# Year 9 SOW - Higher

| Y9 Higher -HT1 | | | | | |
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| **Chapter** | **Lesson** | **Learning objective** | **R** | **A** | **G** |
| **Decimal numbers** | Place value / Ordering decimals | Know the value of each digit in a whole number (including decimals) | | | |
| | | To be able to order decimal numbers according to size | | | |
| | Decimal and the four operations | To carry out additions/ subtractions / multiplication / division (including problem solving) | | | |
| | Order of operations | To use BIDMAS to carry out calculations | | | |
| | Solving problems | To solve real-life problems involving multiplication or division | | | |
| | Standard form | To understand and work with both positive and negative powers of ten | | | |
| | | To understand and work with standard form, using both positive and negative powers of ten | | | |
| | | To multiply / divide numbers in standard form, using both positive and negative powers of ten | | | |
| | | To add / subtract numbers in standard form, using both positive and negative powers of ten | | | |
| **Bounds** | Rounding suitably | To round numbers, where necessary, to a suitable degree of accuracy | | | |
| | Upper and lower bounds | To calculate upper/lower bound including error interval | | | |
| **Percentages** | Simple interest | To understand what simple interest is | | | |
| | | To solve problems involving simple interest | | | |
| | Percentage increases and decreases | To calculate the result of a percentage increase or decrease | | | |
| | | To calculate simple percentage change | | | |
| | | To use the multiplier to calculate percentage increase/decrease | | | |
| | Compound Interest | To calculate compound interest/depreciation | | | |
| | Repeated percentage changes | To calculate the result of repeated percentage changes | | | |
| | Calculating the original value. | To calculate the original value(reverse percentage) | | | |
| **Fractions** | Adding and subtracting fractions | To add or subtract fractions including mixed numbers | | | |
| | Multiplying fractions | To multiply two fractions including mixed numbers | | | |
| | Dividing fractions and mixed numbers | To divide two fraction including mixed numbers | | | |
| | Problem solving with fractions | Solve problems involving fractions | | | |
| | Algebraic fractions | **To add, subtract, multiply or divide simple algebraic fractions** | | | |
| **Challenge cards** | | | | | |

| Y9 Higher -HT2 | | | | | |
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| **Chapter** | **Lesson** | **Learning objective** | **R** | **A** | **G** |
| **Algebra** | Using index notation | To write algebraic expressions using index rules | | | |
| | Expanding Brackets | To expand expressions with two brackets and simplify e.g 2(5x+5) + 3(2x - 4) | | | |
| | | To expand double brackets e.g (x+2)(2x-3) | | | |
| | | To multiply out three brackets | | | |
| | Factorising quadratic expression | Factorise a quadratic expression of the form $x^2 + bx + c$ into two linear brackets. | | | |
| | | | | | |
| | | Factorise a quadratic expression of the form $ax^2 + bx + c$ into two linear brackets, where $a \neq 1$ | | | |
| | | | | | |
| | | To recognise and use the difference of two squares of simple expressions | | | |
| | | | | | |
| | Solving problems | To solve real-life problems involving algebra( including area, perimeter, angles, percentages etc..) | | | |
| **Equations** | Solving equations | To solve two step equations | | | |
| | | To solve equations which include brackets | | | |
| | | To solve equations with unknown on both sides | | | |
| | | To solve equations with fractional coefficients. | | | |
| | | **To solve equations where the variable is in the denominator of a fraction** | | | |
| **Formulae** | Using formulae | To substitute values into complex formulae | | | |
| | | To change the subject of a formula | | | |
| **Challenge cards** | | | | | |

