Place Value		
YG	Unit	Key Knowledge
N		To know how to subitise to 3. To know how to count to 5. To know numbers belong in a sequence. To know the numerals to 5 and link these to amounts. To know how to accurately count up to 5 objects. To know how to identify the size of group of up to three items (cardinal principle). To know how to compare small groups of objects using the language big, small, more, less, same. To know how to mark make to represent quantities. To know some numbers beyond 5 and can apply counting skills to these.
R		To know how to subitise to 5 (ELG). To know the numerals to 10 and link these to amounts. To know how to identify the size of group of up to 10 items (cardinal principle). To know how to count up to and beyond 20. To know how to recognise the pattern of the counting system beyond 10 (e.g. when counting, the ones column always goes in the order 0,1,2 etc). To know how to compare quantities of up to 10, using more than, less than and equal to. To know that consecutive numbers are one/less than each other.
1	Au1 – Place Value (within 10)	To know how to sort and count objects to 10. To know how to count objects from a larger group. To know how to represent objects to 10. To know how to count and write to 10. To know how to count backwards from 10 to 0. To know how to count one more and one less up to 10. To know how to use one to one correspondence. To know how to compare objects and numbers. To know how to order objects and numbers. To know how to place numbers on a number line to 10.
	Sp1 – Place Value (within 20)	To know numbers from 11 to 20. To know how to count forwards and backwards up to 20. To know how to count using tens and ones. To know how to count one more and one less up to 20. To know how to compare objects and numbers up to 20. To know how to order objects and numbers up to 20.

		To know how to estimate numbers to 20 on a number line.
	Sp3 – Place Value (within 50)	To know how to count up to and back from 50. To know how to compare numbers and objects to 50. To know how to count one more and one less. To know how to partition numbers into 10s and 1s. To know how to estimate numbers to 50 on a number line.
	Su4 – Place Value (within 10)	To know how to count in tens to 100. To know how to count forwards and backwards within 100. To know how to partition numbers within 100 into tens and ones. To know how to compare numbers to 100. To know how to find one more and one less than numbers to 100.
2	Au1 – Place Value	To know how to count objects to 100. To know to use different ways to represent numbers to 100. To know how to use a place value chart to make and compare numbers. To know how to use a number line to represent numbers to 100. To know how to compare numbers to 100. To know how to order numbers to 100. To know how to count in 2s, 5s and 10s. To know how to count in 3s.
3	Au1 – Place Value	To know how to count in 100s. To know how to represent numbers to 1000. To know how to partition a number in 100s, 10s and 1s. To know how to partition numbers in different ways. To know how to use a number line to represent numbers to 1000. To know how to find 100, 10 and 1 more or less. To know how to compare numbers up to 1,000. To know how to order numbers up to 1,000. To know how to count in 50s.
4	Au1 – Place Value	To know how to round numbers to the nearest 10, 100, 1000. To know how to count in 1,000s. To know how to use a number line to represent numbers to 10,000. To know Roman numerals to 100. To know how to find 1, 10, 100, 1,000 more or less. To know how to compare numbers to 10,000. To know how to order numbers to 10,000.

5	Au1 – Place Value	To know the value of any digit in a number up to 1,000,000. To know how to use a number line to represent numbers to 1,000,000. To know how to compare numbers to 1,000,000. To know how to order numbers to 1,000,000. To know how to round numbers to the nearest 10, 100, 1,000, 10,000 and 100,000. To know how to find 1, 10, 100, 1,000, 10,000 or 100,000 more or less. To know Roman numerals to 1000.
	Su4 – Negative Numbers	To know the concept of negative numbers. To know how to count backwards through zero. To know how to compare and order positive and negative numbers. To know how to find the difference between a positive and a negative number.
6	Au1 – Place Value	To know how to read and write numbers to 10,000,000. To know how to use a number line to represent numbers to 10,000,000. To know how to compare numbers to 10,000,000. To know how to order numbers to 10,000,000. To know how to round any number. To know how to perform simple additive calculations involving negative numbers.
7		To know how to understand and use place value for integers of any size. To know how to order positive and negative integers; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥. To know how to use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property. To know how to use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals. To know how to recognise and use relationships between operations including inverse operations. To know how to use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations. To know how to interpret and compare numbers in standard form $A \times 10^n$ $1 \leq A < 10$, where n is a positive or negative integer or 0. To know how to round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]. To know how to use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x \leq b$. To know how to use a calculator and other technologies to calculate results accurately and then interpret them appropriately. To appreciate the infinite nature of the sets of integers, real and rational numbers

