Maths Progression at Plymouth Grove Primary School

Underpinning ELGs	**EYFS**	
	Nursery	**Reception**
Self-Regulation ● Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate ● Give focused attention to what the teacher says, responding appropriately even when engaged in an activity, and show an ability to follow instructions involving several ideas or actions **Managing Self** ● Be confident to try new activities and show independence, resilience,	● Fast recognition of up to 3 objects, without having to count them (subitising) ● Show awareness of the daily routine ● Recite numbers past 5 ● Say number for each item in order ● Link numerals and amounts e.g. show the right number of objects to match numeral ● 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” ● Make comparisons between objects relating to size, length, weight and capacity ● Select shapes appropriately e.g. flat surface	● Count objects, actions and sounds ● Subitise ● Link the number symbol (numeral) with its cardinal number value ● Count beyond 10 ● Continue, copy and create repeating patterns ● Name and explore shape ● 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 0-10 ● Select, rotate and manipulate shapes in order to develop spatial reasoning skills ● Compose and decompose shapes so that children recognise a shape can have other

and perseverance in the face of challenge **Listening, Attention and Understanding** ● Engage in story times and learn new vocabulary ● Learn rhymes, poems, and songs ● Ask questions to clarify their understanding **Speaking** ● Offer explanations for why things might happen, making use of recently introduced vocabulary ● Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher **Fine Motor Skills** ● Hold a pencil effectively in preparation for fluent writing - using the tripod grip in almost all cases ● Begin to show accuracy and care when drawing **Understanding the World** ● Understand the past through settings, characters and events encountered in books ● Make observations and	for building, triangular prism for a roof ● Combine shapes to make new ones e.g. an arch, a bigger triangle ● Talk about and identify the patterns around them e.g. stripes on clothes, designs on rugs ● Extend and create ABAB patterns e.g. 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	shapes within it, just as number can ● Compare length, weight and capacity

drawings of the natural world ● Understand some important processes and changes in the natural world around them		

Year 1	Year 2
Place Value ● Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number ● Count numbers to 100 in numerals; count in multiples of twos, fives and tens ● Identify and represent numbers using objects and pictorial representations ● Read and write numbers to 100 in numerals ● Read and write numbers from 1 to 20 in numerals and words ● Given a number identify one more and one less	**Place Value** ● Count in steps of 2,3 and 5 from 0, and in tens from any number, forward and backward ● Read and write numbers to at least 100 in numerals and in words ● Identify, represent and estimate numbers using different representations including the number line ● Recognise the place value of each digit in a two- digit number ● Compare and order numbers from 0 up to 100; use greater than, less than and equals symbols ● Use place value and number facts to solve problems
Addition and Subtraction ● 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	**Addition and Subtraction** ● 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 ● Solve problems with addition and subtraction - Using concrete objects and pictorial representations; including those involving numbers, quantities and measure - Applying their increasing knowledge of mental and written methods

Multiplication and Division ● 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	**Multiplication and Division** ● Recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers ● Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot ● Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication, division and equals signs. ● Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts
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	**Fractions** ● Recognise, find, name and write fractions ⅓, ¼, 2/4, and ¾ of length, shape, set of objects or quantity ● Recognise the equivalence of 2/4 and ½ ● Write simple fraction e.g. ½ of 6 = 3
Algebra Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems	**Algebra** ● Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems
Measure ● Compare, describe and solve practical problems for: - Lengths and heights - Mass/weight - Capacity and volume ● Time, measure and begin to record the following - lengths and heights - Mass/weight - Capacity and volume - Time (hours, minutes, seconds ● Recognise and know the value of different denominations of coins and notes	**Measure** ● Choose and use appropriate standard units to estimate measure length/height in an any direction; mass; temperature; capacity to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels ● Compare and order lengths, mass, volume/capacity and record using the greater than, less than and equal to symbols ● Recognise and use symbols for pounds and pence; 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

• Sequence events in chronological order using language .e.g 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	• 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 nour and the number of hours in a day
Geometry • Recognise and name common 2-D shapes e.g. rectangles (including squares), circle and triangles • Recognise and name common 3-D shapes • Describe position, direction and movement, including whole, half, quarter and three-quarter turns	**Geometry** • Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line • Identify 2-D shapes of the surface of 3-D shapes e.g. a circle on a cylinder • Compare and sort common 2-D shapes and everyday objects • Recognise and name common 3-D shapes • Compare and sort common 3-D shapes and everyday objects • 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)
	Statistics • Interpret and construct simple pictograms, tally charts, block diagrams and simple tables • 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

