Threshold Concepts -

- Know and use numbers
- Add and subtract
- Multiply and divide
- Use fractions
- Understand the properties of shapes
- Describe position, direction and movement
- Use measures
- Use statistics
- Use algebra

Standard 1 Assessment Criteria

	Standard 1 Emerging	Standard 1 Secure	Standard 1 Advanced
Statements Required	7	14	22 (including all bold criteria)
Criteria in bold must be achieved before Advanced level can be awarded.			

Know and Use Number						
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.						
Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens.						
Given a number, identify one more and one less.						
Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.						
Read and write numbers from 1 to 20 in numerals and words.						

Add and Subtract						
Represent and use number bonds and related subtraction facts within 20.						
Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs.						
Add and subtract one-digit and two-digit numbers to 20, including zero.						
Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9.						

Multiply and Divide						
Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.						

Use Fractions						
Recognise, find and name a half as one of two equal parts of an object, shape or quantity.						
Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.						

Use Measures						
Compare, describe and solve practical problems for: • **lengths and heights** [for example, long/short, longer/shorter, tall/short, double/half]; • **mass/weight** [for example, heavy/light, heavier than, lighter than]; • **capacity and volume** [for example, full/empty, more than, less than, half, half full, quarter]; • **time** [for example, quicker, slower, earlier, later].						
Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.						
Measure and begin to record the following: • Length and heights • Mass/weight • Capacity and volume • time (hours, minutes, seconds).						
Recognise and know the value of different denominations of coins and notes.						
Sequence events in chronological order using language *[for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].*						
Recognise and use language relating to dates, including days of the week, weeks, months and years.						

Understand Properties of Shape						
Recognise and name common 2-D and 3-D shapes, including: • **2-D shapes** *[for example, rectangles (including squares), circles and triangles];* • **3-D shapes** *[for example, cuboids (including cubes), pyramids and spheres].*						

Describe Position, Direction and Movement						
Describe position, direction and movement, including whole, half, quarter and three-quarter turns.						

Standard 2 Assessment Criteria

	Standard 2 Emerging	Standard 2 Secure	Standard 2 Advanced
Statements Required	11	23	34 (including all bold criteria)
Criteria in bold must be achieved before Advanced level can be awarded.			

Know and Use Number									
Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.									
Compare and order numbers from 0 up to 100; use <, > and = signs.									
Use place value and number facts to solve problems.									
Recognise the place value of each digit in a two-digit number (tens, ones).									
Identify, represent and estimate numbers using different representations, including the number line.									
Read and write numbers to at least 100 in numerals and in words.									

Add and Subtract									
Solve problems with addition and subtraction: • **Using concrete objects and pictorial representations, including those involving numbers, quantities and measures;** • **Applying their increasing knowledge of mental and written methods.**									
***Recall and use addition and subtraction facts* fluently up to 20.**									
Recall and use addition and subtraction facts – related facts up to 100.									
Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones; • a two-digit number and tens; • two two-digit numbers; • adding three one-digit numbers									
Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.									
Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.									

Multiply and Divide									
Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.									
Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.									
Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.									
Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.									

Use Fractions									
Recognise, find, name and write fractions 1/3, 1/4, 2/4, and 3/4 of a length, shape, set of objects or quantity.									
Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.									

Use Measures									
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.									
Choose and use appropriate standard units to estimate and measure to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels: • length/height in any direction; • mass; • temperature; • capacity									
Compare and order lengths, mass, volume/capacity and record the results using >, < and =.									
Recognise and use symbols for pounds (£) and pence (p)									
Combine amounts to make a particular value.									
Find different combinations of coins that equal the same amounts of money.									
Compare and sequence intervals of time.									
Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.									
Know the number of minutes in an hour and number of hours in a day.									

Understand Properties of Shape									
Identify and describe properties of 2D shapes, including the number of sides and line of symmetry in a vertical line.									
Identify and describe the properties of 3D shapes, including the number of faces, edges and vertices.									
Identify 2D shapes on the surface of 3D shapes.									
Compare and sort common 2D and 3D shapes and everyday objects.									

Describe Position, Direction and Movement									
Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).									
Order and arrange combinations of mathematical objects in patterns and sequences.									

Use Statistics									
Ask and answer questions about totalling and comparing categorical data.									
Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.									
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.									

Standard 3 Assessment Criteria

	Standard 3 Emerging	Standard 3 Secure	Standard 3 Advanced
Statements Required	11	23	34 (including all bold criteria)
Criteria in bold must be achieved before Advanced level can be awarded.			

Know and Use Number								
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.								
Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).								
Solve number problems and practical problems involving these ideas.								
Compare and order numbers up to 1000.								
Identify, represent and estimate numbers using different representations.								
Read and write numbers up to 1000 in numerals and in words.								

