Geometry and Measures	
KS3 G&M (p)	Interpret mathematical relationships both algebraically and geometrically.
Geometry and Measures - Properties and constructions	
KS3 G&M (e)	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
KS3 G&M (f)	Use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles
KS4 G&M (1)	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; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description
KS3 G&M (d)	Derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line
KS4 G&M (2)	Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line
KS3 G&M (j)	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles
KS3 G&M (k)	Understand and use the relationship between parallel lines and alternate and corresponding angles
KS3 G&M (l)	Derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons
KS4 G&M (3)	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles; understand and use alternate and corresponding angles on parallel lines; derive and use the sum of angles in a triangle (e.g. to deduce and use the angle sum in any polygon, and to derive properties of regular polygons)
KS3 G&M (g)	Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies
KS4 G&M (4)	Derive and apply the properties and definitions of: special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles and other plane figures using appropriate language
KS4 G&M (5)	Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)
KS3 G&M (m)	Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' Theorem, and use known results to obtain simple proofs
KS4 G&M (6)	Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including Pythagoras' Theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs
KS3 G&M (i)	Identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids
KS3 G&M (h)	Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures
KS4 G&M (7)	Identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement (including fractional **and negative** scale factors)
KS4 G&M (8)	**Describe the changes and invariance achieved by combinations of rotations, reflections and translations**
KS4 G&M (9)	Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment
KS4 G&M (10)	**Apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results**
KS4 G&M (11)	Solve geometrical problems on coordinate axes
KS3 G&M (o)	Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D
KS4 G&M (12)	Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres
KS4 G&M (13)	Construct and interpret plans and elevations of 3D shapes.
Geometry and Measure - Mensuration and calculation	
KS4 G&M (14)	Use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.)
KS3 G&M (c)	Draw and measure line segments and angles in geometric figures, including interpreting scale drawings
KS4 G&M (15)	Measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings
KS3 G&M (a)	Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)
KS4 G&M (16)	Know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders)
KS3 G&M (b)	Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
KS4 G&M (17)	Know the formulae: circumference of a circle = $2\pi r = \pi d$, area of a circle = πr^2; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes; surface area and volume of spheres, pyramids, cones and composite solids
KS4 G&M (18)	Calculate arc lengths, angles and areas of sectors of circles
KS4 G&M (19)	Apply the concepts of congruence and similarity, including the relationships between lengths, **areas and volumes** in similar figures

KS3 G&M (n)	Use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles
KS4 G&M (20)	Know the formulae for: Pythagoras' theorem, $a^2 + b^2 = c^2$, and the trigonometric ratios, $\sin\theta$ = opposite/hypotenuse, $\cos\theta$ = adjacent/hypotenuse and $\tan\theta$ = opposite/adjacent ; apply them to find angles and lengths in right-angled triangles **and, where possible, general triangles** in two **and three** dimensional figures
KS4 G&M (21)	Know the exact values of $\sin\theta$ and $\cos\theta$ for θ = 0, 30, 45, 60 and 90 degrees; know the exact value of $\tan\theta$ for θ = 0, 30, 45 and 60 degrees
KS4 G&M (22)	**Know and apply the sine rule and cosine rule to find unknown lengths and angles**
KS4 G&M (23)	**Know and apply Area = 1/2ab sinC to calculate the area, sides or angles of any triangle.**
Vectors	
KS4 G&M (24)	Describe translations as 2D vectors
KS4 G&M (25)	Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors; use vectors to construct geometric arguments and proofs