Ashbury Meadow Primary School Mathematics Curriculum **Progression in Addition & Subtraction**

Year Group	Knowledge and Skills Supporting Resource: Maths No Problem Essential & most valuable knowledge for the next key stage is highlighted in yellow	Vocabulary
Nursery	N/A	
Reception	**Subitising** with a focus on linking amounts to 5 with numerals. At this point, children's confidence should be increasing as they recognise both structured and random arrangements. This skill will then encourage them to notice "one more" than a number. Exploring the **composition** of numbers to 6 by recalling "missing" or "hidden" parts of numbers. This is by splitting numbers (the whole) into two smaller numbers (parts) which is referred to as the part-part-whole model. Children will begin to see that numbers within 10 can be composed of "5 and a bit". The children will also continue to explore the **composition** of odd and even numbers with a strong emphasis on the "shape" of the numbers. These even numbers will then be linked to doubles. Children will continue to practise increasingly familiar **subitising** arrangements, including those which expose '1 more' or 'doubles' patterns. They will use subitising skills to enable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number. Children will subitise structured and unstructured patterns, including those which show numbers within 10, in relation to 5 and 10. Children will explore the **composition** of numbers to 10 including number bonds. They can order sets of objects, linking this to their understanding of the **ordinal** number system. End Point – ELG Number ELG Children at the expected level of development will: • Have a deep understanding of number to 10, including the composition of each number; • Subitise (recognise quantities without counting) up to 5; • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Numerical Patterns ELG Children at the expected level of development will: • Verbally count beyond 20, recognising the pattern of the counting system; • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;	

	• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	
Year 1	**Number Bonds** ● To understand that a number is made up of other numbers; to find as many ways possible to construct a number. ● To use number bonds for storytelling. **Addition within 10** ● To be able to add two different numbers within 10. Pupils will become familiar with the different vocabulary associated with addition. ● To add by counting on. ● To complete number sentences and gain an understanding of inverse operations. ● To be able to make addition stories using correct vocabulary. ● To be able to solve addition problems through pictures. **Subtraction within 10** ● To understand that subtraction can be done by crossing out or taking away. ● To be able to subtract using number bonds. ● To be able to solve a subtraction equation by counting back, using a number line as support. ● To be able to make subtraction sentences. ● To be able to solve picture problems involving subtraction. ● To solve problems in the context of addition and subtraction and to find the corresponding number families **Addition & Subtraction within 20** ● To learn to add by counting on from the largest number. ● To add to numbers by first making 10 and then adding on the remainder. ● To add by separating the ones and ten. This enables pupils to add the sum of the ones to the ten ● To learn how to subtract by counting back from the largest number. ● To learn how to subtract by subtracting from only the ones column ● To subtract a certain amount of ones from 10 rather than from the ones, as there are not enough ones. ● To go through number facts derived from addition and subtraction sentences **Word Problems**	*All of the above, plus:* number bond how many? break apart the same as part part whole greater smaller number story number sentence number bond diagram + plus add equals = (equals sign) addition equation addition fact altogether count on / counting on addition greater number in total altogether addition story add greatest total make 10 ten frame how many are left? subtract minus first, then, now break apart a number subtract the ones

	• To decide whether addition or subtraction is the most appropriate operation; to use and apply number bonds and visual representations to solve word problems. • To use and apply concepts of how many more and how many fewer/less; to apply number bonds and the guess-and-check method to solve word problems. • To develop number sentences based on word problems; to improve the use of number bonds and one-to-one bar model representations to suit the question. • To use pictorial representations to help solve word problems; to choose the correct operation to solve a word problem. • To use visual representations and patterns to solve word problems; to develop precision in model drawing to recognise similarities and differences. • To apply addition and subtraction to multi-step word problems; to use number bonds to make 10 when adding. Y1 National Curriculum – End Point: Pupils will be taught to: - 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.	addition and subtraction fact family
Year 2	• To be able to add a 1-digit number to a 2-digit number without regrouping the ones. • To add tens by recognising its relationship to adding ones. • To add 2-digit numbers where one is a multiple of 10. • To add with tens and ones where the ones are both more than zero. To add 1-digit numbers to a 2-digit number resulting in renaming of ones. • To add two 2-digit numbers where renaming is expected. • To subtract ones from a 2-digit number. • To subtract 2-digit multiples of 10 from 2-digit multiples of 10. • To subtract tens from a 2-digit number with the ones being more than zero. • To subtract a 2-digit number by another 2-digit number. • To subtract within 100 by applying related 1-digit addition and subtraction facts. • To subtract a 2-digit number by a 1-digit number with renaming. • To subtract a 2-digit number by another 2-digit number where renaming has to occur. • To add three 1-digit numbers.	*All of the above, plus:* ones tens _____ and _____ makes _____ counting on in ones add the ones add the tens number line column column method renaming rename ten ones as one ten counting back taking away

