Subject Progression Statement

Subject: Maths **Year: 8** **Term: Spring**

	Mastery Steps		
Assessment Areas	**Foundation**	**Secure**	**Mastery**
Number Skills	• express one quantity as a fraction of another • express one quantity as a percentage of another • apply the four operations to simple fractions and mixed numbers • interpret percentages and percentage changes as a fraction or a decimal • compare two quantities using percentages • solve problems involving percentage change	• interpret fractions and percentages as operators • work with percentages greater than 100% • solve problems involving reverse percentages and simple interest • calculate exactly with fractions • To be able to change recurring decimals to fractions. • To be able to change a fraction to a recurring decimal.	• Calculate with negative indices in standard form • Use a calculator to find expressions with powers and roots • Use standard form on a scientific calculator • Understand the difference between truncating and rounding • Identify the minimum and maximum values of an amount that has been rounded • Solve problems involving the maximum and minimum values of an amount that has been rounded
Algebra	• understand and use the concepts and vocabulary of expressions, equations, formulae and terms • use and interpret algebraic notation • simplify algebraic expressions by collecting like terms and multiplying a single term over a bracket • substitute numerical values into formulae and expressions • generate terms of a sequence from a term to term rule	• generate terms of a sequence from a position-to-term rule • deduce expressions to calculate the nth term of linear sequences • solve linear equations with the unknown on both sides of the equation • find approximate solutions to linear equations using a graph	• recognise and use Fibonacci type sequences, • find and use the nth term for quadratic sequences • Solve linear inequalities in one variable • Identify and interpret gradients and intercepts of linear functions • Use the form y = mx + c to identify parallel lines • Find the equation of the line through 2 points or 1 point when given gradient • Interpret the gradient of a straight line as a rate of change • Recognise, sketch and interpret graphs of quadratics, cubics and reciprocals • plot and interpret graphs
Shape, space and measures	• identify properties of the faces, surfaces, edges and vertices of 3D shapes • apply the properties and definitions of quadrilaterals, • use standard units of mass, length, time, money and other measures • change freely between related standard units • measure line segments and angles in geometric figures • apply the properties of angles at a point, on a straight line and vertically opposite angles	• understand and use alternate and corresponding angles on parallel lines • find external and internal angles of polygons. • use all angle facts to solve more complex problems involving parallel lines and angles in polygons. • use compound units • change freely between compound units	• identify and apply circle definitions and properties • calculate arc lengths, angles and areas of sectors of circles • calculate surface area of right prisms (including cylinders) • calculate exactly with multiples of π • know the formulae for: Pythagoras' theorem and apply it to find lengths in right-angled triangles • use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS) • apply angle facts and use known results to obtain simple proofs
Ratio and Proportion	• use ratio notation, including reduction to simplest form • divide a given amount using ratio	• express the division of a quantity into two parts as a ratio; • identify and work with fractions in ratio problems • use proportion as equality of ratios • express a multiplicative relationship between two quantities as a ratio or a fraction • relate ratios to fractions and to linear functions	• Apply direct and inverse proportion to a real life situation • Recognise graphs that represent direct/inverse proportion • Recognise expressions that represent direct or inverse proportion • Identify congruence of shapes in a range of situations • Finding missing lengths in similar shapes • Convert between compound units of density and pressure • Solve problems involving density, pressure and speed