Add and Subtract								
Add and subtract numbers mentally, including: • **a three-digit number and ones;** • **a three-digit number and tens;** • **a three-digit number and hundreds.**								
Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.								
Estimate the answer to a calculation and use inverse operations to check answers.								
Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.								

Multiply and Divide								
Recall and use multiplication and division facts for the multiplication tables – 3, 4 and 8.								
Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.								
Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which *n* objects are connected to *m* objects.								

Use Fractions								
Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.								
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.								
Recognise and show, using diagrams, equivalent fractions with small denominators.								
Recognise and use fractions as numbers: unit fractions (numerator of 1) and non-unit fractions with small denominators.								
Add and subtract fractions with the same denominator within one whole *[for example, 5/7 + 1/7 = 6/7].*								
Compare and order unit fractions, and fractions with the same denominators.								
Solve problems that involve all of the above.								

Use Measures								
Measure, compare, add and subtract: • **lengths (m/cm/mm);** • **mass (kg/g);** • **volume/capacity (l/ml).**								
Add and subtract amounts of money to give change, using both £ and p in practical contexts.								
Tell and write the time from an analogue clock and 12-hour and 24-hour clocks								
Measure the perimeter of simple 2-D shapes.								
Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12 and 24 hour clocks.								
Estimate and read time with increasing accuracy to the nearest minute.								
Record and compare time in terms of seconds, minutes and hours.								
Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.								
Know the number of seconds in a minute and the number of days in each month, year and leap year.								
Compare durations of events *[for example to calculate the time taken by particular events or tasks].*								

Understand Properties of Shape								
Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.								
Draw 2-D shapes and make 3-D shapes using modelling materials.								
Recognise 3-D shapes in different orientations and describe them.								
Recognise angles as a property of shape or a description of a turn.								
Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.								

Use Statistics								
Interpret and present data using bar charts, pictograms and tables.								
Solve one-step and two-step questions *[for example, 'How many more?' and 'How many fewer?']* using information presented in scaled bar charts and pictograms and tables.								

Standard 4 Assessment Criteria

	Standard 4 Emerging	Standard 4 Secure	Standard 4 Advanced
Statements Required	12	23	34 (including all bold criteria)
Criteria in bold must be achieved before Advanced level can be awarded.			

Know and Use Number						
Count in multiples of 6, 7, 9, 25 and 1000.						
Count backwards through zero to include negative numbers.						
Order and compare numbers beyond 1000.						
Round any number to the nearest 10, 100 or 1000.						
Find 1000 more or less than a given number.						
Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).						
Identify, represent and estimate numbers using different representations.						
Solve number and practical problems that involve all of the above and with increasingly large positive numbers.						
Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.						

Add and Subtract						
Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.						
Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.						
Estimate and use inverse operations to check answers to a calculation.						

Multiply and Divide						
Recall multiplication and division facts for multiplication tables up to 12 x 12.						
Use place value, known and derived facts to multiply and divide mentally including: • Multiplying by 0 and 1 • Dividing by 1 • Multiplying together 3 numbers.						
Recognise and use factor pairs and commutativity in mental calculations.						
Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.						
Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as *n* objects are connected to *m* objects.						

Use Fractions (Including Decimals)						
Recognise and show, using diagrams, families of common equivalent fractions.						
Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.						
Round decimals with one decimal place to the nearest whole number.						
Solve simple measure and money problems involving fractions and decimals to two decimal places.						
Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.						
Add and subtract fractions with the same denominator.						
Recognise and write decimal equivalents of any number of tenths or hundredths.						
Recognise and write decimal equivalents to 1/4, 1/2, 3/4.						
Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.						
Compare numbers with the same number of decimal places up to two decimal places.						

Use Measures						
Convert between different units of measure *[for example, kilometre to metre; hour to minute]*.						
Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.						
Find the area of rectilinear shapes by counting squares.						
Estimate, compare and calculate different measures, including money in pounds and pence.						
Read, write and convert time between analogue and digital 12- and 24-hour clocks.						
Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.						

Understand Properties of Shape						
Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.						
Identify lines of symmetry in 2-D shapes presented in different orientations.						
Identify acute and obtuse angles and compare and order angles up to two right angles by size.						
Complete a simple symmetric figure with respect to a specific line of symmetry.						

Describe Position, Direction and Movement						
Plot specified points and draw sides to complete a given polygon.						
Describe movements between positions as translations of a given unit to the left/right and up/down.						
Describe positions on a 2-D grid as coordinates in the first quadrant.						

Use Statistics						
Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.						
Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.						

Standard 5 Assessment Criteria

	Standard 5 Emerging	Standard 5 Secure	Standard 5 Advanced
Statements Required	14	28	42 (including all bold criteria)
Criteria in bold must be achieved before Advanced level can be awarded.			

Know and Use Number						
Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.						
Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.						
Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.						
Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.						
Solve number problems and practical problems that involve all of the above.						
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.						

Add and Subtract						
Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).						
Add and subtract numbers mentally with increasingly large numbers *(example, 12 462 – 2300 = 10 162)*						
Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.						
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.						

