

# Subject Progression Statement

Subject: Maths

Year: 8

Term: Autumn



	Mastery Steps		
Assessment Areas	Foundation	Secure	Mastery
Number Skills and proportion	<ul style="list-style-type: none"> <li>find prime factors, highest common factor and lowest common multiple</li> <li>use positive integer powers and roots</li> <li>recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions</li> <li>round numbers and measures to decimal places or significant figures</li> <li>estimate answers to complex calculations</li> <li>recognise and use relationships between operations, including inverse operations</li> <li>order positive and negative decimals and fractions</li> <li>use the symbols =, ≠, &lt;, &gt;, ≤, ≥</li> </ul>	<ul style="list-style-type: none"> <li>use prime factorisation, including using product notation</li> <li>Use prime factorisations to find the highest common factor and lowest common multiple of two numbers</li> <li>Solve problems using highest common factors or lowest common multiples</li> <li>Round numbers to any given number of significant figures</li> <li>Use standard form to write large and small numbers</li> </ul>	<ul style="list-style-type: none"> <li>use inequality notation to write error intervals</li> <li>apply and interpret limits of accuracy</li> <li>solve problems involving direct and inverse proportion including graphical and algebraic representations</li> <li>change freely between compound units (e.g. density, pressure) in numerical and algebraic contexts</li> <li>use compound units such as density and pressure</li> </ul>
Number calculations	<ul style="list-style-type: none"> <li>understand and use place value</li> <li>apply the four operations, including formal written methods, to decimals</li> <li>use conventional notation for priority of operations, including brackets</li> <li>recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions)</li> </ul>	<ul style="list-style-type: none"> <li>apply the four operations, including formal written methods, to simple fractions</li> <li>use conventional notation for brackets, powers, roots and reciprocals</li> <li>Use a scientific calculator to calculate with negative numbers</li> <li>Use a scientific calculator to calculate with fractions,</li> <li>Understand how to use the order of operations including powers and roots</li> </ul>	<ul style="list-style-type: none"> <li>calculate with roots, and with integer indices</li> <li>calculate with standard form <math>A \times 10^n</math>, where <math>1 \leq A &lt; 10</math> and n is an integer</li> <li>To be able to use the four operations to complete calculations involving standard form.</li> </ul>
Shape, space and measures	<ul style="list-style-type: none"> <li>use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries</li> <li>use the standard conventions for labelling and referring to the sides and angles of triangles</li> <li>draw diagrams from written description</li> </ul>	<ul style="list-style-type: none"> <li>measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings</li> <li>identify, describe and construct similar shapes,</li> <li>interpret plans and elevations of 3D shapes</li> <li>use scale factors, scale diagrams and maps</li> </ul>	<ul style="list-style-type: none"> <li>use the standard ruler and compass constructions</li> <li>use constructions to solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line</li> <li>construct plans and elevations of 3D shapes</li> </ul>
Algebra	<ul style="list-style-type: none"> <li>To be able to write algebraic expressions</li> <li>To be able to simplify expressions by collecting like terms</li> </ul>	<ul style="list-style-type: none"> <li>substitute positive values into scientific formulae</li> <li>Use a formula to solve problems</li> <li>To be able to use the rules of indices to simplify an expression</li> <li>simplify algebraic expressions by taking out common factors and simplifying expressions including combinations of the rules of indices</li> <li>substitute numerical values into scientific formulae including negative and decimal numbers</li> <li>rearrange formulae to change the subject</li> </ul>	<ul style="list-style-type: none"> <li>understand and use the concepts and vocabulary of identities</li> <li>know the difference between an equation and an identity</li> <li>simplify and manipulate algebraic expressions by expanding 2 brackets and factorising quadratic expressions</li> <li>use algebra to support and construct arguments</li> <li>translate simple situations or procedures into algebraic expressions or formulae</li> </ul>

