Penshurst Primary School

Maths Long Term Plan

FOUNDATION STAGE 1				
• Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Recite numbers past 5. • Say one number for each item in order: 1,2,3,4,5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). • Show 'finger numbers' up to 5. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.	• Experiment with their own symbols and marks as well as numerals. • Solve real world mathematical problems with numbers up to 5. • Compare quantities using language: 'more than','fewer than'. • Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.	• Understand position through words alone – for example, "The bag is under the table," – with no pointing. • Describe a familiar route. • Discuss routes and locations, using words like 'in front of' and 'behind'. • Make comparisons between objects relating to size, length, weight and capacity.	• Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. • Combine shapes to make new ones – an arch, a bigger triangle, etc.	• Talk about and identify the patterns around them. • For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. • Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'

FOUNDATION STAGE 2				
• Count objects, actions and sounds. • Subitise. • Link the number symbol (numeral) with its cardinal number value.	• Count beyond ten. • 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.

YEAR 1					
Number Number & Place Value	Number Addition & Subtraction	Number Multiplication & Division	Fractions	Shape & Measure Properties of Shape	Shape & Measure Measurement
• I can read and write numbers from 1 to 20 in numerals and words. • WTS x2 I can count, read and write numbers to 100 in numerals • I can identify one more and one less from a given number • I can count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • I can identify and represent numbers using objects and pictorial	• I can read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • I can represent and use number bonds and related subtraction facts within 20 • I can add and subtract one-digit and two-digit numbers to 20, including zero • I can solve one-step problems that involve addition and subtraction, using concrete objects and pictorial	• 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 recognise, find and name a half as one of two equal parts of an object, shape or quantity • I can recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	• I can recognise and name common 2-D and 3-D shapes, including: - 2-D shapes for example, rectangles (including squares), circles and triangles - 3-D shapes for example, cuboids (including cubes), pyramids and spheres • I can describe position, direction and movement, including whole, half, quarter and three-quarter turns	• I can compare, describe and solve practical problems for:- Lengths and heights for example, long/short, longer/shorter, tall/short, double/half -Mass/weight for example, heavy/light, heavier than, lighter than capacity and volume for example, full/empty, more than, less than, half, half full, quarter - Time for example, quicker, slower, earlier, later

representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least ● I can count in multiples of twos, fives and tens	representations, and missing number problems				● I can measure and I am beginning to record the following:- lengths and heights- mass/weight- capacity and volume- time (hours, minutes, seconds) ● WTS I can recognise and know the value of different denominations of coins and notes ● I can sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening ● I can recognise and use language relating to dates, including days of

					the week, weeks, months and years • 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

YEAR 2						
Number Number & Place Value	Number Addition & Subtraction	Number Multiplication & Division	Fractions	Shape & Measure Properties of Shape	Shape & Measure Measurement	Statistics
• I can count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • WTS/EXS I can recognise the place value of each digit in a two-digit number (tens, ones) • I can read and write numbers to at least 100 in numerals and in words • I can identify, represent and estimate numbers using different	• I can solve problems with addition and subtraction:- using concrete objects and pictorial representations, including those involving numbers, quantities and measures- applying their increasing knowledge of mental and written methods • WTS/EXS I can recall and use addition and subtraction facts to 20 fluently, and	• I can solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. • I can calculate mathematical statements for multiplication and division within the multiplication tables and	• I can write simple fractions for example, 1/2 of 6 = 3 • EXS I can recognise, find, name and write fractions; 1/4, 1 /2, 2/4 and 3/4 of a length, shape, set of objects or quantity and recognise the equivalence of 2/4 and 1/2.	• WTS/EXS I can identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • WTS/EXS I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • I can identify 2-D shapes on the surface of 3-D shapes, for example, a circle on a	• I can choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • I can compare and order units of measurement. • I can recognise	• I can interpret and construct simple pictograms, tally charts, block diagrams and simple tables • I can ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • I can ask and answer questions about totalling and comparing categorical data

representations, including the number line ● I can compare and order numbers from 0 up to 100; use <, > and = signs ● I can use place value and number facts to solve problems.	derive and use related facts up to 100 ● WTS/EXS I can add and subtract numbers using concrete objects, pictorial representations, and mentally, including:- a two-digit number and ones- a two-digit number and tens- two two-digit numbers- adding three one-digit numbers ● I can show that addition of two numbers can be done in any order (commutative) and	write them using the multiplication (×), division (÷) and equals (=) signs ● EXS/GDS I can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers ● I can show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		cylinder and a triangle on a pyramid ● GDS I can compare and sorts common 2-D and 3-D shapes and everyday objects ● I can order and arrange combinations of mathematical objects in patterns and sequences ● I can use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in	and use symbols for pounds (£) and pence (p); combine amounts to make a particular value ● EXS I can find different combinations of coins that equal the same amounts of money ● I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change ● I can compare and sequence intervals of time ● GDS I can tell	

