Accelerated Maths™

United Kingdom Standards Alignment
Years Two through Nine

Renaissance Learning™

Make Teaching Exciting and Learning Fun™

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Accelerated Maths™

United Kingdom Standards Alignment

Abbreviated Standards List with Aligned Product Skills

The Abbreviated Standards List with Aligned Product Skills Report is a standards-oriented document showing only those standards that align to the product objectives. The subject and grade display on the left side of the report with the aligning product objectives on the right side. This alignment report shows the breadth of standards coverage for the purpose and focus of this product.

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Note to educator:

Thank you for your interest in Renaissance Learning™ technology. The attached document contains the alignment between the software and/or instructional materials and the skills described in your National Curriculum or Strategy documentation.

At Renaissance Learning, we recognize the impact that the standards-based reform movement and high-stakes standardized testing has on schools, and we share the concerns of educators and administrators that pupils perform well on high-stakes assessments.

We hope that this report answers your questions regarding the alignment of Renaissance Learning technology and materials to your curriculum. If you have any questions about the attached document, please feel free to call us at 0800 917 4447.

Sincerely,

Renaissance Sales and Funding Staff

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Abbreviated Standards List with Aligned Product Skills		
Agency Tag Set Name	**Product Name**	
UK, Maths, 1999, Key Stage 1 (Years 1-2), National Curriculum Programmes of Study: Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 2 Standard Library	
Standard	**Topic Description**	**Objective Description**
UK Ma2.1.b - Pupils should be taught to: develop flexible approaches to problem solving and look for ways to overcome difficulties.	**Topic 3** - Solving Problems	**Obj. 82** - Make and test predictions
		Obj. 86 - WP: Solve 1-step addition and subtraction problems
		Obj. 87 - WP: Solve 1-step multiplication and division problems
		Obj. 88 - WP: Solve 2-step addition and subtraction problems
		Obj. 89 - WP: Solve problems in measures
		Obj. 90 - Recognise coins and count money
		Obj. 91 - Use pound and pence notation
		Obj. 92 - WP: Solve problems involving coins
		Obj. 93 - WP: Solve problems involving money and change
UK Ma2.1.c - Pupils should be taught to: make decisions about which operations and problem-solving strategies to use.	**Topic 3** - Solving Problems	**Obj. 78** - Choose the best operation
		Obj. 79 - WP: Choose the best operation
		Obj. 80 - Match a number sentence to a word problem
		Obj. 82 - Make and test predictions
		Obj. 86 - WP: Solve 1-step addition and subtraction problems
		Obj. 87 - WP: Solve 1-step multiplication and division problems
		Obj. 88 - WP: Solve 2-step addition and subtraction problems
		Obj. 89 - WP: Solve problems in measures
		Obj. 90 - Recognise coins and count money
		Obj. 91 - Use pound and pence notation
		Obj. 92 - WP: Solve problems involving coins

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Standard	**Topic Description**	**Objective Description**
		Obj. 93 - WP: Solve problems involving money and change
UK Ma2.1.d - Pupils should be taught to: organise and check their work.	**Topic 2** - Calculations	**Obj. 76** - Check answers by changing the order
		Obj. 77 - Check answers with an equivalent calculation
UK Ma2.1.e - Pupils should be taught to: use the correct language, symbols and vocabulary associated with number and data.	**Topic 1** - Numbers and the Number System	**Obj. 13** - Write words as figures and figures as words (numbers to 20)
		Obj. 14 - Write words as figures and figures as words (numbers from 21 to 100)
		Obj. 16 - Write numbers in usual form, given partitioned form
		Obj. 17 - Write numbers in partitioned form, given usual form
UK Ma2.1.f - Pupils should be taught to: communicate in spoken, pictorial and written form, at first using informal language and recording, then mathematical language and symbols.	**Topic 1** - Numbers and the Number System	**Obj. 13** - Write words as figures and figures as words (numbers to 20)
		Obj. 14 - Write words as figures and figures as words (numbers from 21 to 100)
		Obj. 16 - Write numbers in usual form, given partitioned form
		Obj. 17 - Write numbers in partitioned form, given usual form
UK Ma2.1.h - Pupils should be taught to: understand a general statement and investigate whether particular cases match it.	**Topic 3** - Solving Problems	**Obj. 85** - Find examples to match given statements
UK Ma2.2.a - Pupils should be taught to: count reliably up to 20 objects at first and recognise that if the objects are rearranged the number stays the same; be familiar with the numbers 11 to 20; gradually extend counting to 100 and beyond.	**Topic 1** - Numbers and the Number System	**Obj. 1** - Count objects by grouping
		Obj. 3 - Count on or back in ones

