# KS3 Mathematics Curriculum Coverage:

## Year 9 Spring Term

| Sequenced | Block 7: Number | Block 8: Percentages | Block 9: Maths and money | Block 10: Deduction | Block 11: Pythagoras |
|---|---|---|---|---|---|
| Key Knowledge | To know:<br>• **the difference between integers, real and rational numbers (h)**<br>• the difference between HCF and LCM<br>• that dividing a fraction is the same as multiplying by the reciprocal<br>• how to find equivalent fractions with common denominators<br>• how to write a number in standard form recognise numbers that are in the form a x 10^n that are not in standard form | To know:<br>• Equivalence of fractions, decimals and percentages<br>• percentage multipliers below and over 100<br>• that to carry out a percentage change you multiply by the multiplier and to reverse a percentage change you divide by the multiplier | To know:<br>• the terms debit, credit and balance<br>• the meaning of the readings on a gas or electric or mileage readings<br>• the meaning of deposit and equal monthly payments<br>• the meaning of VAT | To know:<br>• Angle rules: angles on a straight line, vertically opposite angles, angles around a point, angles on parallel lines, angles in polygons<br>• Names and properties of polygons | To know that:<br>• an integer is a whole number<br>• the difference between significant figures and decimal places<br>• square numbers up to and including $12^2$<br>• identify the hypotenuse in a right-angled triangle<br>• the existence of common Pythagorean triples e.g. 3,4,5   6/8/10   5/12/13<br>• $a^2 + b^2 = hyp^2 / a^2 + b^2 = c^2$<br>drawing a diagonal in a rectangle creates two right-angled triangles |
| Key Skills | To be able to:<br>• directed number - addition, subtraction, multiplication, division of negative numbers including with algebra<br>• mental methods - addition, subtraction, multiplication, division including working with decimals.<br>• fractions - addition, subtraction, multiplication, division<br>• standard form - addition, subtraction, multiplication, division and converting between ordinary and standard form<br>**surds - addition, subtraction, multiplication, division and simplification (H)** | To be able to:<br>• calculate percentage increase and decrease with and without a calculator<br>• express a change as a percentage<br>• solve reverse percentage problems<br>• solve problems with percentage change and repeated percentage change | To be able to:<br>• solve problems with bank statements and bills<br>• calculate simple and compound interest<br>• solve problems with value added tax VAT<br>• solve problems with exchange rates and unit pricing problems | To be able to:<br>• Solve problems involving angle rules on parallel lines<br>• Form and solve equations with angle rules<br>• Form conjectures with shapes and angles<br>• **Link constructions and geometric properties (H)** | To be able to:<br>• Calculate missing side lengths in right-angled triangles using Pythagoras' theorem<br>• Determine whether a triangle is right-angled using Pythagoras' theorem<br>**Apply Pythagoras' theorem to 3D shapes** |
| | Tier 2 and 3 vocabulary | Tier 2 and 3 vocabulary | Tier 2 and 3 key vocabulary | | Tier 2 and 3 key vocabulary |
| Subject specific | integer, rational, irrational, root, square root, cube, cube root, surd, positive, negative, inverse, operations, quotient, product, sum, difference, decimal, adjust, compensate, remainder, factor, highest common factor, multiple, lowest common multiple, prime, prime factors, numerator, denominator, mixed number, common denominator, improper fraction, standard form, power, index, exponent | percentage fraction decimal equivalence convert  change  increase decrease reduce multiplier  reverse percentage | total  debit  credit  balance  expense  percentage  principle  annual  rate  deposit  interest  per annum  compound  multiplier  tax  original  exemption  salary  overtime  wage  currency  convert  exchange  value  unit  proportion  unitary | | square, square root, integer, significant figures, decimal places, hypotenuse, opposite, adjacent, right-angled, origin, quadrant, negative, hypotenuse, gradient, line segment, cuboid, 2d, 3d, Pythagoras |