes with equal scales and integer labels.	I can draw given angles and measure them in degrees. …… I can use the properties of rectangles to deduce related facts and find missing lengths and angles. …… I can draw lines with a ruler to the nearest millimeter and can measure with a protractor. ……	I can draw 2D shapes using given dimensions and angles. …… I can recognise, describe and build simple 3-D shapes, including making nets. …… I can find missing angles. …… I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes. …… I can draw and label rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of
		rectangle, square, circle, triangle, cuboid, cube, pyramid, sphere, left, right, top, middle, bottom, between, around, near, close, far, up, down, forwards, backwards, inside, outside.	quadrilateral, polygon, cuboid, prism, cone, clockwise, anti-clockwise	right angle, horizontal, vertical, perpendicular, parallel, acute, obtuse	quadrilateral, acute, obtuse, right angle, parallel, perpendicular, horizontal, vertical, isosceles, equilateral, scalene, parallelogram, rhombus, trapezium	perimeter, area, square centimetres, acute, obtuse, reflex angle, parallel, perpendicular, reflection, translation	parallelogram, isosceles, scalene, equilateral, rhombus, volume, quadrilateral, radius, diameter, circumference, acute, obtuse, reflex angles, translate, reflect

Great Linford Primary School **Statistics**

	EYFS	1	2	3	4	5	6
Substantive Knowledge		I am beginning to interpret and construct tally charts.	I can interpret and construct simple pictograms, tally charts, block diagrams and tables.	I can interpret and present data using bar charts, pictograms and tables.			
Disciplinary Knowledge			I can ask and answer questions by counting the number of objects in each category and sorting the categories by quantity. ……. I can ask and answer questions about totaling and comparing categorical data. ……. I can record, interpret, collate, organise and compare information. ……. I can interpret pictograms with many-to-one correspondence with simple ratios 2, 5 or 10.	I can solve one and two step problems using information presented in scaled bar charts, pictograms and tables. ……... I understand and use simple scales in pictograms and bar charts.	I can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. …….. I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. …….. I can understand and use a greater range of scales in my representations.	I can solve comparison, sum and difference problems using information on a line graph. ……... I can complete, read and interpret information in tables, including timetables. …….. I can decide which representations of data are most appropriate and why.	I can interpret and construct pie charts and line graphs and use these to solve problems. ……... I can calculate and interpret the mean as an average. …….. I can connect my understanding of angles, fraction and percentages to the interpretation of pie charts.
Vocabulary		Tally	Ratio, pictogram, tally, block diagram, table	Bar charts, pictograms, tables, scale	Bar charts, pictograms, tables, graphs, scales	Sum, difference, data, representation, interpret	mean, average, interpret, construct

Great Linford Primary School

Ratio, Proportion and Algebra

	EYFS	1	2	3	4	5	6
Substantive Knowledge							
Disciplinary Knowledge Vocabulary				I can solve scaling and correspondence problems. …….. I can compare measures using scaling and connect this to multiplication.	I can solve integer scaling problems and harder correspondence problems.	I can solve problems involving scaling by simple fractions and problems involving simple rates.	I can solve problems involving the relative sizes of 2 quantities where missing values can be found using integer multiplication and division. …….. I can solve problems involving calculating % and the use of % for comparison. ……. I can solve problems involving similar shapes where the scale factor is known or can be found. ……. I can solve problems involving unequal sharing and grouping. ……... I can use simple formulae. ……... I can generate and describe linear number sequences. …….. I can express missing number problems algebraically. ……. I can find pairs of numbers that satisfy an equation with 2 unknowns. ……. I can enumerate possibilities of combinations of 2 variables.