Addition & Subtraction		
YG	Unit	Key Knowledge
N		To know that a group refers to a set of items. To know that groups can be combined to make a larger group. To know that numbers are composed of other numbers (children are able to assign a numerical value to the statement above). To know that groups can be split up into smaller groups. To know that numbers can be decomposed into smaller number. To know that simple real-life problems can be solved using mathematical knowledge.
R		To know that the additive relationship can be represented in a part-part-whole model. To know the language addition/add, subtraction/subtract/take away. To know how to compose numbers to 10. To know number bonds to 5. To know some number bonds to 10. To know how to decompose numbers into smaller numbers. To know that real-life problems can be solved using mathematical knowledge.
1	Au2 - Addition & Subtraction (within 10)	To know how to use the part-whole model. To know how to use the addition symbol. To know how to find fact families using addition. To know number bonds within 10. To know how to compare number bonds. To know how to add together, add more and use bonds. To know how to find a part and how many are left. To know how to partition the whole into parts. To know how to find related number facts. To know how to count back and find the difference. To know how to add or subtract one or two.
	Sp2 - Addition & Subtraction (within 20)	To know how to add by counting on. To know how to find and make number bonds. To know doubles and near doubles. To know how to subtract by counting back. To know how to subtract by finding the difference. To know how to subtract ones using number bonds. To know how to find links between related facts. To know how to solve missing number problems.
2	Au2 - Addition & Subtraction	To know how to find fact families using addition and subtraction bonds to 20.

		To know bonds within 20. To know related facts with similar digits. To know how to make number bonds to 100. To know how to add by making 10. To know how to add and subtract ones and tens. To know how to add three 1-digit numbers. To know how to add and subtract crossing 10. To know how to subtract a 1-digit number from a 2-digit number by crossing ten. To know how to find 10 more and 10 less. To know how to compare number sentences. To know how to add a 2-digit and a 1-digit number. To know how to add and subtract two 2-digit numbers. To know how to solve missing number problems. To know how to solve mixed addition and subtraction problems.
3	Au2 - Addition & Subtraction	To know how to add and subtract multiples of 100. To know how to add and subtract 1s and 10s to 3-digit numbers. To know how to add and subtract 3-digit and 1 and 2-digit numbers. To know how and when to exchange 1s, 10s and 100s. To know how to add and subtract 100s. To know how to add and subtract two 2-digit numbers. To know how to add and subtract 3-digit numbers. To know how to exchange across more than one column. To know how to calculate complements to 100. To know how to estimate and check answers. To know how to select an efficient method.
4	Au2 - Addition & Subtraction	To know how to add and subtract 1s, 10s, 100s and 1,000s. To know how to add and subtract two 4-digit numbers using the column method. To know efficient strategies for subtraction. To know how to estimate and check answers.
5	Au 2 - Addition & Subtraction	To know how to use mental strategies for addition and subtraction. To know how to add and subtract numbers with up to 5 digits using the column method. To know how to round numbers to estimate and approximate. To know how to use inverse operations for addition and subtraction. To know how to solve multi-step addition and subtraction problems.

6	Au2 - Four operations	To know how to add and subtract numbers with up to 7 digits using the column method. To know checking strategies for calculations. To know how to reason from known facts. To know how to use inverse operations for addition and subtraction. To know how to solve mental calculations and make estimations.
7		To know how use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.

