

| Maths Skills Year 7        | Emerging  | Developing  | Securing   | Mastering  |
|----------------------------|---|---|--|--|
| Place Value and Indices    | To use times tables; place value                    | To use times tables; $\times$ and $\div$ by powers of 10, calculate times, money and measurements | To compare decimals; order of operations; negative numbers; factors and multiples; prime numbers   | To use metric units; 4 operations with negatives; $\times$ and $\div$ by negative powers of 10; prime factors  |
| Algebra Manipulation       | To use letters to represent unknown numbers         | To use letters to model situations; algebraic notation; simplification; substitution              | To use algebraic notation; simplification; substitution with a focus on order of operations  | To form expressions; expanding brackets  |
| Angles                     | To state angle vocabulary and name common 2D shapes | To measure and draw angles; angles on straight lines; nets; constructions                         | To calculate angles on lines, around points and in triangles; tessellation; construction of triangles                                    | To calculate angles on parallel and perpendicular lines; angles in polygons; properties of 2D shapes; bearings |
| Solving Equations          | To do simple substitution and use function machines | To complete function machines; forming equations; solving 1 - and 2 -step linear equations        | To solve equations with an unknown on each side  | To solve linear equations with brackets; rearrange simple formulae   |
| Perimeter, Area and Volume | To find area and perimeter by measuring or counting | To find area and perimeter by measuring, counting or calculation                                  | To recall and use formulae for area or rectilinear shapes, parallelograms, triangles and trapezia; area and perimeter of compound shapes | To use circle terminology; area and circumference of a circle; area and perimeter problems                     |
| Ratio and Proportion       |   | Complete calculations of percentages and fractions; writing ratios                                | To use equivalent ratios; sharing in a given ratio; fractions to/from ratios   | To use unitary method; percentage of an amount; direct proportion; scale drawing                               |
| Probability                | To state probability using words                    | To use probability scales   | To estimate probability using numbers; experimental probability  | To use sample space diagrams; possibility trees; mutually exclusive outcomes; probability of complements       |

| Maths Skills<br>Year 8     | Emerging  | Developing   | Securing   | Mastering  |
|----------------------------|---|--|--|--|
| Place Value and Indices    | To use times tables; $\times$ and $\div$ by powers of 10, calculate times, money and measurements | To compare decimals; order of operations; negative numbers; factors and multiples; prime numbers   | To use metric units; 4 operations with negatives; $\times$ and $\div$ by negative powers of 10; prime factors  | To use indices; positive integer powers and roots; LCM and HCF through prime factors; related calculations                 |
| Algebra Manipulation       | To use letters to model situations; algebraic notation; simplification; substitution              | To use algebraic notation; simplification; substitution with a focus on order of operations  | To form expressions; expanding brackets  | To use expressions with index notation; function notation; subtracting a bracket; factorising into a single bracket; proof |
| Angles                     | To measure and draw angles; angles on straight lines; nets; constructions                         | To calculate angles on lines, around points and in triangles; tessellation; construction of triangles                                    | To calculate angles on parallel and perpendicular lines; angles in polygons; properties of 2D shapes; bearings | To use Pythagoras' theorem; constructions; congruency; proof   |
| Solving Equations          | To complete function machines; forming equations; solving 1 - and 2 -step linear equations        | To solve equations with an unknown on each side  | To solve linear equations with brackets; rearrange simple formulae   | Form and solve linear equations involving simple fractions; solve linear equalities  |
| Perimeter, Area and Volume | To find area and perimeter by measuring, counting or calculation                                  | To recall and use formulae for area or rectilinear shapes, parallelograms, triangles and trapezia; area and perimeter of compound shapes | To use circle terminology; area and circumference of a circle; area and perimeter problems                     | To calculate volume and surface area of prisms and cylinders   |
| Ratio and Proportion       | Complete calculations of percentages and fractions; writing ratios                                | To use equivalent ratios; sharing in a given ratio; fractions to/from ratios   | To use unitary method; percentage of an amount; direct proportion; scale drawing                               | To calculate % increase/decrease/change (including compound interest); reverse %; indirect proportion                      |
| Probability                | To use probability scales   | To estimate probability using numbers; experimental probability  | To use sample space diagrams; possibility trees; mutually exclusive outcomes; probability of complements       | To calculate relative frequency; probability notation; frequency trees; probability trees; Venn diagrams                   |

| Maths Skills Year 9        | Emerging   | Developing   | Securing   | Mastering  |
|----------------------------|--|--|--|--|
| Place Value and Indices    | To compare decimals; order of operations; negative numbers; factors and multiples; prime numbers   | To use metric units; 4 operations with negatives; $\times$ and $\div$ by negative powers of 10; prime factors  | To use indices; positive integer powers and roots; LCM and HCF through prime factors; related calculations                 | To use negative integer powers; standard form  |
| Algebra Manipulation       | To use algebraic notation; simplification; substitution with a focus on order of operations  | To form expressions; expanding brackets  | To use expressions with index notation; function notation; subtracting a bracket; factorising into a single bracket; proof | To expand and factorising quadratics; difference of two squares; quadratic graphs                              |
| Angles                     | To calculate angles on lines, around points and in triangles; tessellation; construction of triangles                                    | To calculate angles on parallel and perpendicular lines; angles in polygons; properties of 2D shapes; bearings | To use Pythagoras' theorem; constructions; congruency; proof   | To calculate using trigonometry in right -angled triangles   |
| Solving Equations          | To solve equations with an unknown on each side  | To solve linear equations with brackets; rearrange simple formulae   | Form and solve linear equations involving simple fractions; solve linear equalities  | Solve linear equations with fractions that require $+$ or $-$ ; solve simultaneous equations using elimination |
| Perimeter, Area and Volume | To recall and use formulae for area or rectilinear shapes, parallelograms, triangles and trapezia; area and perimeter of compound shapes | To use circle terminology; area and circumference of a circle; area and perimeter problems                     | To calculate volume and surface area of prisms and cylinders   | To calculate arc length; sector area; volume of spheres/pyramids/cones; area/volume unit conversion            |
| Ratio and Proportion       | To use equivalent ratios; sharing in a given ratio; fractions to/from ratios   | To use unitary method; percentage of an amount; direct proportion; scale drawing                               | To calculate % increase/decrease/change (including compound interest); reverse %; indirect proportion                      | To find exponential growth and decay   |
| Probability                | To estimate probability using numbers; experimental probability  | To use sample space diagrams; possibility trees; mutually exclusive outcomes; probability of complements       | To calculate relative frequency; probability notation; frequency trees; probability trees; Venn diagrams                   | To combine probabilities; set notation; tree diagrams  |