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.b - Pupils should be taught to: create and describe number patterns; explore and record patterns related to addition and subtraction, and then patterns of multiples of 2, 5 and 10 explaining the patterns and using them to make predictions; recognise sequences, including odd and even numbers to 30 then beyond; recognise the relationship between halving and doubling.	**Topic 1** - Numbers and the Number System	**Obj. 2** - Recognise odd and even numbers to 30
		Obj. 3 - Count on or back in ones
		Obj. 4 - Count on or back in tens
		Obj. 5 - Count on or back in fives
		Obj. 6 - Count on or back in hundreds
		Obj. 7 - Count on or back in twos
		Obj. 8 - Count on or back in threes
		Obj. 9 - Count on or back in fours
		Obj. 10 - Recognise pattern rules
		Obj. 11 - Find the missing number in a number pattern
		Obj. 12 - Identify multiples of 2, 5, 10
		Obj. 15 - Relate 2-digit numbers to groups of tens and ones
		Obj. 16 - Write numbers in usual form, given partitioned form
		Obj. 17 - Write numbers in partitioned form, given usual form
	Topic 2 - Calculations	**Obj. 33** - Add by combining sets of objects
		Obj. 34 - Add by counting on a number line
		Obj. 68 - Know multiplication facts for 5s
		Obj. 69 - Know multiplication facts for 1s and 10s

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.c - Pupils should be taught to: read and write numbers to 20 at first and then to 100 or beyond; understand and use the vocabulary of comparing and ordering these numbers; recognise that the position of a digit gives its value and know what each digit represents, including zero as a place-holder; order a set of one- and two-digit numbers and position them on a number line and hundred-square; round any two-digit number to the nearest 10.	**Topic 1** - Numbers and the Number System	**Obj. 13** - Write words as figures and figures as words (numbers to 20)
		Obj. 14 - Write words as figures and figures as words (numbers from 21 to 100)
		Obj. 15 - Relate 2-digit numbers to groups of tens and ones
		Obj. 16 - Write numbers in usual form, given partitioned form
		Obj. 17 - Write numbers in partitioned form, given usual form
		Obj. 18 - Compare numbers to 100
		Obj. 20 - Identify numbers which lie between two given numbers
		Obj. 21 - Find the number halfway between two given numbers
		Obj. 22 - Find 1 more/1 less than a number
		Obj. 23 - Find 10 more/10 less than a number
		Obj. 24 - Order whole numbers up to 100
		Obj. 25 - Position whole numbers up to 100 on a number line
		Obj. 26 - Identify whole numbers up to 100 on a number square
		Obj. 27 - Round 2-digit numbers to the nearest 10

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.a - Pupils should be taught to: understand addition and use related vocabulary; recognise that addition can be done in any order; understand subtraction as both 'take away' and 'difference' and use the related vocabulary; recognise that subtraction is the inverse of addition; give the subtraction corresponding to an addition and vice versa; use the symbol '=' to represent equality; solve simple missing number problems [for example, 6 = 2 + __].	**Topic 2** - Calculations	**Obj. 31** - Apply the vocabulary of addition and subtraction
		Obj. 32 - Apply the commutative law of addition
		Obj. 33 - Add by combining sets of objects
		Obj. 34 - Add by counting on a number line
		Obj. 35 - Recognise subtraction as take-away
		Obj. 36 - Subtract by finding the difference
		Obj. 38 - Add 3 whole numbers (1-digit)
		Obj. 39 - Add 3 whole numbers (2-digits) with an apparatus
		Obj. 40 - Recognise addition and subtraction as opposites
UK Ma2.3.b - Pupils should be taught to: understand multiplication as repeated addition; understand that halving is the inverse of doubling and find one half and one quarter of shapes and small numbers of objects; begin to understand division as grouping (repeated subtraction); use vocabulary associated with multiplication and division.	**Topic 1** - Numbers and the Number System	**Obj. 28** - Find 1/2 and 1/4 of a set of objects
		Obj. 29 - Find 1/2 and 1/4 of a shape
	Topic 2 - Calculations	**Obj. 63** - Relate multiplication to repeated addition
		Obj. 65 - Divide by grouping
		Obj. 66 - Divide by sharing