Multiplication & Division		
YG	Unit	Key Knowledge
N		To know how to make a group. To know that a group can be split into smaller groups through sorting. To know the concept of equal and unequal groups (children know that things can be shared 'fairly' or 'unfairly'). To know how to identify equal and unequal groups (children can say when things have, or have not, been shared 'fairly').
R		To know the concept of even and odd. To know even and odd numbers up to 10. To know the odd, even, odd, even pattern of the counting system. To know doubles of numbers up to double 5. To know how to partition a set of objects into equal groups.
1	Su1 – Multiplication and division	To know how to count in 10s, 5s and 2s. To know how to make and add equal groups. To know how to make arrays. To know how to make doubles. To know how to make equal groups – grouping and sharing. To know how to share amounts equally.
2	Sp2 – Multiplication & Division	To know how to make and add equal groups. To know how to redistribute from unequal to equal groups. To know how to make arrays. To know how to recognise, make and add equal groups. To know how to write multiplication sentences using the x symbol and pictures. To know how to find doubles. To know 2, 5, 10 times table. To know how to make equal groups by sharing and grouping. To know how to divide by 2. To know how to divide by 5 and 10.
3	Au3 - Multiplication & Division A	To know when groups are equal and when they are not. To know how to multiply and divide by 3, 4 and 8. To know the 2-, 3-, 4-, 5-, 10- and 8-times tables.

	Sp1 - Multiplication & Division B	To know multiples of 10. To know how to solve multiplication problems involving multiples of 10. To know how to compare related multiplication and division statements. To know how to multiply 2 digits by 1 digit. To know how to divide 2 digits by 1 digit. To know how to use multiplication to scale. To know how to solve correspondence problems.
4	Au4 - Multiplication & Division A	To know how to multiply and divide by 0 and 1. To know how to multiply and divide by 6, 7, 9. To know how to multiply and divide by 11 and 12. To know how to multiply 3 numbers. To know all multiplication facts to 12 x 12.
	Sp1 - Multiplication & Division B	To know factor pairs. To know how to multiply by and divide by 100 by making links to by 10. To know written methods. To know how to multiply and divide 2-digits by 1 digit using the formal multiplication method. To know how to multiply and divide 3-digits by 1 digit. To know how to solve correspondence problems. To know how to choose efficient multiplication methods.
5	Au3 - Multiplication & Division A	To know and find multiples and factors. To know common factors and common multiples. To know and identify prime numbers. To know how to calculate square and cube numbers. To know how to use inverse operations. To know how to multiply and divide by 10, 100 and 1,000. To know how to multiply and divide by multiples of 10, 100 and 1,000.
	Sp1 - Multiplication & Division B	To know how to multiply a number up to 4 digits by a 1- or 2-digit number using column multiplication. To know how to divide a number up to 4 digits by a 1-digit number. To know how to divide with remainders. To know how to use efficient methods for division and multiplication. To know how to solve problems for division and multiplication.

6	Au2 – Four Operations	To know how to multiply a number up to 4 digits by a 2-digit number. To know common factors and multiples. To know rules for divisibility. To know primes to 100. To know squares and cubes. To know the order of operations. To know how to use short division. To know how to divide using factors. To know how to use long division.
7		To know how use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.

Geometry		
YG	Unit	Key Knowledge
N		To know how to spot patterns in stories and rhymes. To know how to describe patterns they see (such as spotty and stripy). To know how to make predictions about what might happen next, given what has happen. To know how to copy and continue an AB pattern. To know how the names of 2D names (squares, triangles, rectangles, circles). To know how to use the language 'curve', 'straight', 'flat' and 'round'. To know how to make structures using construction blocks. To know and use some positional language such as on, in and under. To know how to talk about a simple, familiar route.
R		To know how to copy, continue and create an AB pattern. To know how to copy, continue and create more complex patterns such an ABC and ABB. To know how to notice an error within a pattern, and correct this. To know how to identify and describe a range of common 2D shapes (squares, triangles, rectangles, circles). To know that 2D shapes can be composed of other 2D shapes. To know how to use the language 'sides' and 'vertices' to describe shapes. To know the names of 3D shapes (sphere, cone, cube, cuboid, cylinder, pyramid). To know how to copy structures from pictures using construction blocks. To know how to describe a simple, familiar route using positional language.
1	Au3 – Shape	To know the names of 3D shapes (sphere, cone, cube, cuboid, cylinder, pyramid). To know how to sort 3D shapes. To know the names of 2D shapes (squares, triangles, rectangles, circles). To know how to sort 2D shapes. To know how to make patterns with 2D and 3D shapes.
	Su3 - Position & Direction	To know how to describe turns. To know how to describe position. To know how to use the words left and right, forwards and backwards, above and below. To know how to use ordinal numbers.