	subtraction of one number from another cannot ● I can recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. ● GDS I can solve word problems that involve more than one step, including addition and subtraction and multiplication and division ● GDS I can use reasoning about numbers and			terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)	and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times ● I can recall the number of minutes in an hour and the number of hours in a day ● EXS/GDS I can read scales	

	relationships to solve more complex problems and explain their thinking (e.g. 29 + 17 = 15 + 4 + ; ‘together Jack and Sam have£14. Jack has £2 more than Sam. How much money does Sam have?’ etc.)					

YEAR 3						
Number Number & Place Value	Number Addition & Subtraction	Number Multiplication & Division	Fractions	Shape & Measure Properties of Shape	Shape & Measure Measurement	Statistics
• I can solve number problems and practical problems involving Year 3 objectives. • I can compare and order numbers up to 1,000 • I can identify, represent and estimate (e.g. round) numbers using different representations • I can read and write numbers up to 1,000 in numerals and in words • I can recognise	• I can add and subtract numbers mentally, including:- a three-digit number and ones- a three-digit number and tens- a three-digit number and hundreds • I can add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction • I can estimate	• I can recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • I can write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and	• I can count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • 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	• I can draw 2-D shapes and makes 3-D shapes using modelling materials; recognise 3-D 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, recognise that two right angles make a half-turn, three make three	• I can measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • I can measure the perimeter of simple 2-D shapes • I can add and subtract amounts of money to give change, using both £ and p in practical contexts • I can tell and write the time from an analogue clock,	• I can interpret and present data using bar charts, pictograms and tables • I can solve one-step and two-step questions for example, 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables

the place value of each digit in a three-digit number (hundreds, tens, ones) • I can recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	the answer to a calculation and use inverse operations to check answers • GDS I can solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	progressing to formal written methods • I can solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	and use fractions as numbers: unit fractions and non-unit fractions with small denominators • i can recognise and show, using diagrams, equivalent fractions with small denominators • 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 with fractions from the Year 3	quarters of a turn and four a complete turn; 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	including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • I can estimate and read the 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, a.m./p.m., morning, afternoon, noon and midnight • I can recall the number of seconds in a minute and the number of days in each month, year	

			curriculum		and leap year • I can compare durations of events for example to calculate the time taken by particular events or tasks	

YEAR 4						
Number Number & Place Value	Number Addition & Subtraction	Number Multiplication & Division	Fractions	Shape & Measure Properties of Shape	Shape & Measure Measurement	Statistics
• I can count in multiples of 6, 7, 9, 25 and 1000 • I can find 1,000 more or less than a given number • I can count backwards through zero to include negative numbers • I can recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • I can order and compare numbers	• I can add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate • I can estimate and use inverse operations to check answers to a calculation • I can solve addition and subtraction two-step problems in contexts,	• I can recall multiplication and division facts for multiplication tables up to 12 × 12 • I can 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 • I can recognise and use factor pairs and commutativity	• I can recognise and show, using diagrams, families of common equivalent fractions • I can count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten • I can solve problems involving increasingly harder fractions to	• 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 two right angles by size • I can identify lines of symmetry in 2-D shapes presented in different orientations	• I can convert between different units of measure for example, kilometre to metre; hour to minute • I can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • I can find the area of rectilinear shapes by counting squares • I can read, write and	• 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

beyond 1000 • I can identify, represent and estimate numbers using different representations • I can round any number to the nearest 10, 100 or 1,000 • I can solve number and practical problems that involve all of the above and with increasingly large positive numbers • I can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of	deciding which operations and methods to use and why	in mental calculations • I can 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 such as n objects are connected to m objects. • I can multiply and divide two-digit and three-digit numbers by a one-digit number using formal written layout	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 recognise and write decimal equivalents of any number of tenths or hundredths • I can recognise and write decimal equivalents to 1/4, 1/2, ¾ • I can find the effect of dividing a one- or two-digit number by 10	• I can complete a simple symmetric figure with respect to a specific line of symmetry. • I can describe positions on a 2-D 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 plot specified points and draw sides to complete a given polygon	convert time between analogue and digital 12- and 24-hour clocks • I can solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days • I can estimate, compare and calculate different measures, including money in pounds and pence	

zero and place value			and 100, identifying the value of the digits in the answer as ones, tenths and hundredths ● I can round decimals with one decimal place to the nearest whole number ● I can compare numbers with the same number of decimal places up to two decimal places ● I can solve simple measure and money problems involving fractions and decimals to two decimal places			