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.c - Pupils should be taught to: develop rapid recall of number facts: know addition and subtraction facts to 10 and use these to derive facts with totals to 20, know multiplication facts for the x2 and x10 multiplication tables and derive corresponding division facts, know doubles of numbers to 10 and halves of even numbers to 20.	**Topic 2** - Calculations	**Obj. 41** - Know addition facts to 20
		Obj. 42 - Know subtraction facts to 20
		Obj. 44 - Find addition and subtraction pairs that total up to 20
		Obj. 47 - Add or subtract 9 or 11
		Obj. 67 - Know multiplication facts for 2s
		Obj. 70 - Know division facts for 1s and 10s
		Obj. 71 - Know division facts for 2s
		Obj. 72 - Find doubles and halves to 15
UK Ma2.3.d - Pupils should be taught to: develop a range of mental methods for finding, from known facts, those that they cannot recall, including adding 10 to any single-digit number, then adding and subtracting a multiple of 10 to or from a two-digit number; develop a variety of methods for adding and subtracting, including making use of the facts that addition can be done in any order and that subtraction is the inverse of addition.	**Topic 1** - Numbers and the Number System	**Obj. 4** - Count on or back in tens
	Topic 2 - Calculations	**Obj. 38** - Add 3 whole numbers (1-digit)
		Obj. 45 - Find differences by counting up
		Obj. 46 - Add near doubles using doubles
		Obj. 47 - Add or subtract 9 or 11
		Obj. 48 - Add or subtract 19 or 21
		Obj. 49 - Use patterns to add or subtract

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Standard	**Topic Description**	**Objective Description**
		Obj. 50 - Add multiples of 10 up to 90
		Obj. 51 - Subtract multiples of 10 up to 90
		Obj. 52 - Add 2-digit multiple of 10 to 1-digit whole
		Obj. 53 - Subtract 1-digit whole from 2-digit multiple of 10
		Obj. 54 - Add 2-digit whole to 1-digit whole, no regroup
		Obj. 55 - Subtract 1-digit whole from 2-digit whole, no regroup
		Obj. 56 - Add 3-digit multiple of 100 to 1-digit whole
		Obj. 57 - Add 2-digit multiple of 10 to 2-digit whole, no regroup
		Obj. 58 - Subtract 2-digit multiple of 10 from 2-digit whole, no regroup
		Obj. 61 - Add teens number to 1-digit whole, regroup
		Obj. 62 - Subtract 1-digit whole from twenties number, regroup
		Obj. 76 - Check answers by changing the order
UK Ma2.3.e - Pupils should be taught to: carry out simple calculations of the form 40 + 30 = __, 40 + __ = 100, 56 - __ = 10; record calculations in a number sentence, using the symbols +, -, x, ÷ and = correctly [for example, 7 + 2 = 9].	**Topic 2** - Calculations	**Obj. 75** - Relate word form to multiplication and division
	Topic 3 - Solving Problems	**Obj. 78** - Choose the best operation
		Obj. 80 - Match a number sentence to a word problem
UK Ma2.4.a - Pupils should be taught to: choose sensible calculation methods to solve whole-number problems (including problems involving money or measures), drawing on their understanding of the operations.	**Topic 3** - Solving Problems	**Obj. 78** - Choose the best operation
		Obj. 79 - WP: Choose the best operation
		Obj. 89 - WP: Solve problems in measures

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Standard	**Topic Description**	**Objective Description**
		Obj. 90 - Recognise coins and count money
		Obj. 91 - Use pound and pence notation
		Obj. 92 - WP: Solve problems involving coins
		Obj. 93 - WP: Solve problems involving money and change
UK Ma2.5.a - Pupils should be taught to: solve a relevant problem by using simple lists, tables and charts to sort, classify and organise information.	**Topic 3** - Solving Problems	**Obj. 83** - Make a list to solve a problem
	Topic 5 - Handling Data	**Obj. 113** - Use tables to solve problems
UK Ma3.1.b - Pupils should be taught to: select and use appropriate mathematical equipment when solving problems involving measures or measurement.	**Topic 4** - Measures, Shape and Space	**Obj. 96** - Choose the best equipment for measuring
		Obj. 97 - Read scales
		Obj. 98 - Read a centimetre ruler
		Obj. 101 - Identify correct time: hour and half hour
		Obj. 102 - Identify correct time: quarter hour
UK Ma3.1.d - Pupils should be taught to: use the correct language and vocabulary for shape, space and measures.	**Topic 4** - Measures, Shape and Space	**Obj. 95** - Choose the best unit of metric measure
		Obj. 98 - Read a centimetre ruler
		Obj. 99 - Relate units of time
		Obj. 105 - Identify names of 2-D and 3-D shapes
		Obj. 106 - Identify and count sides and corners in 2-D shapes
		Obj. 107 - Identify faces of 3-D shapes
UK Ma3.1.e - Pupils should be taught to: recognise simple spatial patterns and relationships and make predictions about them.	**Topic 3** - Solving Problems	**Obj. 81** - Recognise and continue a pattern
		Obj. 84 - Use patterns to solve problems

