Ashbury Meadow Primary School Mathematics Curriculum **Progression in Multiplication & Division**

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		
Reception	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. 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	**Multiplication** ● To identify equal groupings as the first step in multiplying; to reinforce the idea that the arrangement of objects does not impact on the number of objects. ● To understand we can count groups of the same quantity more efficiently; to find multiple ways of counting groups of the same quantity ● To organise objects into equal rows in order to begin counting equal numbers efficiently. ● To understand that doubling is creating an identical number to the one you started with; to understand that doubling is the same as saying two groups of the same amount. ● To solve word problems using equal groupings as the basis for multiplication **Division**	*All of the above, plus:* equal groups equal how many are in each group? groups twos fives tens row how many are there altogether? double twice the amount ten-frame

	• To understand how to divide even numbers into equal groups using concrete materials; to determine how many groups will be created from sharing equally. • To understand how to divide even numbers equally into groups; to determine how many objects will be included in each group in order to share equally Y1 National Curriculum End Point: Pupils should be taught to: - 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.	how many in total? divide share share equally
Year 2	**Multiplication** • To realise that multiplication is the same as repeated addition with equal groups. • To focus on understanding and learning the 2 times table. • To use concrete materials and pictorial representations to multiply by 2. • To cover the basics of the 5 times table and to highlight multiplication visually as equal groups. • To recall and use the 5 times table. • To introduce the 10 times table by focusing on the numbers found in the 10 times table. • To look at the 10 times table in more detail by looking at patterns and relationships. • To investigate links between the 2, 5 and 10 times tables. • To understand commutative law. • To use knowledge of the 2, 5 and 10 times tables to further investigate commutative law. • To use the 2, 5 and 10 times tables to solve word problems **Division** • To understand that grouping is a way of dividing. • To be able to divide by sharing an amount. • To be able to divide by 2. The two strategies used here are splitting into groups of x and splitting into equal groups of many. • To be able to divide by 5 and identify links with multiplying by 5. • To be able to divide by 10 and identify links with multiplying by 10. • To use multiplication and division skills to identify family facts in a number sentence. • To understand and solve word problems which require the use of the multiplication and division skills covered in this chapter. • To be able to link whether odd or even numbers can be divisible by 2, 5 or 10.	*All of the above, plus:* total groups of times equals multiply multiplication sign how many groups? how many in each group? counting in twos multiplication equation counting in fives counting in tens equal to array grouping division equation sharing sharing equally groups of two two equal groups groups of five five equal groups groups of ten ten equal groups multiplication facts division facts multiplication and division fact family even number

	Y2 National Curriculum End Point: Pupils should be taught to: - 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.	odd number
Year 3	**Multiplying and dividing by 3, 4 and 8** ● To multiply by 3. ● To multiply by 3 using relational properties. ● To multiply by 4. ● To multiply by 4. ● To multiply by 4 and 8. ● To multiply by 8; to use commutative law to multiply. ● To multiply by 8. ● To divide by 3. ● To divide by 4. ● To find relationships between multiplication and division. ● To divide by 4 and 8. ● To solve word problems with multiplication. ● To solve word problems that involve division. ● To solve more word problems involving multiplication and division using the bar model heuristic. ● To solve problems using a variety of strategies **Further Multiplication and Division** ● To multiply multiples of 10 by a 1-digit number. ● To multiply any 2-digit number by a 1-digit number. ● To multiply more 2-digit numbers. ● To multiply with regrouping. ● To understand simple division of a 2-digit number by a 1-digit number. ● To divide where there is a need to regroup. ● To use long division to divide.	*All of the above, plus:* groups of equal groups addition multiplication doubling one group less one group more counting in eights three equal groups groups of three four equal groups groups of four eight equal groups groups of eight _____ groups of _____ divide into equal groups twice as many four times as many counting in tens counting in twenties multiplying ones multiplying tens rename a 2-digit number as tens and ones product rename ten ones as one ten dividing ones

	• To solve word problems that involve multiplication. • To solve word problems involving division. • To solve more challenging word problems. Y3 National Curriculum End Point: Pupils should be taught to: - 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.	dividing tens divisor multiples of ten 2 times as many equal parts One unit
Year 4	**To multiply and divide by 6, 7, 9, 11 and 12** • To multiply by 6. • To multiply by 7. • To multiply by 9. • To multiply by 9 (relational understanding). • To multiply by 11. • To multiply by 11. • To multiply by 12. • To divide by 6. • To divide by 7. • To divide by 9. • To multiply and divide by 11 and 12. • To divide with remainders. • To solve word problems involving multiplication and division. • To solve problems involving multiplication and division. • To solve multi-step problems (in the context of measures). • To solve problems involving multiplication and division (all possibilities). • To solve problems involving multiplication and division (multi-step). • To solve problems involving multiplication and division (scaling/comparison). **Further multiplication & division** • To multiply by 0 and 1.	*All of the above, plus:* sixes sevens nines multiple times tables number patterns repeated addition threes commutativity half quotient dividend divisor divided by inverse remainder combinations possibilities guess and check method zero decrease multiplication story ten times greater than method