| Y9 Higher -HT3 | | | | | |
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| **Chapter** | **Lesson** | **Learning objective** | **R** | **A** | **G** |
| **Solving equations graphically** | Graphs from linear equations | To draw a straight line graph from any linear equation using the table of values with and without calculator | | | |
| | | To solve a linear equation from a graph | | | |
| | Solving simultaneous equations by drawing graphs | To solve a pair of simultaneous equations by drawing graphs | | | |
| | Solving quadratic equations by drawing graphs | To solve quadratic equations by drawing graphs | | | |
| | Solving cubic equations by drawing graphs | To solve a cubic equation by drawing a graph | | | |
| | | | | | |
| | Simultaneous equations | Solve two linear equations simultaneously using the elimination method | | | |
| | **Exponential growth graphs** | **To draw exponential growth graphs** | | | |
| **Circles** | Circumference of a circle | To calculate the circumference of a circle | | | |
| | Area of a circle | To calculate the area of a circle | | | |
| | Mixed problems | To solve problems involving the circumference and area of a circle | | | |
| | Sectors | To calculate the arc length / area of a sector | | | |
| **Surface area and volume of cylinders** | Volume of a prism | To calculate the volume of a prism (cuboid, triangular prisms etc…) | | | |
| | Volume of a cylinder | To calculate the volume of a cylinder | | | |
| | Surface area of prisms (including cylinders) | To calculate the total surface area of a prism (including cylinders) | | | |
| | Composite shapes | To calculate the volumes and surface areas of composite shapes | | | |
| **Challenge cards** | | | | | |

| Y9 Higher -HT4 | | | | | |
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| **Chapter** | **Lesson** | **Learning objective** | **R** | **A** | **G** |
| **Polygons** | Properties of polygons | To work out the sum of the interior angles of a polygon | | | |
| | | To work out exterior angles of polygons | | | |
| | Interior and exterior angles of regular polygons | To calculate the interior and exterior angles of regular polygons | | | |
| | Problem Solving | To solve problems involving polygons | | | |
| | Tessellations and regular polygons | To work out which regular polygons tessellate | | | |
| **Enlargements** | Using Enlargements | To enlarge a 2D shape by a positive scale factor given the centre of enlargement | | | |
| | | To enlarge a 2D shape by a negative / fractional scale factor | | | |
| **Similar shapes** | Similar shapes | To understand what similar shapes are | | | |
| | | To use length / area / volume scale factor | | | |
| **Challenge cards** | | | | | |

| Y9 Higher -HT5 | | | | | |
|---|---|---|---|---|---|
| **Chapter** | **Lesson** | **Learning objective** | **R** | **A** | **G** |
| **Using data** | Scatter graphs and correlation | To describe correlation from two related scatter graphs | | | |
| | | To draw the line of best fit | | | |
| | Two-way tables | To complete two-way tables | | | |
| | Estimation of a mean from grouped data | To estimate a mean from grouped data | | | |
| | Cumulative frequency diagrams | To draw a cumulative frequency diagram | | | |
| | | To find the median, quartiles and interquartile range from cumulative frequency (introduce to boxplots) | | | |
| | Statistical investigations | To plan a statistical investigation | | | |
| **Compound units** | Distance | To work out the distance travelled in a certain time at a given speed | | | |
| | | To use and interpret distance–time graphs | | | |
| | Speed | To work out the speed of an object, given the distance travelled and the time taken | | | |
| | Time | To work out the time an object will take on a journey, given its speed and the distance travelled | | | |
| | Density | To understand and use density and other compound units | | | |
| **Pythagoras' theorem** | Calculating the length of the hypotenuse | To calculate the length of the hypotenuse in a right-angled triangle | | | |
| | Calculating the length of a shorter side | To calculate the length of a shorter side in a right-angled triangle | | | |
| | Using Pythagoras' theorem to solve problems | To use Pythagoras' theorem to solve problems | | | |
| **Challenge cards** | | | | | |

| Y9 Higher -HT6 | | | | | |
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| **Chapter** | **Lesson** | **Learning objective** | **R** | **A** | **G** |
| **Trigonometry** | Introduction of trigonometric ratios | To understand what the trigonometric ratios sine, cosine and tangent are | | | |
| | Using trigonometric ratios to find lengths | To find an unknown length of a right-angled triangle given one side and another angle | | | |
| | Using trigonometric ratios to find angles | To find the angle identified from a trigonometric ratio | | | |
| | Using trigonometry in non-right angled triangle | To use the sine rule / cosine rule / area of a triangle | | | |
| **Revision and GCSE preparation** | Re-teach & revise | Help pupils to practice and revise topics covered in their current course<br>Get pupils started on their GCSE course | | | |
| ***Review*** | | | | | |