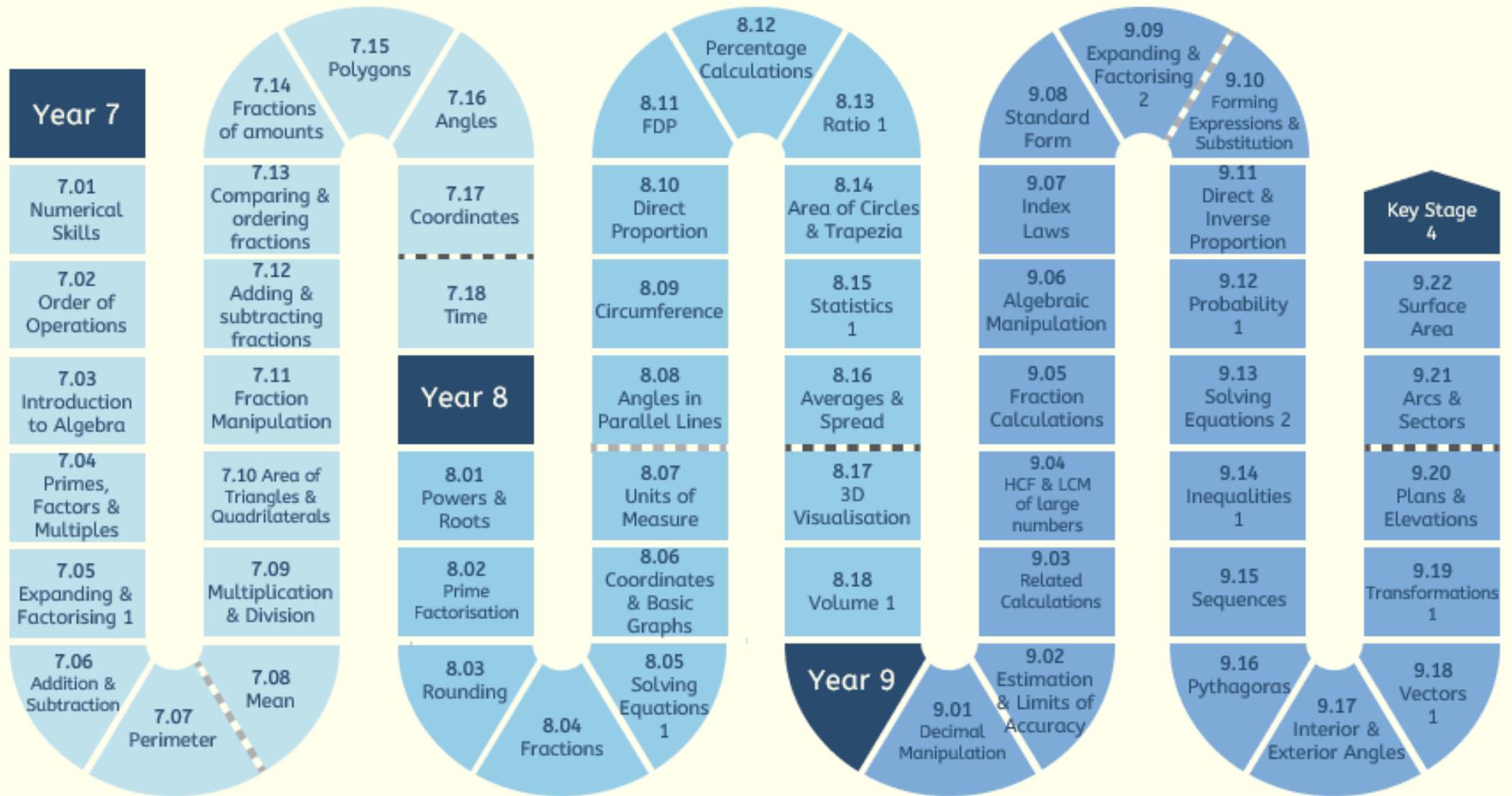


KS3 Maths Roadmap



| Unit 8.01 Powers and Roots (3 hours) | | Prior Knowledge | Content Overview | Core | Extension |
|--|---|--|---|--|---|
| Lesson | Sparx Code | 7.00 (squares and roots) | Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations | Writing powers in index form numbers Square roots | Square Cube numbers Cube roots |
| Squares cubes and roots | M135, M608 | | | | |
| Further square, cube and roots | | | | | |
| Powers and roots | | | | | |
| Unit 8.02 Prime Factorisation (3 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | 7.04 (primes, factors & multiples) | Use the concepts and vocabulary of prime numbers, factors (or divisors), common factors, prime factorisation, including using product notation and the unique factorisation property (HCF and LCM with | Introduction to prime numbers factor decomposition Expressing a number as a product of prime factors | - prime - |
| Prime and composite numbers | M322, M823, M108, M365, M227, M698 | | | | |
| Prime factor decomposition | | | | | |
| Further prime factor decomposition | | | | | |
| Unit 8.03 Rounding (3 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | 7.01 (Numerical Skills) | Round numbers and measures to an appropriate degree of accuracy (for example, to a number of decimal places or significant figures) | Significant and non significant zero Rounding integers to the nearest significant figure Rounding decimals to the nearest significant figure | Problem solving |
| Significant and non significant zero | M111, M431, M994, M131, M878 | | | | |
| Rounding integers to significant figures | | | | | |
| Rounding decimals to significant figures | | | | | |
| Unit 8.04 Fractions (6 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | 7.11 & 7.12 (Fraction Manipulation & Adding and Subtracting Fractions) | Multiply and divide fractions and mixed numbers | Equivalent fractions as integers Adding and subtracting fractions Multiplying and dividing fractions | Fractions Simplify fractions Algebraic fractions |
| Equivalent fractions | M939, M410, M671, M601, M835, M931, M157, M197, M110, M265 | | | | |
| Simplify fractions | | | | | |
| Add fractions | | | | | |
| Subtract fractions | | | | | |
| Add and subtract fractions (stretch) | | | | | |
| Multiply fractions | | | | | |
| Divide fractions | | | | | |
| Multiply and divide fractions (stretch) | | | | | |
| Unit 8.05 Solving Equations 1 (10 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | 7.03, 7.06, 7.08 | Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement). Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs | Solve one step equations: Addition and Subtraction Solve one step equations: Multiplication and division Solving multi step equations: Basic Solving multi step equations: Fractions Solving multi step equations: Expression in numerator Solving multi step equations: Unknown in denominator Solving equations: Negative unknowns Solving equations: Brackets Solving Equations: Expanding and simplifying Solving Equations: Unknowns on both sides Forming expressions Perimeter Area Geometry | Solving multi step equations: Negative fractional unknown Geometry |
| One step equations +/- | M707, M509, M387, M554, M813, M735, M531, M957 | | | | |
| Two step equations w/: | | | | | |
| Solve multi step (Basic) | | | | | |
| Solve multi step (fractions) | | | | | |
| Solve multi step (Expression in numerator) | | | | | |
| Solve multi step (Unknown in denominator) | | | | | |
| Negative unknowns | | | | | |
| Negative fractional unknown | | | | | |
| Solve equations w/ brackets | | | | | |
| Solve equations w/ expand and simplifying | | | | | |
| Solve equations w/ unknowns on both sides | | | | | |
| Forming expressions | | | | | |
| Perimeter | | | | | |
| Area | | | | | |
| Geometry | | | | | |
| Unit 8.06 Coordinates and basic graphs (2 Hours) RECAP | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | 7.17 (coordinates) | Coordinates and developing algebraic relationships | Reading coordinates coordinates two coordinates vertical lines, $y=x$, $y=-x$ | Plotting Mid point of Horizontal and |