Year 3	Year 4
Place Value ● Count from 0 in multiples of 4,8, 50 and 100; find 10 or 100 more or less than a given number ● Identify, represent and estimate number using different representations ● Read and write number up to 1000 in numerals and words ● Recognise the place value of each digit in a three-digit number ● Compare and order numbers up to 1000 ● Solve number problem and practical problems involving ideas	**Place Value** ● Count in multiples of 6,7,9,25 and 1000 ● Count backwards through zero to include negative numbers ● Identify, represent and estimate numbers using different representations ● Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of 0 and place value ● Find 1000 more or less than a given number ● Recognise the place value of each digit in a four-digit number ● Order and compare numbers beyond 1000 ● Round any number to the nearest 10, 100 or 1000 ● Solve number and practical problems that involve all of the above and with increasingly large numbers
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 ● Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction	**Addition and Subtraction** ● Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate ● Solve addition and subtraction two step problems in contexts, deciding which operation and methods to use and why
Multiplication and Division ● 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 written formal methods ● Solve problems, including missing number problems, involving	**Multiplication and Division** ● Recall multiplication and division facts for multiplication tables up to 12 x 12 ● 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

multiplication and division, including positive integer scaling problems and correspondence problems in which which n objects are connected to m objects	• Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • 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
Fractions, decimals and percentages • Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit number 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 and small denominators • Compare and order unit fractions, and fractions with the same denominators • Add and subtract fractions with the same denominator • Solve problems that involve all of the above	**Fractions, decimals and percentages** • Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten • Recognise and show, using diagrams, families of common equivalent fractions • Add and subtract fractions with the same denominator • Solve problems involving increasingly harder fractions to calculator quantities, and fractions to divide quantities, including non- unit fractions where the answer is a whole number • Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to ¼. ½, ¾ • 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 • Solve simple measure and money problems involving fractions and decimals to two decimal places
Algebra • Solve problems, including missing number problems	
Measurement • Measure, compare, add and subtract: lengths (mm/cm/m); mass (kg/g); Volume/capacity (l/ml) • 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	**Measurement** • Convert between different units of measure e.g. km to m, hour to minute • Estimate, compare and calculate different measures • Estimate, compare and calculate different measures, including money in pounds and pence • Read, write and convert time between analogue and digital

• 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, 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 • Measure the perimeter of simple 2-D shapes •	12-hour and 24-hour clocks • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days • Measure and calculate the perimeter of a rectilinear figure in cm and m • Find the area of rectilinear shapes by counting squats
Geometry • Draw 2-D shapes • 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 half-turn, 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** • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify lines of symmetry in 2-D shapes presented in different orientations • Identify acute and obtuse angles and compare and order angles up to two right angles by size • Identify line of symmetry in 2-D shapes presented in different orientations • Complete a simple simple symmetric figure with respect to a specific line of symmetry • Describe positions on a 2-D 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
Interpret data • Interpret and present data using bar charts, pictograms and tables • Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables	**Interpret data** • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Year 5	Year 6
Place Value ● Count forwards of backwards in steps of powers of 10 for any given number up to 1,000,000 ● Count forwards and backwards with positive a negative whole numbers, including through zero ● Read, write (order and compare) numbers up to 1,000,000 and determine the value of each digit ● Read Roman numerals to 1000 (M) and recognise years written in Roman numerals ● Read, write, order and compare numbers up to 1,000,000 and determine the value of each digit ● Interpret negative numbers in context ● Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 and 100000 ● Solve number problems and practical problems that involve all of the above	**Place Value** ● Read,write (order and compare) numbers up to 10,000,000 and determine the value of each digit ● Round any whole number to a required degree of accuracy ● Use negative numbers in context, and calculate intervals across zero ● Solve number and practical problems that involve place value
Addition and Subtraction ● Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) ● Add and subtract numbers mentally with increasingly large numbers ● Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why ● Solve problem involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of an equals sign	**Addition and subtraction** ● Perform mental calculations, including mixed number operations and large numbers ● Use knowledge of the order of operations to carry out calculations involving the four operations ● Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
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 prime and recall prime	**Multiplication and Division** ● Identify common factors, common multiples and prime numbers ● Use estimation to check answers and calculations and determine in the context of a problem, an appropriate degree of accuracy ● Multiply multi digit numbers up to 4 digits by a two digit whole number using the formal written method of long multiplication

