Higher Level

			I can do this already	Covered in Class	Strength?	Revised it?	Aced it
Unit 1a: Angles							
	Developing	*distinguish between acute, obtuse, reflex and right angles*					
		use one lower-case letter or three upper-case letters to represent an angle, for example x or ABC					
		understand and draw lines that are parallel					
		understand that two lines that are perpendicular are at 90°					
		identify lines that are perpendicular					
		draw a perpendicular line in a diagram					
		use geometrical language					
		use letters to identify points and lines					
		recognise that, for example, in a rectangle ABCD the points A, B, C and D go around in order					
		recognise reflection symmetry of 2D shapes					
		understand line symmetry					
		identify lines of symmetry on a shape or diagram					
		draw lines of symmetry on a shape or diagram					
		draw or complete a diagram with a given number of lines of symmetry					
		recognise rotational symmetry of 2D shapes					
		identify the order of rotational symmetry on a shape or diagram					
		draw or complete a diagram with rotational symmetry					
	Securing	*identify and draw lines of symmetry on a Cartesian grid*					
		identify the order of rotational symmetry of shapes on a Cartesian grid					
		work out the size of missing angles at a point					
		work out the size of missing angles at a point on a straight line					
		know that vertically opposite angles are equal					
		estimate the size of an angle in degrees					
		justify an answer with explanations such as 'angles on a straight line', etc.					
		understand and use the angle properties of parallel lines					
		recall and use the terms alternate angles and corresponding angles					
		work out missing angles using properties of alternate angles, corresponding angles and interior angles					
		understand the consequent properties of parallelograms					
		understand the proof that the angle sum of a triangle is 180°					
		understand the proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices					
		use angle properties of equilateral, isosceles and right-angled triangles					
		use the fact that the angle sum of a quadrilateral is 360°					
		calculate and use the sums of interior angles of polygons					
		recognise and name regular polygons: pentagons, hexagons, octagons and decagons					

		use the angle sum of irregular polygons					
		calculate and use the angles of regular polygons					
	Extending	*use the fact that the sum of the interior angles of an n-sided polygon is $180(n - 2)$ °*					
		use the fact that the sum of the exterior angles of any polygon is 360°					
		use the relationship interior angle + exterior angle = 180°					
		use the sum of the interior angles of a triangle to deduce the sum of the interior angles of any polygon.					

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Unit 1b: Scale diagrams							
	Developing	*use and interpret maps and scale drawings*					
		use a scale on a map to work out an actual length					
		use a scale with an actual length to work out a length on a map					
	Securing	*construct scale drawings*					
		use scale to estimate a length, for example use the height of a man to estimate the height of a building where both are shown in a scale drawing					
		work out a scale from a scale drawing given additional info.					

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Unit 1c: Bearings							
	Developing	*use bearings to specify direction*					
		recall and use the eight points of the compass (N, NE, E, SE, S, SW, W, NW) and their equivalent three-figure bearings					
		use three-figure bearings to specify direction					
	Securing	*mark points on a diagram given the bearing from another point*					
		draw a bearing between points on a map or scale drawing					
		measure the bearing of a point from another given point					
		work out the bearing of a point from another given point					
	Extending	*work out the bearing to return to a point, given the bearing to leave that point.*					

