PADBURY CE SCHOOL

Maths Progression (FS – Year 3)

This document aims to track expectations for Maths at Padbury CE School.

What the National Curriculum says:

KS1:

Purpose of study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. Aims The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Objective	Foundation Stage	Year 1	Year 2	Year 3
	Please refer to Maths Vocabulary Booklet for information on Vocabulary that should be taught in each year group			
Number – Number & Place Value	• recognise some numerals of personal significance. • recognises numerals 1 to 5 • counts up to three or four o bjects by saying one numb er name for each item. • counts actions or objects w hich can't be moved. • Counts objects to 10, & be gin- ning to count beyond 10. • Counts out up to six object s from a larger group. • Selects the correct numeral to represent 1 to 5, then 1 to 10 objects • Counts an irregular arrangement of up to ten objects • Estimates how many objects they can see and checks by counting them. • Uses the language of 'more' & 'fewer' to comp are two sets of objects. • Says the number that is one more than a given number. • Finds one more or one less from a group of up to five objects, then ten objects. • ELG: Children count relia- bly with numbers from one to 20, place them in order and say which number is	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in nu- merals; count in multiples of twos, fives and tens • identify one more and one less than a given number, • identify and represent numbers using objects and pictorial representa- tions including the num- ber line, and use the lan- guage of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words.	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and es- timate numbers using dif- ferent representations, in- cluding the number line • compare and order num- bers from 0 up to 100; use and = signs • read and write numbers to at least 100 in numerals and in words • use place value and num- ber facts to solve prob- lems.	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • recognise the place value of each digit in a three- digit number (hundreds, tens, ones) • compare and order num- bers up to 1000 • identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words • solve number problems and practical problems in- volving these ideas.

	one more or one less than a given number. • Records, using marks that they can interpret and explain.			
Number – Addition and Subtraction	• Finds the total number of items in two groups by counting all of them. • In practical activities and discussion, beginning to • use the vocabulary involved in adding & subtracting. • Begins to identify own mathematical problems based on own interests & fascinations. • Using quantities & objects, they add & subtract two single-digit numbers & count on or back to find the answer.	• read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9.	• 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 • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • 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 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction	• add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens • a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction • estimate the answer to a calculation and use inverse operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

			and use this to check calculations and solve missing number problems.	
Number – Multiplication and Division	• Solve problems, including doubling, halving & sharing.	• 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.	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the 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 • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • 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 progressing to formal written methods • 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.
Number – 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	• recognise, find, name and write fractions 3 1 , 4 1 , 4 2 and 4 3 of a length, shape, set of objects or quantity • write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1 .	• 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 • 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 • recognise and show, using diagrams, equivalent fractions with small denominators • add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6] • compare and order unit fractions, and fractions with the same denominators • solve problems that involve all of the above.

Objective	Foundation Stage	Year 1	Year 2	Year 3
Measures	• Orders two or three items by length or height. • Orders two items by weight or capacity. • Uses everyday language related to time. • Beginning to use everyday language related to • money. • Orders & sequences familiar events. • Measures short periods of time in simple ways. •	• 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] • measure and begin to rec-	• 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 • compare and order lengths, mass, volume/capacity and record the results using >, < and = • recognise and use sym-	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical contexts • tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • estimate and read time

		ord lengths, heights mass & weight • capacity and volume • time (hours, minutes, seconds) • recognise and know the value of different denominations of coins and notes • sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	bols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change • compare and sequence intervals of time • tell 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 • know the number of minutes in an hour and the number of hours in a day.	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 • know the number of seconds in a minute and the number of days in each month, year and leap year • compare durations of events [for example to calculate the time taken by particular events or tasks].

Objective	Foundation Stage	Year 1	Year 2	Year 3
Geometry – Properties of shape	• Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, & mathematical terms to describe shapes. • Selects a particular named shape. • Uses familiar objects & common shapes to create & recreate patterns & build models. • ELG: Children use	• 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].	• identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cyl-	• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them • recognise angles as a property of shape or a description of a turn • identify right angles, recognise that two right angles make a half-turn,

	everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. • They recognise, create & describe patterns. • They explore characteristics of everyday objects & shapes		inder and a triangle on a pyramid] • compare and sort common 2-D and 3-D shapes and everyday objects.	three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
Geometry – Position and Direction	• Can describe their relative position such as 'behind' or 'next to'.	• describe position, direction and movement, including whole, half, quarter and three quarter turns.	• order and arrange combinations of mathematical objects in patterns and sequences • use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)	• interpret and present data using bar charts, pictograms and tables • 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.