| Reading and plotting co-ordinates | M618, M622, M797 | | | | |
| Mid point of two co-ordinates | | | | | |
| Horizontal, vertical, $y=x$, $y=-x$ lines | | | | | |
| Unit 8.07 Units of measurements (2 Hours) RECAP | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | 7.08 (multiplication and division) | Use standard units of mass, length, time, money and other measures, including with decimal quantities | Convert between units of time Convert between metric units | Convert between area units |
| Convert units of time | M892, M627, M515, M772, M530, M761, M728 | | | | |
| Convert metric units | | | | | |
| Convert between area units | | | | | |

| Unit 8.08 Angles in Parallel lines (5 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
|--|------------------------------------|--|---|--|---|
| Lesson | Spark Code | 7.16 (angles) | Understand and use the relationship between parallel lines and alternate and corresponding angles | Vertically opposite angles Alternate angles Co-interior angles Corresponding angles Forming and solving equations | Forming and solving equations with shapes |
| Vertically opposite | M818, M163, M606, M351, M679, M393 | | | | |
| Alternate angles | | | | | |
| Co-interior angles | | | | | |
| Corresponding angles | | | | | |
| Forming and solving equations | | | | | |
| Unit 8.09 Circumference (3 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Spark Code | 7.07 (perimeter) | Calculate and solve problems involving perimeters of 2-D shapes (including circles) and composite shapes | Features of a circle the value of Pi circumference circumference of a circle to calculate the radius Revolutions perimeter of semicircles | Identify Calculate Use Calculate the radius Calculate perimeter of semicircles |
| Circumference | M595, M169 | | | | |
| Revolutions | | | | | |
| Perimeter of parts of a circle | | | | | |
| Equal perimeters | | | | | |
| Perimeter of semi-circles | | | | | |
| Unit 8.10 Direct proportion (3 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Spark Code | 7.08 (multiplication and division) | Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction | Unitary method method Recipes Non-unitary Best buy | Forming and solving equations with shapes |
| Unitary method | M478, M681 | | | | |
| Non-unitary method | | | | | |
| Best buy | | | | | |
| Recipes | | | | | |
| Recipes | | | | | |
| Unit 8.11 Fractions, decimals and percentages (3 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Spark Code | 7.11-14, 8.04 (all fraction and decimal manipulation has been covered) | Converting between fractions, decimals and percentages. | Simplify fractions Equivalent fractions Compare unit fractions Cover FDP | Recognise recurring decimals and convert fractions into recurring decimals |
| Convert percentages /fractions | M267, M958, M264, M553 | | | | |
| Convert percentages/decimals | | | | | |
| Convert fractions/percentages | | | | | |
| Compare FDP | | | | | |
| Compare FDP | | | | | |
| Unit 8.12 Percentage calculations (6 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Spark Code | 8.13 (Fractions, Decimals and Percentages) | Solve problems involving percentage change (calc and non calc), including: percentage increase, decrease, original value problems and simple interest in financial mathematics. Using multipliers. Writing numbers as percentages of other numbers. | Percentage of an amount - non calculator Percentage of an amount- find original value Percentage of an amount - multipliers Percentage increase and decrease- calculator Calculate the percentage increase and decrease - calculator Reverse percentages - Calculator | Problem solving - percentage increase and decrease |
| Write a number as % of another | M235 | | | | |
| Percentage of amounts (non-calc) | | | | | |
| Reverse percentages (non-calc) | | | | | |
| Percentage of amount using multipliers | | | | | |
| Percentage increase and decrease | | | | | |
| Percentage change | | | | | |
| Find a whole, given a part | | | | | |
