

KS3 Mathematics Curriculum Coverage:



Year 8 Spring Term

Sequenced	Block 5: Multiplying and dividing fractions	Block 6: Symmetry	Block 7: Area, volume and density	Block 8: Equations and inequalities	Block 9: Indices
Key Knowledge	To know: - the meaning of the reciprocal - how to find equivalent fractions - know how to convert between improper fractions and mixed numbers	To know: - the term ratio relates to the relationship between 2 or more things - a colon is used for ratio notation	To know: - what is meant by direct proportion - how to read a conversion graph - what a scale factor is - similar shapes have the same corresponding angles and length scale factor - the meaning of scales on diagrams	To know: - the meaning of term, expression, simplify, variable, expand and factorise - expressions can be simplified by collecting like terms - expanding a bracket follows the distributive property - factorising fully requires the highest common factor to be taken out of the bracket	To know: - that in index notation, the base is the number being multiplied and the index (power/exponent) indicates how many times the base is multiplied by itself. - that any non-zero number raised to the power of zero equals 1 ($a^0 = 1$). - the first index law for multiplication: when multiplying terms with the same base, add the indices ($a^m \times a^n = a^{m+n}$). - the second index law for division: when dividing terms with the same base, subtract the indices ($a^m \div a^n = a^{m-n}$). - the third index law for brackets: when raising a power to another power, multiply the indices ($(a^m)^n = a^{mn}$). - how brackets affect powers involving negative numbers (e.g. $(-3)^2$ vs -3^2).
Key Skills	To be able to: - represent multiplication of fractions - multiply and divide integers and fractions by a fraction or integer. - understand and use reciprocals. - multiply and divide improper and mixed fractions - multiply and divide algebraic fractions	To be able: - use ratio notation - solve problems 1:n - solve problems m:n - use bar models to share values into a given ratio - compare ratio and fractions	To be able to: - solve problems involving direct proportion - read and interpret conversion graphs and direct proportion graphs - use ratio to find lengths in similar shapes - find and use scale factors - draw and interpret scale diagrams	To be able to: - form and simplify algebraic expressions - substitute a value into an expression - expand brackets - factorise linear and quadratic expressions into brackets - apply prior knowledge of directed number with algebraic problems	To be able to: - write repeated multiplication in index notation and evaluate numerical calculations with powers. - simplify numerical and algebraic multiplication expressions using the addition law of indices. - simplify numerical and algebraic division expressions using the subtraction law of indices. - simplify expressions with nested powers using the power of a power law. - combine multiple index laws to simplify complex algebraic expressions involving multiplication, division, and brackets. - calculate missing powers or bases in equations involving index laws. - express integers as a product of prime factors using index notation.
	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary	Tier 2 and 3 key vocabulary
Subject specific vocabulary	numerator denominator product commutative integer quotient divide estimate reciprocal convert unit fractions simplify	ratio, proportion, equal parts, colon, divide, multiply, part, bar model compare fraction 1:n m:n	proportion, ratio, linear, variable, conversion, exchange rate, scale factor	term expression substitute simplify variable expand factorise coefficient equivalent equation solve multiply out identity product factor common factor highest common factor like terms unlike terms zero pair quadratic	index indices base power exponent index notation index laws multiplication law division law power of a power zero power evaluate simplify expanded form product prime factor prime factorisation