Multiplication and Division

Multiplication and Division Facts			
Year 3	**Year 4**	**Year 5**	**Year 6**
KS1 recap: Use the 2 times table to solve doubling problems. Understand that doubling and halving are opposites (inverse operations). Know that 10 times table answers are double those in the 5 times table, and 5 times table answers are half of those in the 10 times table **Year 3:** count from 0 in multiples of 2, 4, 8, 50 and 100 Recall and use multiplication and division facts for the 2, 4 and 8 multiplication tables	Count in multiples of 3, 6, 7, 9, 25 and 1,000. Recall multiplication and division facts for multiplication tables up to 12 × 12 (Mastering Number)	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 Use known multiplication facts and unitising to multiply decimal fractions (tenths and hundredths) by whole numbers. Recall multiplication and division facts for multiplication tables up to 12 × 12 (Mastering Number)	Count forwards or backwards in steps of powers of 10 for any given number up to 10,000,000.
Mental Calculation			
Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know.	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 and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	Perform mental calculations, including with mixed operations and large numbers. Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3 /8)

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Written Calculation			
KS1 recap: calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. **Year 3:** Represent three-digit multiples of ten using both repeated addition and multiplication. Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know.	Partition one factor in a multiplication equation in different ways using representations- identifying the most efficient factor to partition. Use knowledge of distributive law to calculate products. Interpret a division story when there is a remainder and represent it with an equation. Solve problems using a formal method.	Multiply two- or three-digit numbers by a single-digit number using: - Partitioning and visual representations - Expanded multiplication (with or without regrouping) - Short multiplication (with or without regrouping) Divide two- or three-digit numbers by a single-digit number using: - Partitioning and visual representations (with or without exchanging and remainders) - Short division (with and without remainders)	Multiply up to four-digit numbers by two-digit numbers using long multiplication (with and without regrouping). Use the associative law and factorising to multiply efficiently. Use short and long division accurately, including with remainders, decimals, and fractions.
Properties of numbers: multiples, factors, primes, square and cube numbers			
	Recognise and use factor pairs and commutativity in mental calculations (repeated)	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	Identify common factors, common multiples and prime numbers. Use common factors to simplify fractions and common multiples to convert fractions to the same denomination.

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		Establish whether a number up to 100 is prime and recall prime numbers up to 19 Recognise and use square numbers and cube numbers, and the notation for squared and cubed.	
Order of operations			
		Use the commutative and distributive laws when multiplying three or more number.	Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. Pupils use their knowledge of the distributive law to solve equations including division, addition and subtraction.
Inverse operations, estimating and checking answers			
		Use estimation to support accurate calculation.	Use estimation and the inverse operations to support accurate calculation.
Problem Solving			
KS1 recap: Find answers to division problems using known multiplication and halving facts. Year 3: Solve problems using the 2, 4 and 8 times table.	Use knowledge of known times tables to solve problems. Pupils explain which is the most efficient factor to	Use efficient strategies to solve short division problems, including when the hundreds digit is smaller than the divisor.	• Interpret and represent remainders in different contexts. • Solve multiplication and division problems in real-life context

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	partition to solve a multiplication problem Use knowledge of division equations and remainders to solve problems.	Solve measurement problems involving multiplication of decimal fractions by whole numbers.	