	• To divide by 1. • To understand commutativity. • To multiply three numbers. • To multiply with multiples of 10 • To multiply 2-digit numbers. • To multiply 2-digit numbers with renaming. • To multiply multiples of 100. • To multiply 3-digit numbers. • To multiply 3-digit numbers (renaming). • To multiply 3-digit numbers. • To divide 2-digit numbers. • To divide 3-digit numbers. • To divide 2-digit numbers with remainders. • To divide 3-digit numbers with remainders. • To solve multiplication and division word problems. • To solve multiplication and division word problems (multi-step). Y4 National Curriculum End Point: Pupils should be taught to: - recall multiplication and division facts for multiplication tables up to 12 × 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 - 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.	partition place value multiple of 100 hundred times greater than price repeated subtraction _____ times as much Unit Volume bar model
Year 5	**Multiplication** • To consolidate and review multiplication; to find the result of multiplying by a number. • To consolidate and review multiplication; to find the numbers we can multiply by to get a number. • To define and find common factors of numbers to 100. • To identify and name the prime numbers; to recognise prime numbers as numbers that only have 2 factors. • To define and determine prime numbers and composite numbers. To create and determine square and cubed numbers.	*All of the above, plus:* ten thousands hundred thousands factor common factor prime number composite number

	• To multiply 1- and 2-digit numbers by 10, 100 and 1000. • To multiply 2- and 3-digit numbers by a 1-digit number using multiple strategies. • To multiply 4-digit numbers by 1-digit numbers. • To multiply 4-digit numbers by 1-digit numbers with regrouping, using a variety of strategies. • To multiply a 4-digit number by a 1-digit number, with regrouping from the ones, tens and hundreds, using multiple methods. • To multiply 2-digit numbers by 2-digit numbers using multiple methods. • To multiply a 2-digit number by a 2-digit number using multiple methods, including the grid method, number bonds and column method, with regrouping. • To multiply a 3-digit number by a 2-digit number, with the grid method and column method as key strategies. • To multiply a 3-digit number by a 2-digit number with regrouping, using the column method as the key strategy. **Division** • To find thousands, hundreds and tens in a 4-digit number using concrete materials. • To divide 3- and 4-digit numbers by 1-digit numbers, using number bonds and long division as the key methods. • To divide 4-digit numbers by 1-digit numbers, using number bonds and long division as the key methods. • To divide 3-digit numbers by 1-digit numbers, using long division, short division and mental methods, that give rise to remainders **Word Problems** • To solve word problems involving multiple operations; to identify the operation needed to carry out the plan. • To solve word problems involving multiplication and division using bar models as the main heuristic. • To solve word problems involving multiple operations, identifying key information and representing information using bar model diagrams. • To solve word problems involving multiple operations, using bar models as they key heuristic to represent key information Y5 National Curriculum End Point: Pupils should be taught to: - 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 (nonprime) numbers - establish whether a number up to 100 is prime and recall prime numbers up to 19 - 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 - multiply and divide numbers mentally drawing upon known facts	rectangular / squared arrangements two squared square number cubed number squared cubed greater than greatest / smallest product grid grid method halve approximately equal to left over – remainder partition

	- 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 - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	
Year 6	● To use multiple operations and create expressions from a picture; to use the order of operations to solve expressions. ● To create and solve expressions using the four operations. **Multiplication** ● To multiply numbers by multiples of 10; to use number bonds as a key strategy in multiplication. ● To multiply 3- and 4-digit numbers by 2-digit numbers without regrouping or renaming; to use both number bonds and the column method as key strategies. ● To multiply 3- and 4-digit numbers by 2-digit numbers without regrouping or renaming; to use both number bonds and the column method as key strategies. ● To multiply 3- and 4-digit numbers by 2-digit numbers with regrouping and renaming; to use number bonds and pattern recognition as key strategies for multiplication. ● To multiply 3- and 4-digit numbers by 2-digit numbers with regrouping and renaming; to use number bonds and the column method as key strategies. ● To estimate products of multiplying 3- and 4-digit numbers by a 2-digit numbers; to use knowledge of multiplication to create specific products. **Division** ● To divide 3-digit numbers by 2-digit numbers using a variety of strategies; to use number bonds, long division and bar models to facilitate division by 2-digit numbers. ● To divide 4-digit numbers by 2-digit numbers; to use number bonds and long division as the key strategies. ● To divide 4-digit numbers by 2-digit numbers using a variety of methods; to use number bonds, long and short division as key methods. ● To divide 3-digit numbers by 2-digit numbers giving rise to remainders; to use number bonds and long and short division as key strategies to solve division problems. ● To divide 4-digit numbers by 2-digit numbers giving rise to a remainder; to represent the remainder as part of a whole amount of money or decimal ● To use the bar model heuristic to solve word problems involving multiplication and division.	*All of the above, plus:* lowest common multiple operation mixed operation calculation bracket expression reasonable guess 4-digit number greatest / smallest possible product repeated division check the answer equal number greatest common factor

	• To solve word problems using division as the main strategy; to use pictorial representations to support word problems. • To solve word problems involving multiple operations, including multiplication and division. • To find common multiples in real-life situations; to use common multiples in tandem with knowledge of time. • To use common multiples to solve problems; to organise mathematical thinking into tables and lists. • To find the largest common factor of 3-digit numbers; to use multiplication and division to find largest common factors. • To find common factors using concrete materials. • To use prime numbers to create other numbers; to explore prime numbers above 100. • To explore prime numbers using concrete materials; to identify prime numbers using multiplication or division. **Word Problems** • To use bar models to solve word problems involving the four operations. • To use the bar model heuristic to solve word problems involving money. • To use the bar model heuristic to solve complex word problems involving ratio. • To use the bar model heuristic to solve complex word problems involving time. • To solve word problems that apply the bar model heuristic and involve fractions. • To create and solve complex word problems using the four operations. Y6 National Curriculum End Point: Pupils should be taught to: - multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - 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 appropriate for the context - 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 - perform mental calculations, including with mixed operations and large numbers - identify common factors, common multiples and prime numbers - use their knowledge of the order of operations to carry out calculations involving the four operations	