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Standard	**Topic Description**	**Objective Description**
UK Ma3.2.b - Pupils should be taught to: observe, handle and describe common 2-D and 3-D shapes; name and describe the mathematical features of common 2-D and 3-D shapes, including triangles of various kinds, rectangles including squares, circles, cubes, cuboids, then hexagons, pentagons, cylinders, pyramids, cones and spheres.	**Topic 4** - Measures, Shape and Space	**Obj. 105** - Identify names of 2-D and 3-D shapes
		Obj. 107 - Identify faces of 3-D shapes
UK Ma3.2.d - Pupils should be taught to: recognise reflective symmetry in familiar 2-D shapes and patterns.	**Topic 4** - Measures, Shape and Space	**Obj. 108** - Identify lines of symmetry and reflect parts of shapes
UK Ma3.3.a - Pupils should be taught to: observe, visualise and describe positions, directions and movements using common words.	**Topic 4** - Measures, Shape and Space	**Obj. 109** - Use the vocabulary of position
		Obj. 110 - Recognise quarter, half and full turns
		Obj. 111 - Give and read directions
UK Ma3.3.b - Pupils should be taught to: recognise movements in a straight line (translations) and rotations, and combine them in simple ways [for example, give instructions to get to the headteacher's office or for rotating a programmable toy].	**Topic 4** - Measures, Shape and Space	**Obj. 110** - Recognise quarter, half and full turns
		Obj. 111 - Give and read directions
UK Ma3.3.c - Pupils should be taught to: recognise right angles.	**Topic 4** - Measures, Shape and Space	**Obj. 112** - Identify right angles

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.a - Pupils should be taught to: estimate the size of objects and order them by direct comparison using appropriate language; put familiar events in chronological order; compare and measure objects using uniform non-standard units [for example, a straw, wooden cubes], then with a standard unit of length (cm, m), weight (kg), capacity (l) [for example, 'longer or shorter than a metre rule', 'three-and-a-bit litre jugs']; compare the durations of events using a standard unit of time.	**Topic 4** - Measures, Shape and Space	**Obj. 94** - Use the vocabulary of measurement
		Obj. 95 - Choose the best unit of metric measure
		Obj. 100 - Order months of the year
		Obj. 103 - Relate times of day to activities
		Obj. 104 - Know approximate time to complete a task
UK Ma3.4.c - Pupils should be taught to: estimate, measure and weigh objects; choose and use simple measuring instruments, reading and interpreting numbers, and scales to the nearest labelled division.	**Topic 4** - Measures, Shape and Space	**Obj. 97** - Read scales
		Obj. 98 - Read a centimetre ruler

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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 3 Standard Library	
Standard	**Topic Description**	**Objective Description**
UK Ma2.1.i - Pupils should be taught to: communicate mathematically, including the use of precise mathematical language.	**Topic 1** - Numbers and the number system	**Obj. 14** - Identify ordinal numbers to 100th
UK Ma2.1.j - Pupils should be taught to: understand and investigate general statements [for example, 'there are four prime numbers less than 10', 'wrist size is half neck size'].	**Topic 3** - Solving problems	**Obj. 76** - Find examples to match given statements
UK Ma2.1.k - Pupils should be taught to: search for pattern in their results; develop logical thinking and explain their reasoning.	**Topic 3** - Solving problems	**Obj. 75** - Use patterns to solve problems
UK Ma2.2.a - Pupils should be taught to: count on and back in tens or hundreds from any two- or three-digit number; recognise and continue number sequences formed by counting on or back in steps of constant size from any integer, extending to negative integers when counting back.	**Topic 1** - Numbers and the number system	**Obj. 1** - Count by grouping
		Obj. 2 - Count on or back in tens
		Obj. 3 - Count on or back in hundreds
		Obj. 4 - Count on or back in twos
		Obj. 5 - Count on in steps of 3, 4 or 5
UK Ma2.2b - Pupils should be taught to: recognise and describe number patterns, including two- and three-digit multiples of 2, 5 or 10, recognising their patterns and using these to make predictions; make general statements, using words to describe a functional relationship, and test these; recognise prime numbers to 20 and square numbers up to 10 x 10; find factor pairs and all the prime factors of any two-digit integer.	**Topic 1** - Numbers and the number system	**Obj. 6** - Identify odd and even numbers to 100
		Obj. 7 - Recognise multiples