numbers up to 19 ● Recognise and use square and cube numbers from their notations ● Multiply numbers up to 4 digits by one or two digit number using a formal written method, including long multiplication for two digit numbers ● Multiply and divide numbers mentally drawing upon known facts ● Divide number up to 4 digits by one digit numbers using the formal written method of short division and interpret remainders appropriately for the context ● Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 ● Solve problems involving multiplication and division including using their knowledge of factors and multiples, squats and cubes ● Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	● Divide numbers up to 4 digits by a two digit whole number using the formal, written method of long division and interpret remainders as a whole number reminders, fractions, or by rounding ● 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 context ● Perform mental calculations, including with mixed operations and large numbers ● Solve multi step problems involving multiplication and division
Fractions, decimals and percentages ● Identify, name and write equivalent fractions of a given fractions represented visually, including tenths and hundredths ● recognise mixed numbers and improper fractions and convert from one form the the other and write mathematical statements ● Compare and order fractions whose denominators are all multiples of the same number ● 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 ● Read and write decimal numbers as fractions ● 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 ● Recognise the per cent symbol and understand it relations to “number of parts per hundred” and write percentages as a	**Fractions, decimals and percentages** ● Use common factors to simplify fractions; use common multiples to express fractions in the same denomination ● Compare and order fractions, including fractions greater than 1 ● Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions ● Multiply simple pairs of proper fractions, writing the answer in its simplest form ● Divide proper fractions by whole numbers ● Identify the value of each digit in numbers given to three decimal places ● Associate fraction with division and calculate decimal fraction equivalents ● Recall and use equivalences between simple fractions, decimals and percentages including in different contexts

fraction with denominator 100, and as a decimal ● Solve problems which require knowing percentages and decimal equivalents of ½, ¼, ⅕, ⅖, ⅘ and those fractions with a denominator of multiple of 10 or 25	
	Ratio, proportion and algebra ● Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts ● Solve problems involving the calculation/ use of percentages for comparison ● Solve problems involving similar shapes where the scale factor is know or can be found ● Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples ● Use simple formula ● 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
Measurement ● Convert between different units of metric measure ● Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints ● Use all four operations to solve problems involving measure (including money) ● Solve problems involving converting between units of time ● Measure and calculate the perimeter of composite rectilinear shapes in cm an m ● Dalculation and compare the area of rectangles (including squares) and including using standard units, square cm and square m and estimate the area of irregular shapes ● Estimate volume and capacity	● Solve problems involving the calculation and conversion of units of measuring using decimal notation up to 3 d.p. ● Use, read, write and convert between standard units, converting measurements of length, mass, volumen and time from a smaller unit of measure to a larger unit, and vice versa, use decimal notation to 3 d.p. ● convert between miles and kilometres ● Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit and vice versa ● Recognise that shapes with the same areas can have different perimeter and vice versa ● Recognise when it is possible to use formulae for are and volume of shapes ● Calculate the are of parallelograms and triangles ● Calculate, estimate and compare volume of cubes and cuboids

	using standard units including cubic centimetres and cubic meters

Geometry
● Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
● Use the properties of rectangles to deduce related facts and find missing lengths and angles
● Identify 3-D shapes, including cubes and other cuboids from 2D representations
● Know angles are measured in degrees, estimate and compare acute, obtuse and reflex angles
● Draw given angles, and measure them in degrees
● Identify
  ● angles at a point and one whole turn
  ● angles at point on a straight line and ½ a turn
  ● other multiples of 90 degrees
  ● Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed
	Geometry
	● Draw 2-D shapes using given dimensions and angles
	● Compare and classify geometric shapes based on their proportions and sizes
	● Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	● Recognise, describe and build simple 3D shapes, including making nets
	● Find unknown angles in any triangles, quadrilaterals and regular polygons
	● Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
	● Describe positions on the full coordinate gride (all four quadrants)
	● Draw and translate simple shapes on the coordinate plane, and reflect them in axes

Statistics ● Complete, read and interpret information in tables, including timetables ● Solve comparison, sum and difference problems using information presented in a line graph	**Statistics** ● Interpret and construct pie charts and line graphs and use these to solve problems ● Calculate and interpret the mean as an average
Documents: National Curriculum 2013 Development Matters July 2021 Statutory framework for the EYFS 2021 White Rose Maths Ready to progress mapping	