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Unit 2: Algebra							
ALGEBRA	Developing	*use notation and symbols correctly*					
		understand that letter symbols represent definite unknown numbers in equations, defined quantities or variables in formulae, and in functions they define new expressions or quantities by referring to known quantities.					
	Securing	*understand phrases such as 'form an equation', 'use a formula', 'write down a term', 'write an expression' and 'prove an identity' when answering a question*					
		recognise that, for example, $5x + 1 = 16$ *is an equation*					
		recognise that, for example, $V = IR$ *is a formula*					
		recognise that $x + 3$ *is an expression*					
		recognise that $(x + 2)^2 = x^2 + 4x + 4$ *is an identity*					
		recognise that $2x + 5 < 16$ *is an inequality*					
		write an expression					
		know the meaning of the word 'factor' for both numerical work and algebraic work					
		understand that algebra can be used to generalise the laws of arithmetic					
		manipulate an expression by collecting like terms					
		write expressions to solve problems					
		write expressions using squares and cubes					
		factorise algebraic expressions by taking out common factors					
		multiply two linear expressions, such as $(x \pm a)(x \pm b)$ *and* $(cx \pm a)(dx \pm b)$, *for example* $(2x + 3)(3x - 4)$					
		multiply a single term over a bracket, for example, $a(b + c) = ab + ac$					
		know the meaning of and be able to simplify, for example $3x - 2 + 4(x + 5)$					
		know the meaning of and be able to factorise, for example $3x^2y - 9y$ *or* $4x^2 + 6xy$					
	Extending	*factorise quadratic expressions using the sum and product method, or by inspection (FOIL)*					
		factorise quadratics of the form $x^2 + bx + c$					
		factorise expressions written as the difference of two squares of the form $x^2 - a^2$					
		use the index laws for multiplication and division of integer powers					
		simplify algebraic expressions, for example by cancelling common factors in fractions or using index laws					

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Unit 3: Fractions							
NUMBER	Developing	*convert between fractions and decimals using place value*					
	Securing	*compare the value of fractions and decimals.*					
	Extending	*convert recurring decimals into fractions*					
		convert fractions into recurring decimals					
		use formal algebraic proofs to convert recurring decimals into fractions					

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Unit 4: Coordinates and linear graphs							
ALGEBRA	Developing	*show step-by-step deduction in solving a geometrical problem*					
		complete tables of values for straight-line graphs					
		recognise that equations of the form $y = mx + c$ correspond to straight-line graphs in the coordinate plane with gradient m and y-intercept at (0, C)					
	Securing	*draw graphs of functions in which y is given explicitly or implicitly in terms of x*					
		work out the gradient and the intersection with the axes					
	Extending	*calculate the gradient of a given straight-line given two points or from an equation*					
		manipulate the equations of straight lines so that it is possible to tell whether lines are parallel or not					
		work out the equation of a line, given two points on the line or given one point and the gradient					
		work out the gradients of lines that are parallel and perpendicular to a given line					
		show that two lines are parallel or perpendicular using gradients					
		manipulate the equations of straight lines so that it is possible to tell whether or not lines are perpendicular					
		know that the gradients of perpendicular lines are the negative reciprocal of each other					

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Unit 5: Rounding							
ALGEBRA	Developing	*perform money calculations, writing answers using the correct notation*					
		round numbers to a specified number of decimal places					
		round numbers to a specified number of significant figures					
		interpret scales on a range of measuring instruments, including those for time, temperature and mass, reading from the scale or marking a point on a scale to show a stated value					
		know that measurements using real numbers depend on the choice of unit					
	Securing	*use inequality notation to specify error intervals due to truncation or rounding*					
		recognise that measurements given to the nearest whole unit may be inaccurate by up to one half in either direction					
		write down the maximum or minimum figure for a value rounded to a given accuracy					
	Extending	*combine upper or lower bounds appropriately to achieve an overall maximum or minimum for a situation*					
		work with practical problems involving bounds including in statistics. For example, finding the midpoint of a class interval, such as $10 < t \leqslant 20$, in order to estimate a mean					

HALF TERM

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Unit 6: Collecting and representing data							
STATISTICS	Developing	*Interpret and construct tables, charts and diagrams including, for categorical data: frequency tables, bar charts (composite, dual), pie charts, pictograms, vertical line charts for ungrouped discrete numerical data*					
		For the above named diagrams, understand which of them are appropriate for different types of data					
		interpret any of the types of diagram					
		decide whether data is qualitative, discrete or continuous and use this decision to make sound judgements in choosing suitable diagrams for the data					
		understand the difference between grouped and ungrouped data					
		understand the advantages and disadvantages of grouping data					
		distinguish between primary and secondary data					
		use lists, tables or diagrams to find values for the above measures					
		find the mean for a discrete frequency distribution					
		find the median for a discrete frequency distribution					
		find the mode or modal class for frequency distributions					
	Securing	*calculate an estimate of the mean for a grouped frequency distribution, knowing why it is an estimate*					
		find the interval containing the median for a grouped frequency distribution					
		choose an appropriate measure to be the 'average', according to the nature of the data					
		identify outliers					
		find patterns in data that may lead to a conclusion being drawn					
		look for unusual data values such as a value that does not fit an otherwise good correlation					
		design and use two-way tables					
		complete a two-way table from given information					
		construct suitable diagrams for grouped discrete and continuous data					
		interpret diagrams for grouped discrete and continuous data					
	Extending	*understand that a time series is a series of data points typically spaced over uniform time intervals*					
		plot and interpret time-series graphs					
		use a time-series graph to predict a subsequent value					
		understand that if data points are joined with a line then the line will not represent actual values but will show a trend					