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.c - Pupils should be taught to: read, write and order whole numbers, recognising that the position of a digit gives its value; use correctly the symbols <, >, =; multiply and divide any integer by 10 or 100 then extend to multiplying and dividing by 1000; round integers to the nearest 10 or 100 and then 1000; order a set of negative integers, explaining methods and reasoning; multiply and divide decimals by 10 or 100.	**Topic 1** - Numbers and the number system	**Obj. 8** - Write words as figures and figures as words (numbers to 1000)
		Obj. 9 - Write words as figures and figures as words (numbers greater than 1000)
		Obj. 10 - Write numbers in partitioned form, given usual form
		Obj. 11 - Write numbers in usual form, given partitioned form
		Obj. 12 - Count with number blocks
		Obj. 13 - Identify place value in 2- to 4-digit whole numbers
		Obj. 15 - Compare whole numbers
		Obj. 16 - Identify numbers which lie between two given numbers
		Obj. 17 - Find 1 more/1 less than a number
		Obj. 18 - Find 10 more/10 less than a number
		Obj. 19 - Find 100 more/100 less than a number
		Obj. 20 - Order whole numbers
		Obj. 21 - Position whole numbers to 100 on a number line
		Obj. 22 - Round 2-digit numbers to nearest 10, 3-digit numbers to nearest 100
	Topic 2 - Calculations	**Obj. 62** - Multiply by 10
		Obj. 66 - Multiply by 10 or 100

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UK Ma2.2.d - Pupils should be taught to: understand unit fractions [for example, one-third or one-eigth] then fractions that are several parts of one whole [for example, two-thirds or five-eigths], locate them on a number line and use them to find fractions of shapes and quantities.	**Topic 1** - Numbers and the number system	**Obj. 23** - Name unit fractions of shapes and sets
		Obj. 24 - Model and name fractions as part of a whole
		Obj. 25 - Model and name fractions as part of a set
		Obj. 26 - Recognise fractions on a number line
		Obj. 29 - Estimate fractions
UK Ma2.2.e - Pupils should be taught to: understand simple equivalent fractions and simplify fractions by cancelling common factors; compare and order simple fractions by converting them to fractions with a common denominator, explaining their methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 27** - Compare simple fractions
		Obj. 28 - Recognise equivalent fractions
UK Ma2.2.g - Pupils should be taught to: recognise approximate proportions of a whole and use simple fractions and percentages to describe them, explaining their methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 23** - Name unit fractions of shapes and sets
		Obj. 24 - Model and name fractions as part of a whole
		Obj. 29 - Estimate fractions

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.i - Pupils should be taught to: understand and use decimal notation for tenths and hundredths in context [for example, order amounts of money, round a sum of money to the nearest pound, convert a length such as 1.36 metres to centimetres and vice versa]; locate on a number line, and order, a set of numbers or measurements; then recognise thousandths (only in metric measurements).	**Topic 3** - Solving problems	**Obj. 81** - Count money
		Obj. 83 - Use pound and pence notation
	Topic 4 - Measures, shape and space	**Obj. 84** - Convert length: cm, m, and km
		Obj. 86 - Convert capacity: ml and litre
		Obj. 87 - Convert mass: g and kg
		Obj. 89 - Measure metric length with a ruler
UK Ma2.2.j - Pupils should be taught to: round a number with one or two decimal places to the nearest integer or tenth; convert between centimetres and millimetres or metres, then between millimetres and metres, and metres and kilometres, explaining methods and reasoning.	**Topic 4** - Measures, shape and space	**Obj. 84** - Convert length: cm, m, and km
UK Ma2.3.a - Pupils should be taught to: develop further their understanding of the four number operations and the relationships between them including inverses; use the related vocabulary; choose suitable number operations to solve a given problem, and recognise similar problems to which they apply.	**Topic 2** - Calculations	**Obj. 32** - Know addition can be done in any order
		Obj. 33 - Apply the vocabulary of addition and subtraction
		Obj. 34 - Add 1-digit numbers mentally
		Obj. 37 - Recognise addition and subtraction as opposites