2	Au3 - Shape	To know the names of 2D (squares, triangles, rectangles, circles) and 3D shapes (cubes, cuboids, cylinders, triangular prisms, pyramids - including cones). To know how to count the sides and vertices on 2D shapes (including pentagons and hexagons). To know how to draw 2D shapes. To know what symmetry is. To know how to sort 2D and 3D shapes. To know how to make patterns with 2D and 3D shapes (repeating (ABABAB) and symmetric (ABCBA and ABCCBA)). To know how to count faces, vertices and edges on 3D shapes.
	Su3 – Position & Direction	To know how to describe movement and turns. To know how to make shape patterns with turns.
3	Su4 –-Shape	To know angles are a measure of a turn. To know what right angles are. To know how to identify right angles. To know how to compare angles. To know how to draw lines accurately. To know what parallel and perpendicular lines are. To know how to draw parallel and perpendicular lines. To know what vertical and horizontal lines are. To know how to draw vertical and horizontal lines. To know how to describe 2D shapes. To know how to describe 3D shapes (cube, cuboid, prisms including cylinders, pyramids including cones). To know how to make 3D shapes.
4	Su4 –Shape	To know types of angles. To know how to compare and order angles. To know the names of triangles – scalene, isosceles, equilateral and right-angled. To know how to describe triangles. To know the names of quadrilaterals (trapezium, parallelogram, rhombus). To know how to describe quadrilaterals. To know how to identify lines of symmetry in shapes and patterns.
	Su6 – Position & Direction	To know what the first quadrant is. To know what a coordinate is. To know how to describe position in the first quadrant using co-ordinates. To know how to plot points on a grid. To know how to move points on a grid. To know how to describe movements on a grid.

5	Su1 - Shape	To know how to classify angles. To know how to estimate angles. To know how to measure angles up to 180^{o} using a protractor. To know how to draw lines and angles accurately. To know how to calculate angles on a straight line, around a point. To know how to calculate lengths and angles in shapes. To know what regular and irregular polygons are.
	Su2 - Position & Direction	To know how to identify positions in the first quadrant. To know how to translate shapes on a grid. To know how to translate shapes using coordinates. To know how to reflect shapes in a mirror line. To know how to reflect shapes using co-ordinates.
6	Su2 – Position & Direction	To know what the four quadrants are. To know how to plot and read co-ordinates in all four quadrants. To know how to translate shapes in all 4 quadrants. To know how to reflect shapes in all 4 quadrants.
	Su1 - Shape	To know how to measure angles and draw shapes accurately using a ruler and protractor. To know that vertically opposite angles are the same. To know how to find angles in a triangle. To know how to find missing angles in a triangle. To know how to calculate angles in quadrilaterals and regular polygons. To know how to name parts of a circle (radius, diameter, circumference). To know how to draw nets of 3D shapes.

7		To know how to draw and measure line segments and angles in geometric figures, including interpreting scale drawings. To know how to 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) To know how to recognise and use the perpendicular distance from a point to a line as the shortest distance to the line. To know how to 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. To know how to use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles. To know how to derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies. To know how to identify properties of, and describe the results of, translations, rotations and reflections applied to given figures. To know how to identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids. To know how to apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles. To know how to understand and use the relationship between parallel lines and alternate and corresponding angles. To know how to 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. To know how to 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. To know how to use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles. To know how to use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D. To know how to interpret mathematical relationships both algebraically and geometrically.

Measures		
YG	Unit	Key Knowledge
N		To know language now and next is used to order events. To know when an object is full and empty. To know how to describe objects using language big, small, long, short, heavy and light.
R		To know language today, yesterday and tomorrow. To know the names of the days of the week. To know how to use language full, empty and half full. To know how to compare objects using bigger and smaller; heavier and lighter; longer and shorter.
1	Sp4 - Length & Height	To know how to compare lengths and heights of objects. To know how to use non-standard units to measure objects. To know how to measure with a ruler. To know how to solve addition and subtraction word problems about length and height.
	Sp5 - Mass & Volume	To know how to measure mass using non-standard units and balance scales. To know how to compare mass. To know how to measure capacity using non-standard units. To know how to compare the capacity of objects (using language of full, half-full, empty). To know how to solve simple word problems about weight and volume.
	Su5 - Money	To know the value of coins and notes. To know how to count coins.
	Su6 - Time	To know how to order events using before or after. To know how to solve problems involving the days of the week. To know when to use hours, minutes or seconds to measure a duration. To know how to tell time to the hour and the half hour.
2	Sp1 – Money	To know how to count coins and notes. To know how to compare different amounts of money. To know how to find different ways to make the same amount. To know how to work out the amount of change. To know how to find the total of 2 amounts of money. To know how to find the difference between 2 amounts of money. To know how to solve two-step problems involving money.