| Reverse percentages including increase and decrease | | | | | |
| Simple interest (calc) | | | | | |
| Simple interest (calc) | | | | | |
| Unit 8.13 Ratio 1 (6 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Spark Code | KS2 Y6 PoS, 7.08, 8.11 (multiplication, division and proportional reasoning) | Divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio | Writing ratios as a fraction fraction Working between or with two ratios Sharing the total Writing ratios Simplifying ratios as a Completing ratios | Algebraic ratios |
| Write ratios from diagrams and as fractions | M885, M543, M267, U921, M801, M525 | | | | |
| Write ratios in the form 1 to n | | | | | |
| Simplifying ratios | | | | | |
| Completing ratios | | | | | |
| Word problems | | | | | |
| Sharing in a given ratio (Part 1) | | | | | |
| Sharing in a given ratio (Part 2) | | | | | |
| Working with two ratios | | | | | |
| Working with two ratios | | | | | |
| Unit 8.14 Area of circles and trapezia (6 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Spark Code | 7.10, 8.10 (area and circumference) | Derive and apply formulae to calculate and solve problems involving area of circles (including part circles) and trapezia | Area of a trapezium circle Part circles Area of a Concentric circles | Compound area involving trapezia, triangles, quadrilaterals, circles |
| Area of a trapezium | M705, M231, M430, M303, M269, M996 | | | | |
| Area of a circle | | | | | |
| Area of parts of circle | | | | | |
| Calculate shaded areas | | | | | |
| Comparing areas | | | | | |
| Compound area | | | | | |
| Compound area | | | | | |
| Determine the radius or diameter, calculate circumference | | | | | |

| Unit 8.15 Statistics 1 (6 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
|--|--|--|--|--|---|
| Lesson | Sparx Code | 7.16 (measuring, drawing, working with angles) | Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, vertical line (or bar) charts and stem and leaf for ungrouped and grouped numerical data | Presenting data in a table tables diagrams and dual) and interpret) | Two way Stem and leaf Bar charts (composite Line graphs (construction Pie charts (construction and interpret) |
| Data handling frequency | M945, M460, M738, M140, M183, M574, M165, M648, M210 | | | | |
| Data handling interpreting | | | | | |
| Bar charts | | | | | |
| Line graphs | | | | | |
| Pie charts, reading | | | | | |
| Pie charts, drawing | | | | | |
| Stem and leaf | | | | | |
| Unit 8.16 Averages and spread (6 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | 7.09 (the mean) | Describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers). | Mean, median, mode, range Comparing distributions with averages and spread | Finding averages from stem and leaf diagrams |
| Calculate mean | M940, M934, M328, M841, M440 | | | | |
| Reverse mean | | | | | |
| Calculate the median and Changing the median | | | | | |
| Mode and range | | | | | |
| Problem solving | | | | | |
| Averages and range from stem and leaf | | | | | |
| Unit 8.17 3D visualisation (2 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | KS2Y6 PoS | Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3- □ | Name 3D shapes of 3D shapes | Features Nets of 3D shapes |
| 3D shape properties | M767, M518 | | | | |
| 3D shape nets | | | | | |
| Unit 8.18 Volume 1 (5 Hours) | | Prior Knowledge | Content Overview | Core | Extension |
| Lesson | Sparx Code | KS2Y6 PoS, 7.08 (multiplication & division) | Derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes) and other prisms (including cylinders), cones, spheres and pyramids | Cube, cuboid, triangular prism, parallelogram prism, trapezoid prism, compound shape prism (L - Shape), cylinder, cones, spheres, pyramid (Formula given.) | Compound shape prism (L-Shape) |
| Covert metric units of capacity | M765, M722, M637, M465, M464, | | | | |
| Volume of cube and cuboids | | | | | |
| Volume of prisms | | | | | |
| Volume of compound prisms | | | | | |
| Volume of cylinders | | | | | |
| Volume of spheres | | | | | |