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Standard	**Topic Description**	**Objective Description**
		Obj. 38 - Determine corresponding addition and subtraction facts
		Obj. 67 - Check with an inverse operation
	Topic 3 - Solving problems	**Obj. 70** - WP: Choose the best operation
		Obj. 71 - WP: Add and subtract whole numbers
		Obj. 72 - WP: Multiply and divide whole numbers
		Obj. 73 - Choose the best operation
UK Ma2.3.b - Pupils should be taught to: find remainders after division, then express a quotient as a fraction or decimal; round up or down after division, depending on the context.	**Topic 2** - Calculations	**Obj. 58** - Divide a whole by a 1-digit whole, remainders
		Obj. 59 - Round up or down after division
UK Ma2.3.c - Pupils should be taught to: understand the use of brackets to determine the order of operations; understand why the commutative, associative and distributive laws apply to addition and multiplication and how they can be used to do mental and written calculations more efficiently.	**Topic 2** - Calculations	**Obj. 54** - Multiply in any order
		Obj. 68 - Check answers by changing order or using other calculation
UK Ma2.3.d - Pupils should be taught to: recall all addition and subtraction facts for each number to 20.	**Topic 2** - Calculations	**Obj. 30** - Know addition facts
		Obj. 31 - Know subtraction facts

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.e - Pupils should be taught to: work out what they need to add to any two-digit number to make 100, then add or subtract any pair of two-digit whole numbers; handle particular cases of three-digit and four-digit additions and subtractions by using compensation or other methods [for example, 3000 - 1997, 4560 + 998].	**Topic 2** - Calculations	**Obj. 32** - Know addition can be done in any order
		Obj. 39 - Find number pairs that total 100 or 1000
		Obj. 40 - Add and subtract multiples of 10 and 100
		Obj. 41 - Use doubles to add and subtract
		Obj. 42 - Add 2 whole numbers, no regroup (1-3 digits)
		Obj. 43 - WP: Add whole numbers, no regroup (1-2 digits)
		Obj. 44 - Add 2 whole numbers, regroup (2-3 digits)
		Obj. 45 - WP: Add 2 whole numbers, regroup (2-3 digits)
		Obj. 47 - Subtract whole numbers, no regroup (2-3 digits)
		Obj. 48 - WP: Subtract whole numbers, no regroup (1-3 digits)
		Obj. 49 - Subtract whole numbers, regroup (2-3 digits)
		Obj. 50 - WP: Subtract whole numbers, regroup (1-3 digits)
UK Ma2.3.f - Pupils should be taught to: recall multiplication facts to 10 x 10 and use them to derive quickly the corresponding division facts.	**Topic 2** - Calculations	**Obj. 57** - Determine corresponding multiplication and division facts
		Obj. 60 - Multiply by 2
		Obj. 61 - Multiply by 5
		Obj. 62 - Multiply by 10
		Obj. 63 - Multiply by 3
		Obj. 64 - Multiply by 4
UK Ma2.3.g - Pupils should be taught to: double and halve any two-digit number.	**Topic 2** - Calculations	**Obj. 65** - Find doubles and halves

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.h - Pupils should be taught to: multiply and divide, at first in the range 1 to 100 [for example, 27 x 3, 65 divided by 5], then for particular cases of larger numbers by using factors, distribution or other methods.	**Topic 2** - Calculations	**Obj. 51** - Relate multiplication to repeated addition
		Obj. 52 - Use arrays to model multiplication
		Obj. 53 - Use multiplication to solve scaling problems
		Obj. 54 - Multiply in any order
		Obj. 55 - Divide by sharing
		Obj. 56 - Divide by grouping
		Obj. 57 - Determine corresponding multiplication and division facts
		Obj. 58 - Divide a whole by a 1-digit whole, remainders
		Obj. 66 - Multiply by 10 or 100
UK Ma2.3.i - Pupils should be taught to: use written methods to add and subtract positive integers less than 1000, then up to 10000, then add and subtract numbers involving decimals; use approximations and other strategies to check that their answers are reasonable.	**Topic 2** - Calculations	**Obj. 30** - Know addition facts
		Obj. 31 - Know subtraction facts
		Obj. 32 - Know addition can be done in any order
		Obj. 35 - Add 3-4 whole numbers, no regroup
		Obj. 36 - Add 3-4 whole numbers, regroup
		Obj. 37 - Recognise addition and subtraction as opposites
		Obj. 38 - Determine corresponding addition and subtraction facts
		Obj. 42 - Add 2 whole numbers, no regroup (1-3 digits)
		Obj. 43 - WP: Add whole numbers, no regroup (1-2 digits)
		Obj. 44 - Add 2 whole numbers, regroup (2-3 digits)
		Obj. 45 - WP: Add 2 whole numbers, regroup (2-3 digits)