Multiply and Divide						
Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.						
Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.						
Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.						
Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.						
Establish whether a number up to 100 is prime and recall prime numbers up to 19.						
Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.						
Multiply and divide numbers mentally drawing upon known facts.						
Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.						
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.						
Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).						
Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.						

Use Fractions (including decimals and %)						
Compare and order fractions whose denominators are all multiples of the same number.						
Read and write decimal numbers as fractions *[for example, 0.71 = 71/100]*.						
Read, write, order and compare numbers with up to three decimal places.						
Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.						
Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.						
Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number *[for example, 2/5 + 4/5 = 6/5 = 11/5]*.						
Add and subtract fractions with the same denominator and denominators that are multiples of the same number.						
Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.						
Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.						
Round decimals with two decimal places to the nearest whole number and to one decimal place.						
Solve problems involving number up to three decimal places.						
Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.						

Use Measures						
Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).						
Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres						
Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2).						
Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.						
Estimate the area of irregular shapes.						
Estimate volume *[for example, using 1 cm3 blocks to build cuboids (including cubes)]* and capacity *[for example, using water]*.						
Solve problems involving converting between units of time.						
Use all four operations to solve problems involving measure *[for example, length, mass, volume, money]* using decimal notation, including scaling.						

Understand Properties of Shape						
Draw given angles, and measure them in degrees (0).						
Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.						
Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.						
Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.						
Identify: • angles at a point and one whole turn (total 360); • angles at a point on a straight line and 1/2 a turn (total 180); • other multiples of 90.						
Use the properties of rectangles to deduce related facts and find missing lengths and angles.						

Describe Position, Direction and Movement						
Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.						

Use Statistics						
Complete, read and interpret information in tables, including timetables.						
Solve comparison, sum and difference problems using information presented in a line graph.						

Standard 6 Assessment Criteria

	Standard 6 Emerging	Standard 6 Secure	Standard 6 Advanced
Statements Required	14	27	41 (including all bold criteria)
Criteria in bold must be achieved before Advanced level can be awarded.			

Know and Use Number						
Round any whole number to a required degree of accuracy.						
Use negative numbers in context, and calculate intervals across zero.						
Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.						
Solve number and practical problems that involve all of the above.						

Add, Subtract, Multiply and Divide						
Multiply multi-digit numbers up to 4 digits by a two-digit whole number.						
Divide numbers up to 4 digits by a two-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.						
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.						
Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.						
Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.						
Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.						
Perform mental calculations, including with mixed operations and large numbers.						
Identify common factors, common multiples and prime numbers.						
Use their knowledge of the order of operations to carry out calculations involving the four operations.						
Solve problems involving addition, subtraction, multiplication and division.						

Use Algebra						
Use simple formulae.						
Generate and describe linear number sequences.						
Express missing number problems algebraically.						
Find pairs of numbers that satisfy an equation with two unknowns.						
Enumerate possibilities of combinations of two variables.						

Understand Ratio and Proportion						
Solve problems involving the calculation of percentages *[for example, of measures, and such as 15% of 360]* and the use of percentages for comparison.						
Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.						
Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.						
Solve problems involving similar shapes where the scale factor is known or can be found.						

Use Fractions, Decimals and Percentages						
Use written division methods in cases where the answer has up to two decimal places.						
Solve problems which require answers to be rounded to specified degrees of accuracy.						
Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.						
Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.						
Compare and order fractions, including fractions > 1.						
Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.						
Multiply simple pairs of proper fractions, writing the answer in its simplest form *[for example, 1/4 × 1/2 = 1/8]*.						
Divide proper fractions by whole numbers *[for example, 1/3 ÷ 2 = 1/6]*.						
Associate a fraction with division and calculate decimal fraction equivalents *[for example, 0.375]* for a simple fraction *[for example, 3/8]*.						
Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.						
Multiply one-digit numbers with up to two decimal places by whole numbers.						

Use Measures						
Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.						
Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.						
Convert between miles and kilometres.						
Recognise that shapes with the same areas can have different perimeters and vice versa.						
Recognise when it is possible to use formulae for area and volume of shapes.						
Calculate the area of parallelograms and triangles.						
Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units *[for example, mm3 and km3]*.						

Understand Properties of Shape						
Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.						
Draw 2-D shapes using given dimensions and angles.						
Recognise, describe and build simple 3-D shapes, including making nets.						
Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.						
Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.						

Describe Position, Direction and Movement						
Describe positions on the full coordinate grid (all four quadrants).						
Draw and translate simple shapes on the coordinate plane and reflect them in the axes.						

Use Statistics						
Interpret pie charts and line graphs and use these to solve problems.						
Calculate and interpret the mean as an average.						
Construct pie charts and line graphs.						

School Requirements

What do we want?

Curriculum Drivers

Is it 'doable'?

What is our culture (customs/ behaviours)?

What is our ethos (morals/values?

What is important to us?