Chapter	Emerging	Developing	Secure	Excelling
4 Fractions, decimals and percentages (Number)	Understand and use place value for decimals, measures and integers of any size.	Express 1 quantity as a fraction of another, where the fraction is less than 1 and greater than 1.	Solve problems involving percentage change, including: percentage increase and decrease	Solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics.
	Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ .	Interpret percentages and percentage changes as a fraction or a decimal,	Interpret percentage changes multiplicatively.	Select and use appropriate calculation strategies to solve increasingly complex problems.
	Move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers	Express 1 quantity as a percentage of another.	Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals.

	Interpret fractions and percentages as operators. Define percentage as 'number of parts per hundred'.	Use common multiples to express fractions in the same denomination.	Compare 2 quantities using percentages, and work with percentages greater than 100%.	Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics.
	Use common factors to simplify fractions and add and subtract fractions with the same denominator.	Add and subtract fractions with denominators that are multiples of the same number.	Use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.	Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems.
	Recognise and name the different types of angles.	Use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles.	Understand and use the relationship between parallel lines and alternate and corresponding angles.	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.
	Measure and draw angles to the nearest degree and lines to the nearest mm.	Know and use facts about angles around a point, on a straight line and in a right angle.	Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics.	Formulate a proof; make and test conjectures about patterns and relationships; look for proofs or counter-examples.

5 Angles and 2D shapes (Geometry and measures)	Use angle facts to work out unknown angles.	Know and use facts about angles in triangles and quadrilaterals.	Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides and use known results to obtain simple proofs..	Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes.
	Recognise and name the different types of triangle and derive and illustrate properties of triangles	Know and use facts about angles that are formed when a line intersects parallel lines.	Identify and construct congruent triangles.	Use the properties of a circle to calculate angles.
	Recognise and name the different types of quadrilateral	Name and recognise properties of different types of triangle and quadrilaterals and polygons.	Construct similar shapes by enlargement, with and without coordinate grids	Calculate an arc length and sector area of a circle
	Draw and measure line segments and angles in geometric figures, including interpreting scale drawings.	Derive and illustrate properties of, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies.	Begin to reason deductively in geometry, number and algebra, including using geometrical constructions.	Recognise cogruent shapes.

6 Graphs (Algebra)	Read and plot coordinates in all four quadrants.	Use a table of values to draw a straight-line graph.	Plot graphs of linear functions and find gradients.	Find the equation of straight-line graphs.
	Identify and draw horizontal and vertical lines on a graph.	Recognise the equation of simple straight-line graphs.	Plot and interpret distance-time graphs.	Recognise and plot graphs of quadratic functions.
	Construct tables of values for graphs and draw and understand straight line graphs.	Find the gradient of a line and the intercept of a line.	Plot and interpret graphs from other real-life situations.	Recognise and plot graphs of cubic functions.
	Identify the point where two straight lines intersect.	Draw graphs from other forms of linear equations.	Relate gradient and intercept to the genreal equation y = mx + c.	Identify trends in time-series graphs and data.

	Read and interpret real life graphs.	Draw and interpret time-series graphs.	Draw and interpret real-life graphs, including distance-time graphs.	Read and interpret exponential and reciprocal graphs.