	Su3– Length & Height	To know how to measure objects in centimetres and metres. To know how to compare and order lengths. To know how to solve word problems using the 4 operations about length.
	Su2– Time	To know how to tell the time to the hour, the half hour and quarter hour. To know how to tell the time to five minutes. To know that there are 60 minutes in an hour. To know that there are 24 hours in a day.
	Sp4 - Mass, Capacity & Temperature	To know how to compare and measure mass using non-standard units. To know how to measure mass in grams (in increments of 5g up to 100g). To know how to measure mass in kg. To know how to compare and measure volume using non-standard units. To know how to measure volume in ml (in increments of 5ml up to 100ml). To know how to measure volume in l. To know how to read a thermometer with positive values.
3	Su2 – Money	To know how to record money in £ and p. To know how to convert p to £. To know how to add and subtract amounts of money. To know how to find change.
	Sp2 – Length and perimeter	To know how to measure lengths in millimetres, centimetres and metres. To know how to compare lengths. To know how to add and subtract lengths. To know how to measure and calculate perimeter.
	Su3 – Time	To know the Roman Numerals to 12. To know the relationship between hours, days, months and years. To know how to tell the time to the nearest minute. To know how to tell the time using am and pm. To know how to tell the time using 24-hour clock. To know how to find and compare durations. To know how to calculate start and end times. To know how to measure time in seconds. To know how to solve time problems.

	Sp4 – Mass and capacity	To know how to measure mass in kilograms and grams. To know how to compare and order masses. To know how to add and subtract masses. To know how to measure capacity in litres and millilitres. To know how to compare and order capacity. To know how to add and subtract capacities.
4	Au3 - Area	To know the concept of area. To know how to find areas of shapes by counting squares. To know how to draw shapes with different areas. To know how to compare the area of different shapes.
	Sp2– Length and Perimeter	To know how to convert between m and km. To know how to measure perimeter on a grid. To know how to calculate perimeter of a rectangle (including missing lengths). To know how to calculate perimeter of rectilinear shapes. To know how to calculate the perimeter of polygons (including regular polygons).
	Su2 – Money	To know how to write money in pounds and pence, using a decimal point. To know how to order, estimate, add and subtract amounts of money. To know how to solve money problems using the four operations.
	Su3 - Time	To know how to convert between units of time. To know how to convert between analogue and digital times. To know how to convert between 12-hour and 24-hour times.
5	Sp3 – Perimeter & Area	To know how to measure and calculate perimeter of polygons. To know how to find areas of rectangles and compound shapes. To estimate the area of irregular shapes.
	Su5 – Converting Units	To know how to convert between metric units of length, mass and capacity – kg, km, mm, ml. To know how to convert imperial units into metric units. To know how to convert between units of time. To know how to read timetables and understand the information they show.
	Su6 – Volume	To know the concept of volume of a shape. To know how to compare and estimate the volume of different shapes. To know how to estimate the capacity of different shapes.
6	Au5 – Converting units	To know how to read and write all metric measures for length, mass and capacity. To know how to convert and calculate with metric measures. To know how to convert between common imperial and metric measures.

	Sp5 – Perimeter, Area & Volume	To know how to identify and draw rectilinear shapes that have the same area. To know how to calculate the area and perimeter of rectilinear shapes. To know how to calculate the area of triangles and parallelograms. To know how to calculate the volume of cuboids.
7		To know how to use standard units of mass, length, time, money and other measures, including with decimal quantities. To know how to use compound units such as speed, unit pricing and density to solve problems. To know how to 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) To know how to calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes. To know how to change freely between related standard units [for example time, length, area, volume/capacity, mass].