	Word Problems ● To decide when it is appropriate to add and/or subtract when solving word problems; to improve the use of bar modelling and decision making based on visual representations. ● To use the bar model method to solve word problems looking at the difference between two amounts. ● To solve multi-step word problems using bar modelling; to use more than one bar model in a problem to work out the answer. ● To use bar modelling to solve multi-step word problems involving unknown quantities. Y2 National Curriculum – End Point: Pupils will be taught to: - 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 and use this to check calculations and solve missing number problems	
Year 3	**Addition and Subtraction up to 3-digit numbers** ● To understand the commutative law of addition and the corresponding addition and subtraction facts. ● To add a 3-digit number to a 1-digit number with no regrouping or renaming. ● To add a 3-digit number to a multiple of 10 (2-digit number) without regrouping or renaming. ● To add multiples of 100 to a 3-digit number. without regrouping or renaming. ● To add two 3-digit numbers without regrouping or renaming; introduction of the column method of addition. ● To add a 3-digit number to a 1-digit number, with renaming. ● To add with renaming in tens. ● To add two 3-digit numbers with renaming the ones. ● To add two 3-digit numbers with renaming the tens. ● To add with renaming in ones and tens. ● To do simple subtraction by taking away a 1-digit number from a 2-digit number without renaming.	*All of the above, plus:* sum addend subtrahend difference minuend one more hundreds 10 more 100 more ones column tens column hundreds column

	• To do simple subtraction by taking away a 1-digit number from a 3-digit number without renaming. • To subtract multiples of 10, up to 90, from a 3-digit number. • To subtract hundreds from a 3-digit number and to subtract multiples of 1 and 10 from a 3-digit number. • To understand simple subtraction of a 3-digit number by another 3-digit number using the column method. • To subtract with renaming in tens and ones. • To subtract with renaming hundreds. • To subtract with regrouping tens and hundreds. • To subtract a 3-digit number with zeros. • To solve addition and subtraction problems using the bar model. • To use the bar model to solve problems. • To solve complicated problems involving addition and subtraction using a comparative bar model heuristic. • To solve more complicated problems involving addition and subtraction using a comparative bar model heuristic Y3 National Curriculum – End Point: Pupils will be taught to: - 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.	making ten in total making 100 estimate approximate approximation renaming ten tens to one hundred _____ ones + _____ ones = _____ ones _____ tens + _____ tens = _____ tens ___ hundreds + ___ hundreds = ____ hundreds count back in ones one less count back in tens ten less count back in hundreds one hundred less subtract ones subtract tens subtract hundreds place value columns bar model labels part whole model equation comparison model
Year 4	• To find totals and sums. • To add without renaming. • To add with renaming (in the ones column). • To add with renaming (in tens and ones). • To add with renaming (in hundreds, tens and ones). • To add using mental strategies (making tens, hundreds and thousands). • To find the difference. • To subtract without renaming (column subtraction). • To subtract with renaming (in tens and ones). • To subtract with renaming (in hundreds, tens and ones). • To subtract using mental strategies. • To solve addition and subtraction word problems.	*All of the above, plus:* add sum total how many are there altogether? base 10 materials place value counters ones tens hundreds thousands estimate

	• To solve word problems (addition and subtraction). • To solve multi-step word problems. Y4 National Curriculum – End Point: Pupils will be taught to: - add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate - estimate and use inverse operations to check answers to a calculation - solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	approximately round to the nearest 100 round to the nearest 1000 find the sum how much altogether calculate mentally make 10 make 100 calculation equation mentally one less / two less / three less round method difference find the difference subtract addition check word problem understand the problem form a plan action the plan check the answer
Year 5	• To add using the 'counting on' strategy with concrete materials and number lines. • To add numbers within 1 000 000 using rounding. • To add numbers within 1 000 000 using the column method of addition. • To consolidate and refine addition skills and place-value knowledge to solve addition problems. • To subtract using the 'counting backwards' strategy with concrete materials. • To subtract using the column method and number discs using numbers to 1 000 000. • To subtract using the column method and number discs using numbers to 1 000 000. • To subtract numbers to 1 000 000 using the column method and number discs using numbers to 1 000 000. • To use addition and subtraction to solve comparison problems with numbers to 1 000 000. • To consolidate and refine addition and subtraction skills and place-value knowledge to solve problems. Y5 National Curriculum – End Point: Pupils will be taught to:	*All of the above, plus:* ten thousands hundred thousands counting on approximate rounding to the nearest 10,000 estimation count back difference

	- 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 - use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	
Year 6	**Word Problems** Progression is based on solving more complex word problems. Children also learn to add and subtract fractions and decimals (See Progression in Fractions, Decimals and Percentages ● To use bar models to solve word problems involving the four operations <u>Y6 National Curriculum – End Point:</u> Pupils will be taught to: - solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - use their 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	*All of the above – no new addition and subtraction vocabulary*