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Standard	**Topic Description**	**Objective Description**
		Obj. 46 - WP: Add 3 whole numbers, regroup (1-3 digits)
		Obj. 47 - Subtract whole numbers, no regroup (2-3 digits)
		Obj. 49 - Subtract whole numbers, regroup (2-3 digits)
		Obj. 50 - WP: Subtract whole numbers, regroup (1-3 digits)
		Obj. 66 - Multiply by 10 or 100
		Obj. 68 - Check answers by changing order or using other calculation
UK Ma2.3.j - Pupils should be taught to: use written methods for short multiplication and division by a single-digit integer of two-digit then three-digit then four-digit integers, then of numbers with decimals; then use long multiplication, at first for two-digit by two-digit integer calculations, then for three-digit by two-digit calculations; extend division to informal methods of dividing by a two-digit divisor [for example, 64 divided by 16]; use approximations and other strategies to check that their answers are reasonable.	**Topic 2** - Calculations	**Obj. 54** - Multiply in any order
		Obj. 58 - Divide a whole by a 1-digit whole, remainders
		Obj. 67 - Check with an inverse operation
UK Ma2.4.a - Pupils should be taught to: choose, use and combine any of the four number operations to solve word problems involving numbers in 'real life', money or measures of length, mass, capacity or time, then perimeter and area.	**Topic 3** - Solving problems	**Obj. 70** - WP: Choose the best operation
		Obj. 71 - WP: Add and subtract whole numbers
		Obj. 72 - WP: Multiply and divide whole numbers
		Obj. 78 - WP: Solve problems with metric units

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Standard	**Topic Description**	**Objective Description**
		Obj. 79 - WP: Add decimal money expressions
		Obj. 80 - WP: Subtract decimal money expressions
		Obj. 82 - Figure change
UK Ma2.4.b - Pupils should be taught to: choose and use an appropriate way to calculate and explain their methods and reasoning.	**Topic 3** - Solving problems	**Obj. 74** - Make and test predictions
		Obj. 77 - Write an equation to solve problems
UK Ma2.4.c - Pupils should be taught to: estimate answers by approximating and checking that their results are reasonable by thinking about the context of the problem, and where necessary checking accuracy [for example, by using the inverse operation, by repeating the calculation in a different order].	**Topic 2** - Calculations	**Obj. 67** - Check with an inverse operation
		Obj. 68 - Check answers by changing order or using other calculation
		Obj. 69 - Check answers with an equivalent calculation
UK Ma2.4.e - Pupils should be taught to: read and plot coordinates in the first quadrant, then in all four quadrants [for example, plot the vertices of a rectangle, or a graph of the multiples of 3].	**Topic 4** - Measures, shape and space	**Obj. 101** - Use ordered pairs to ID location in a coordinate plane
UK Ma3.1.a - Pupils should be taught to: recognise the need for standard units of measurement.	**Topic 4** - Measures, shape and space	**Obj. 85** - Use the vocabulary of measurement
		Obj. 88 - Recognise appropriate metric units
UK Ma3.1.c - Pupils should be taught to: approach spatial problems flexibly, including trying alternative approaches to overcome difficulties.	**Topic 4** - Measures, shape and space	**Obj. 102** - Use compass directions
		Obj. 103 - Recognise quarter and half turns

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Standard	**Topic Description**	**Objective Description**
UK Ma3.1.f - Pupils should be taught to: use geometrical notation and symbols correctly.	**Topic 4** - Measures, shape and space	**Obj. 100** - Identify lines of symmetry
		Obj. 101 - Use ordered pairs to ID location in a coordinate plane
UK Ma3.2.a - Pupils should be taught to: recognise right angles, perpendicular and parallel lines; know that angles are measured in degrees and that one whole turn is 360 degrees and angles at a point total 360 degrees, then recognise that angles at a point on a straight line total 180 degrees; know that the sum of the angles of a triangle is 180 degrees.	**Topic 4** - Measures, shape and space	**Obj. 104** - Classify angles
UK Ma3.2.b - Pupils should be taught to: visualise and describe 2-D and 3-D shapes and the way they behave, making more precise use of geometrical language, especially that of triangles, quadrilaterals, and prisms and pyramids of various kinds; recognise when shapes are identical.	**Topic 4** - Measures, shape and space	**Obj. 95** - Identify three-dimensional figures
		Obj. 96 - Identify polygons
		Obj. 97 - Count faces, edges, vertices
		Obj. 99 - Identify simple components of composite shapes
UK Ma3.2.c - Pupils should be taught to: make and draw with increasing accuracy 2-D and 3-D shapes and patterns; recognise reflective symmetry in regular polygons; recognise their geometrical features and properties including angles, faces, pairs of parallel lines and symmetry, and use these to classify shapes and solve problems.	**Topic 4** - Measures, shape and space	**Obj. 96** - Identify polygons
		Obj. 97 - Count faces, edges, vertices
		Obj. 98 - Identify faces of solids
		Obj. 100 - Identify lines of symmetry