Statistics		
YG	Unit	Key Knowledge
N		
R		
1		
2	Su3 - Statistics	To know how to make tally charts. To know how to draw and interpret pictograms, including intervals of 2, 5 and 10. To know how to use block diagrams. To know how to solve word problems.
3	Su5 - Statistics	To know how to use pictograms, bar charts and tables. To know how to answer questions based on information that is presented in different ways.
4	Su5 - Statistics	To know how to interpret bar charts and pictograms. To know how to solve comparison, sum and difference problems from bar charts and pictograms. To know how to draw and interpret line graphs.
5	Sp5 – Graphs and Tables	To know how to read and interpret line graphs and tables. To know how to draw line graphs. To know how to interpret line graphs to solve problems. To know how to read and interpret two-way tables and timetables.
6	Sp6 - Statistics	To know how to read and interpret line graphs. To know how to draw line graphs and use to solve problems. To know how to read interpret pie charts. To know how to draw pie charts. To know how to calculate the mean.

7		To know how to describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers). To know how to construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data. To know how to describe simple mathematical relationships between 2 variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.

Fractions		
YG	Unit	Key Knowledge
N		
R		To know how to use the language of half in the context of sharing and capacity.
1	Su2 – Fractions	To know how to recognise and find a half of shapes and quantities. To know how to recognise and find a quarter of shapes and quantities.
2	Su2 – Fractions	To know whole and equal parts. To know how to recognise and find a half, a quarter and a third. To know unit and non-unit fractions. To know the equivalence of a half and 2 quarters. To know how to find three quarters. To know how to count in fractions. To know how to solve problems with fractions.
3	Sp3 – Fractions A	To know numerators and denominators. To know how to make a whole. To know how to compare and order non-unit fractions. To know how fractions can be used on a scale. To know how to represent equivalent fractions on a number line and bar model.
	Su1 – Fractions B	To know how to calculate a fractions of a set of objects. To know how to add and subtract fractions within 1 with the same denominator. To know how to partition a whole into fractions with the same denominator.

4	Sp3 – Fractions	To know how to count in fractions beyond 1. To know how to partition mixed numbers. To know how to compare and order mixed numbers. To know how to convert between improper fractions and mixed numbers and visa versa. To know how to identify whether fractions are equivalent. To know how to add and subtract 2 fractions greater than 1 with the same denominator. To know how to subtract from whole amounts.
5	Au4 – Fractions A	To know how to find and use equivalent fractions. To know how to convert between improper fractions and mixed numbers. To know how to compare and order fractions. To know that fractions are divisions. To know how to add and subtract fractions with the same denominator. To know how to add and subtract fractions, including mixed numbers, where one denominator is a multiple of the other. To know how to subtract fractions involving breaking the whole.
	Sp2 – Fractions B	To know how to multiply fractions and mixed numbers by an integer. To know how to find a non-unit fraction of an amount. To know that fractions can be operators. To know how to solve word problems involving fractions.
	Sp5 – Decimals & Percentages	To know decimals as fractions. To know percentages as fractions and as decimals.
6	Au3 – Fractions A	To know how to simplify fractions. To know how to find the difference between fractions on a number line. To know how to compare and order fractions. To know how to add and subtract fractions including mixed numbers. To know how to solve problems involving adding and subtracting fractions.
	Au4 – Fractions B	To know how to multiply any fraction by a whole number or another fraction. To know how to divide a fraction by integers. To know how to solve problems involving all four operations with fractions. To know how to find fractions of an amount – find the whole.

7		To know how to order fractions; use the number line as a model; use the symbols =, ≠, <, >, ≤, ≥ To know how to use the 4 operations, including formal written methods, applied to proper and improper fractions, and mixed numbers, both positive and negative. To know how to work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8) To know how to interpret fractions and percentages as operators. To know how to express 1 quantity as a fraction of another, where the fraction is less than 1 and greater than 1

Decimals		
YG	Unit	Key Knowledge
N		
R		
1		
2		
3		
4	Sp4 - Decimals	To know the concept of tenths and hundredths. To know how to write tenths and hundredths as decimals. To know how to represent tenths and hundredths on a place value grid and number line. To know how to divide 1 and 2 digits by 10 and 100.

