



Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Calculating	<p>Be able to calculate with roots, and with integer indices</p> <p>Be able to calculate with standard form</p> <p><math>A \times 10^n</math>, where <math>1 \leq A &lt; 10</math> and n is an integer</p> <p>Be able to use inequality notation to specify simple error intervals due to truncation or rounding</p> <p>Be able to apply and interpret limits of accuracy</p>	<p>Power</p> <p>Root</p> <p>Index, Indices</p> <p>Standard form</p> <p>Inequality</p> <p>Truncate</p> <p>Round</p> <p>Minimum, Maximum</p> <p>Interval</p> <p>Decimal place</p> <p>Significant figure</p>	<p>Calculate with positive/negative indices/roots</p> <p>Use a calculator to evaluate numerical expressions involving powers and roots</p> <p>Add/Subtract /Multiply/Divide numbers written in standard form</p> <p>Use standard form on a scientific calculator</p> <p>Understand the difference between truncating and rounding</p> <p>Identify the minimum and maximum values of an amount that has been rounded (to nearest x, x d.p., x s.f.)</p> <p>Use inequalities to describe the range of values for a rounded value</p>	<p>Know the meaning of powers</p> <p>Know the meaning of roots</p> <p>Know the multiplication and division laws of indices</p> <p>Understand and use standard form to write numbers</p> <p>Interpret a number written in standard form</p> <p>Round to a given number of decimal places or significant figures</p> <p>Know the meaning of the symbols <math>&lt;</math>, <math>&gt;</math>, <math>\leq</math>, <math>\geq</math></p>	<p>There will be a written piece of homework each week to reinforce key concepts</p>



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<p>Visualising and Constructing</p>	<p>Be able to use the standard ruler and compass constructions</p> <p>Be able to use these to construct given figures and solve loci problems;</p> <p>Be able to construct plans and elevations of 3D shapes</p>	<p>Compasses</p> <p>Arc</p> <p>Line segment</p> <p>Perpendicular</p> <p>Bisect</p> <p>Perpendicular bisector</p> <p>Locus, Loci</p> <p>Plan</p> <p>Elevation</p>	<p>Use ruler and compasses to construct the perpendicular bisector of a line segment, bisect an angle, perpendicular to a line from a point and at a point</p> <p>Use a ruler and compasses to construct a Know how to construct the locus of points a fixed distance from a point and from a line</p> <p>Solve simple and complex problems involving loci</p> <p>Choose techniques to construct 2D shapes; e.g. rhombus</p> <p>Construct a shape from its plans and elevations</p> <p>Construct the plan and elevations of a given shape</p>	<p>Measure distances to the nearest millimetre</p> <p>Create and interpret scale diagrams</p> <p>Use compasses to draw circles</p> <p>Interpret plan and elevations</p>	<p>There will be a written piece of homework each week to reinforce key concepts</p>



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<p>Proportional reasoning</p>	<p>Be able to solve problems involving direct and inverse proportion including graphical and algebraic representations</p> <p>Be able to apply the concepts of congruence and similarity, including the relationships between lengths in similar figures</p> <p>Be able to change freely between compound units (e.g. density, pressure) in numerical and algebraic contexts</p> <p>Be able to use compound units such as density and pressure</p>	<p>Direct proportion</p> <p>Inverse proportion</p> <p>Multiplier</p> <p>Linear</p> <p>Congruent</p> <p>Congruence</p> <p>Similar</p> <p>Similarity</p> <p>Compound unit</p> <p>Density</p> <p>Population density</p> <p>Pressure</p> <p>Notation</p> <p>Kilograms per metre cubed is written as kg/m<sup>3</sup></p>	<p>Know the difference between direct and inverse proportion</p> <p>Recognise direct proportion</p> <p>Know the features of a graph that represents a direct proportion situation</p> <p>Recognise inverse proportion</p> <p>Know the features of a graph that represents an inverse proportion situation</p> <p>Know the features of an expression, or formula, that represents a direct or inverse proportion situation</p> <p>Understand the connection between the multiplier, the expression and the graph</p> <p>Solve problems involving direct and inverse proportions</p> <p>Identify congruence &amp; similarity of shapes in a range of situations</p> <p>Finding missing lengths in similar shapes</p> <p>Solve problems involving compound units, such as density, pressure, population density, speed</p> <p>Convert between compound units of density and speed</p>	<p>Find a relevant multiplier in a situation involving proportion</p> <p>Plot the graph of a linear function</p> <p>Understand the meaning of a compound unit</p> <p>Convert between units of length, capacity, mass and time</p>	<p>There will be a written piece of homework each week to reinforce key concepts.</p>



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Algebraic proficiency: tinkering	<p>Be able to understand and use the concepts and vocabulary of identities</p> <p>Be able to know the difference between an equation and an identity</p> <p>Be able to simplify and manipulate algebraic expressions by expanding products of two binomials and factorising quadratic expressions of the form <math>x^2 + bx + c</math></p> <p>Be able to argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments</p> <p>Be able to translate simple situations or procedures into algebraic expressions or formulae</p>	<p>Inequality</p> <p>Identity</p> <p>Equivalent</p> <p>Equation</p> <p>Formula, Formulae</p> <p>Expression</p> <p>Expand</p> <p>Linear</p> <p>Quadratic</p> <p>Notation</p> <p>The equals symbol ‘=’ and the equivalency symbol ‘<math>\equiv</math>’</p>	<p>Understand the meaning of an identity</p> <p>Multiply two linear expressions of the form <math>(x + a)(x + b)</math></p> <p>Multiply two linear expressions of the form <math>(ax \pm b)(cx \pm d)</math></p> <p>Expand the expression <math>(x \pm a)^2</math></p> <p>Factorise a quadratic expression of the form <math>x^2 + bx</math></p> <p>Factorise a quadratic expression of the form <math>x^2 + bx + c</math></p> <p>Work out why two algebraic expressions are equivalent</p> <p>Create a mathematical argument to show that two algebraic expressions are equivalent</p> <p>Distinguish between situations that can be modelled by an expression or a formula</p> <p>Create an expression or a formula to describe a situation</p>	<p>Manipulate expressions by collecting like terms</p> <p>Know that <math>x \times x = x^2</math></p> <p>Calculate with negative numbers</p> <p>Know the grid method for multiplying two two-digit numbers</p> <p>Know the difference between an expression, an equation and a formula</p>	<p>There will be a written piece of homework each week to reinforce key concepts.</p>