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Unit 7: Sequences							
ALGEBRA	Developing	*generate linear sequences*					
		work out the value of the nth term of a linear sequence for any given value of n					
		generate sequences with a given term-to-term rule					
		generate a sequence where the n*th term is given*					
		work out the value of the nth term of any sequence for any given value of n					
		generate simple sequences derived from diagrams and complete a table of results that describes the pattern shown by the diagrams					
		describe how a sequence continues.					
	Securing	*solve simple problems involving arithmetic progressions*					
		work with Fibonacci-type sequences (rule will be given)					
		know how to continue the terms of a quadratic sequence					
		work out the value of a term in a geometrical progression of the form r^n *where* n *is an integer* > 0					
	Extending	*work out the value of the nth term of a sequence for any given value of* n.					

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Unit 8: Circumference and Area							
GEOMETRY AND MEASURES	Developing	*recall the definition of a circle*					
		identify and name the parts of a circle					
		draw the parts of a circle					
		understand related terms of a circle					
		draw a circle given the radius or diameter					
		recall and use the formula for the circumference of a circle					
	Securing	*work out the circumference of a circle, given the radius or diameter*					
		work out the radius or diameter given the circumference of a circle					
		use $\pi = 3.14$ *or the* π *button on a calculator*					
		work out the perimeter of semicircles, quarter circles or other fractions of a circle					
		recall and use the formula for the area of a circle					
		work out the area of a circle, given the radius or diameter					
		work out the radius or diameter given the area of a circle					
		work out the area of semicircles, quarter circles or other fractions of a circle					
	Extending	*work out the area of semicircles, quarter circles or other fractions of a circle (sectors)*					
		calculate the length of arcs of circles					
		given the lengths or areas of arcs, calculate the angle subtended at the centre					

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Unit 9: Perimeter and Area							
GEOMETRY AND MEASURES	Developing	*know the terms face, edge and vertex (vertices)*					
		identify and name common solids, for example cube, cuboid, prism, cylinder, pyramid, cone and sphere					
		understand that cubes, cuboids, prisms and cylinders have uniform areas of cross-section					
		recall and use the formulae for the area of a rectangle, triangle, parallelogram and trapezium					
		work out the area of a rectangle and triangle					
		work out the perimeter of a rectangle					
		calculate the perimeter of shapes drawn on a grid					
		calculate the perimeter of simple shapes					
		calculate the perimeter of compound shapes made from two or more rectangles					
		calculate the perimeter of shapes made from triangles and rectangles					
	Securing	*work out the area of a parallelogram*					
		work out the area of a trapezium					
		calculate the area of shapes made from triangles and rectangles					
		calculate the area of compound shapes made from two or more rectangles, for example an L shape or T shape					
		calculate the area of shapes drawn on a grid					
		calculate the area of simple shapes					
		work out the surface area of nets made up of rectangles and triangles					
		recall and use the formula for the volume of a cube or cuboid					
		recall and use the formula for the volume of a cylinder					
		recall and use the formula for the volume of a prism					
		work out the volume of a cube or cuboid					
		work out the volume of a cylinder					
		work out the volume of a prism, for example a triangular prism					
	Extending	*work out the surface area of spheres, pyramids and cones*					
		work out the surface area of compound solids constructed from cubes, cuboids, cones, pyramids, cylinders, spheres and hemispheres					
		work out volume of spheres, pyramids and cones					
		work out the volume of compound solids constructed from cubes, cuboids, cones, pyramids, cylinders, spheres and hemispheres					
		solve real-life problems using known solid shapes					

CHRISTMAS HOLIDAYS