	Su1 - Decimals	To know how to make a whole. To know how to write, compare and order decimals. To know how to partition decimals. To know how to round decimals to the nearest whole number. To know how to express halves and quarters as decimals.
5	Sp3 – Decimals & Percentages	To know how to read and write decimals up to three decimal places, including numbers greater than 1. To know how to round decimals to nearest whole number and to one decimal place. To know how to order and compare decimal numbers up to three decimal places. To know how to write percentages as fractions and as decimals. To know how to find equivalent fractions, decimals and percentages.
	Su3 - Decimals	To know how to add and subtract decimals within 1. To know how to find complementary decimals to make 1. To know how to add and subtract decimals with the same number of decimal places. To know how to add and subtract decimals with a different number of decimal places. To know how to add and subtract wholes and decimals. To know to continue decimal sequences. To know how to solve problems involving addition and subtraction of decimals. To know how to multiply and divide decimals and whole numbers by 10, 100 and 1,000.
6	Sp3 – Decimals	To know the value of each digit in a decimal number. To know how to round decimals. To know how to add and subtract decimals. To know how to multiply and divide decimals by 10, 100 and 1,000. To know how to multiply and divide decimals by integers.
7		To know how to understand and use place value for decimals of any size. To know how to order decimals; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ To know how to use the 4 operations, including formal written methods, applied to decimals both positive and negative. To know how to work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8)

Percentages		
YG	Unit	Key Knowledge
N		
R		
1		
2		
3		
4		

5	Sp3 – Decimals & Percentages	To know the concept of percentages. To know how to write percentages as fractions and as decimals. To know how to find fraction, decimals and percentage equivalence.
6	Sp4 – Fractions, Decimals & Percentages	To know how to convert between fractions to percentages. To know how to order fractions, decimals and percentages. To know how to understand fractions as division. To know how to find fraction, decimals and percentage equivalence. To know how to find percentages of amounts. To know how to find percentages missing values.
7		To know how to define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express 1 quantity as a percentage of another, compare 2 quantities using percentages, and work with percentages greater than 100% To know how to interpret fractions and percentages as operators. To know how to solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics.

Algebra		
YG	Unit	Key Knowledge
N		
R		
1		
2		
3		
4		
5		

9	Sp2 – Algebra	To know how to find and write algebraic rules – one and two step. To know how to form algebraic expression. To know how to use algebraic formulae. To know how to form equations. To know how to solve algebraic equations – one and two step. To know how to find pairs of values.
7		To know how to use and interpret algebraic notation, including: ab in place of a × b; 3y in place of y + y + y and 3 × y; a^2 in place of a × a, a^3 in place of a × a × a; a^2b in place of a × a × b a/b in place of a ÷ b; coefficients written as fractions rather than as decimals; brackets. To know how to substitute numerical values into formulae and expressions, including scientific formulae. To know how to understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors. To know how to simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms; multiplying a single term over a bracket; taking out common factors; expanding products of 2 or more binomials To know how to understand and use standard mathematical formulae; rearrange formulae to change the subject. To know how to model situations or procedures by translating them into algebraic expressions or formulae and by using graphs. To know how to use algebraic methods to solve linear equations in 1 variable (including all forms that require rearrangement). To know how to work with coordinates in all 4 quadrants. To know how to recognise, sketch and produce graphs of linear and quadratic functions of 1 variable with appropriate scaling, using equations in x and y and the Cartesian plane. To know how to interpret mathematical relationships both algebraically and graphically. To know how to reduce a given linear equation in 2 variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically To know how to use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate solutions of simultaneous linear equations. To know how to find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs. To know how to generate terms of a sequence from either a term-to-term or a position-to-term rule. To know how to recognise arithmetic sequences and find the nth term. To know how to recognise geometric sequences and appreciate other sequences that arise.

Ratio		
YG	Unit	Key Knowledge
N		
R		
1		
2		

3		
4		
5		
6	Sp1 – Ratio	To know the language of ratios and ratio symbol. To know how to calculate ratios. To know how to use and calculate scale factors. To know how to solve problems involving ratio and proportion.
7		To know how to use scale factors, scale diagrams and maps. To know how to use ratio notation, including reduction to simplest form. To know how to divide a given quantity into 2 parts in a given part:part or part:whole ratio; express the division of a quantity into 2 parts as a ratio. To know how to understand that a multiplicative relationship between 2 quantities can be expressed as a ratio or a fraction. To know how to relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions. To know how to solve problems involving direct and inverse proportion, including graphical and algebraic representations.