YEAR 5						
Number Number & Place Value	Number Addition & Subtraction	Number Multiplication & Division	Fractions	Shape & Measure Properties of Shape	Shape & Measure Measurement	Statistics
• 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 interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers,	• I can add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction) • I can add and subtract numbers mentally with increasingly large numbers • I can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	• I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • I can establish whether a number up to 100 is prime and recall prime numbers up to 19 • I can multiply	• 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	• I can identify 3-D shapes, including cubes and other cuboids, from 2-D representations • I can recall how angles are measured in degrees and can estimate and compare acute, obtuse and reflex angles • I can draw given angles, and measure them in degrees (°) • I can identify angles at a point and one whole turn	• I can convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • I can understand and uses approximate equivalences between metric units and common imperial units such as inches, pounds	• I can solve comparison, sum and difference problems using information presented in a line graph • I can complete, read and interpret information in tables, including timetables

including through zero • I can round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals	• I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	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 drawing upon known facts • 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	one form to the other and write mathematical statements greater than 1 as a mixed number • 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 multiply proper fractions and mixed	(total 360°), angles at a point on a straight line and 1/2 a turn (total 180°) and other multiples of 90° • I can use the properties of rectangles to deduce related facts and find missing lengths and angles • I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles • I can identify, describe and represent the position of a shape	and pints • I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • I can calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes • I can estimate volume for example, using 1 cm3 blocks to build cuboids (including	

		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 multiplication and division including using their knowledge of factors and multiples, squares and cubes • I can solve problems involving addition, subtraction, multiplication	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 two decimal places to the nearest whole number and to one decimal place • I can read, write, order and compare numbers with up to three decimal places • I can solve problems involving numbers up to three decimal	following a reflection or translation, using the appropriate language, and know that the shape has not changed	cubes) and capacity for example, using water • I can solve problems involving converting between units of time • I can use all four operations to solve problems involving measure for example, length, mass, volume, money using decimal notation, including scaling.	

		and division and a combination of these, including understanding the meaning of the equals sign • I can solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	places • I can recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with a denominator of 100, and as a decimal • I can solve problems which require knowing percentage 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			

YEAR 6						
Number Number & Place Value	Number Addition & Subtraction	Number Multiplication & Division	Fractions	Shape & Measure Properties of Shape	Shape & Measure Measurement	Statistics, Ratio & Algebra
• I can read, write, order and compare numbers up to 10,000,000 and determine the value of each digit • I can round any whole number to a required degree of accuracy • I can use negative numbers in context, and calculate intervals across zero • I can solve number and practical problems that	• I can perform mental calculations, including with mixed operations and large numbers • I can use my knowledge of the order of operations to carry out calculations involving the four operations • I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to	• 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, and interpret remainders as whole number remainders, fractions, or by rounding, as	• I can use common factors to simplify fractions; use common multiples to express fractions in the same denomination • I can compare and order fractions, including fractions greater than 1 • I can add and subtract fractions with different denominators and mixed numbers, using the	• I can draw 2-D shapes using given dimensions and angles • I can recognise, describe and build simple 3-D shapes, including making nets • 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 convert between miles and kilometres • I can recognise that shapes with the same areas can have different perimeters and vice versa • 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	Statistics • 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 Ratio & Proportion • I can solve problems involving the relative sizes of two quantities where missing values can be found by using integer

involve all of the above	use and why • I can solve problems involving addition, subtraction, multiplication and division • I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	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, interpreting remainders according to the context • I can identify common factors, common multiples and prime numbers	concept of equivalent fractions • I can multiply simple pairs of proper fractions, writing the 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 for example, 0.375 for a simple fraction • I can identify the value of each digit in numbers given to three decimal places and multiply and divide	• 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, and find missing angles • I can describe positions on the full coordinate grid (all four quadrants) • I can draw and translate simple shapes on the coordinate plane, and	cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units for example, mm3 and km3.	multiplication and division facts • I can solve problems involving the calculation of percentages for example, of measures, and such as 15% of 360 and the use of percentages 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 using knowledge of fractions and multiples

			numbers by 10, 100 and 1000 giving answers up to three decimal places • I can multiply one-digit numbers with up to two decimal places by whole numbers • I can use written division methods in cases where the answer has up to two decimal places • I can solve problems which require answers to be rounded to specified degrees of accuracy • I can recall and use equivalences between simple	reflect them in the axes		Algebra • 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 two unknowns • I can enumerate possibilities of combinations of two variables

			fractions, decimals and percentages, including in different contexts			