Term	Unit	2014 Programme of Study
Autumn Term	1 Number calculations	use the four operations, including formal written methods, with positive and negative improper fractions and mixed numbers use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals use integer powers and associated real roots (square, cube and higher) recognise powers of 2, 3, 4, 5
	2 Sequences and equations	use and interpret algebraic notation: ab in place of a × b use and interpret algebraic notation: 3y in place of y + y + y and 3 × y use and interpret algebraic notation: a² in place of a × a generate terms of a sequence from a term-to-term rule generate terms of a sequence from a position-to-term recognise arithmetic sequences find the nth term
	Half-term test	
	3 Statistics	describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete data describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving continuous and grouped data describe, interpret and compare observed distributions of a single variable through: appropriate measures of central tendency (mean, mode, median) describe, interpret and compare observed distributions of a single variable through: appropriate measures of spread (range, consideration of outliers) construct and interpret frequency tables construct and interpret bar charts construct and interpret pie charts construct and interpret vertical line (or bar) charts for ungrouped data construct and interpret vertical line (or bar) charts for grouped numerical data Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts illustrate simple mathematical relationships between two variables (bivariate data) using scatter graphs
	4 Fractions, decimals and percentages	work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8) interpret percentages multiplicatively express one quantity as a percentage of another compare two quantities using percentages work with percentages greater than 100% solve problems involving percentage change: percentage increase solve problems involving percentage change: decrease solve problems involving percentage change: original value problems solve problems involving percentage change: simple interest in financial mathematics
	End of term test	
Spring Term	5 Geometry in 2D and 3D	derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes) use scale diagrams use maps derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes) derive and use the standard ruler and compass constructions: perpendicular bisector of a line segment derive and use the standard ruler and compass constructions: constructing a perpendicular to a given line from/at a given point derive and use the standard ruler and compass constructions: bisecting a given angle recognise and use the perpendicular distance from a point to a line as the shortest distance to the line describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric understand and use the relationship between parallel lines and alternate and corresponding angles use the sum of angles in a triangle to deduce the angle sum in any polygon derive properties of regular polygons use the sum of angles in a triangle to deduce the angle sum in any polygon derive properties of regular polygons
	6 Algebraic and real-life graphs	model situations or procedures by using graphs work with coordinates in all four quadrants recognise, sketch and produce graphs of linear functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane interpret mathematical relationships both algebraically and graphically reduce a given linear equation in two variables to the standard form y = mx + c calculate and interpret gradients and intercepts of graphs of such linear equations numerically calculate and interpret gradients and intercepts of graphs of such linear equations graphically
	Half-term test	
	7 Multiplicative reasoning	use standard units of mass, length, time, money and other measures, including with decimal quantities change freely between related standard units (for example time, length, area, volume/capacity, mass) divide a given quantity into two parts in a given part:whole ratio relate the language of ratios and the associated calculations to the arithmetic of fractions solve problems involving direct proportion solve proportion problems including graphical and algebraic representations use compound units such as speed, unit pricing and density to solve problems
	End of term test	
Summer Term	8 Algebraic and geometric formulae	understand and use standard mathematical formulae rearrange formulae to change the subject model situations or procedures by translating them into algebraic expressions or formulae use algebraic methods to solve linear equations derive formulae to calculate and solve problems involving perimeter of triangles, parallelograms, trapezia derive and apply formulae to calculate and solve problems involving area of triangles, parallelograms, trapezia calculate and solve problems involving perimeters of circles calculate and solve problems involving areas of circles calculate and solve problems involving composite shapes
	9 Probability	record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes use appropriate language of probability use the 0–1 probability scale understand that probabilities of all possible outcomes sum to 1 generate theoretical sample spaces for single and combined events with equally likely and mutually exclusive outcomes use sample spaces for single and combined events to calculate theoretical probabilities.
	Half-term test	
	10 Polygons and transformations	use scale factors identify and construct congruent triangles construct similar shapes by enlargement without coordinate grids construct similar shapes by enlargement coordinate grids apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides
	End of year test	