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Standard	**Topic Description**	**Objective Description**
UK Ma3.2.d - Pupils should be taught to: visualise 3-D shapes from 2-D drawings.	**Topic 4** - Measures, shape and space	**Obj. 95** - Identify three-dimensional figures
		Obj. 98 - Identify faces of solids
		Obj. 99 - Identify simple components of composite shapes
UK Ma3.3.a - Pupils should be taught to: visualise and describe movements using appropriate language.	**Topic 4** - Measures, shape and space	**Obj. 102** - Use compass directions
		Obj. 103 - Recognise quarter and half turns
UK Ma3.3.b - Pupils should be taught to: transform objects in practical situations; transform images using ICT; visualise and predict the position of a shape following a rotation, reflection or translation.	**Topic 4** - Measures, shape and space	**Obj. 103** - Recognise quarter and half turns
UK Ma3.3.c - Pupils should be taught to: identify and draw 2-D shapes in different orientations on grids; locate and draw shapes using coordinates in the first quadrant, then in all four quadrants [for example, use coordinates to locate position in a computer game].	**Topic 4** - Measures, shape and space	**Obj. 101** - Use ordered pairs to ID location in a coordinate plane
UK Ma3.4.a - Pupils should be taught to: recognise the need for standard units of length, mass and capacity, choose which ones are suitable for a task, and use them to make sensible estimates in everyday situations; convert one metric unit to another [for example, convert 3.17kg to 3170g]; know the rough metric equivalents of imperial units still in daily use.	**Topic 4** - Measures, shape and space	**Obj. 84** - Convert length: cm, m, and km
		Obj. 85 - Use the vocabulary of measurement
		Obj. 86 - Convert capacity: ml and litre
		Obj. 87 - Convert mass: g and kg
		Obj. 88 - Recognise appropriate metric units

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.b - Pupils should be taught to: recognise that measurement is approximate; choose and use suitable measuring instruments for a task; interpret numbers and read scales with increasing accuracy; record measurements using decimal notation.	**Topic 4** - Measures, shape and space	**Obj. 89** - Measure metric length with a ruler
		Obj. 90 - Measure metric mass
UK Ma3.4.c - Pupils should be taught to: recognise angles as greater or less than a right angle or half-turn, estimate their size and order them; measure and draw acute, obtuse and right angles to the nearest degree.	**Topic 4** - Measures, shape and space	**Obj. 104** - Classify angles
UK Ma3.4.d - Pupils should be taught to: read the time from analogue and digital 12- and 24-hour clocks; use units of time - seconds, minutes, hours, days, weeks - and know the relationship between them.	**Topic 4** - Measures, shape and space	**Obj. 91** - Identify correct time: hour and minute
		Obj. 92 - Identify correct time: quarter to, quarter, and half past
		Obj. 93 - Use a calendar
		Obj. 94 - Relate units of time
UK Ma4.1.d - Pupils should be taught to: select and use appropriate calculation skills to solve problems involving data.	**Topic 5** - Handling data	**Obj. 106** - Interpret pictograms
		Obj. 110 - Read tally charts
UK Ma4.2.a - Pupils should be taught to: solve problems involving data.	**Topic 5** - Handling data	**Obj. 105** - WP: Make a table
UK Ma4.2.b - Pupils should be taught to: interpret tables, lists and charts used in everyday life; construct and interpret frequency tables, including tables for grouped discrete data.	**Topic 5** - Handling data	**Obj. 105** - WP: Make a table
		Obj. 110 - Read tally charts

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Standard	**Topic Description**	**Objective Description**
UK Ma4.2.c - Pupils should be taught to: represent and interpret discrete data using graphs and diagrams, including pictograms, bar charts and line graphs, then interpret a wider range of graphs and diagrams, using ICT where appropriate.	**Topic 5** - Handling data	**Obj. 106** - Interpret pictograms
		Obj. 107 - Read bar charts
		Obj. 108 - Read Venn diagrams
		Obj. 109 - Read Carroll diagrams
		Obj. 110 - Read tally charts

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Standard	**Topic Description**	**Objective Description**
UK Ma2.1.a - Pupils should be taught to: make connections in mathematics and appreciate the need to use numerical skills and knowledge when solving problems in other parts of the mathematics curriculum.	**Topic 3** - Solving problems	**Obj. 67** - Predict, generalise and use patterns to solve problems
UK Ma2.1.b - Pupils should be taught to: break down a more complex problem or calculation into simpler steps before attempting a solution; identify the information needed to carry out the tasks.	**Topic 3** - Solving problems	**Obj. 86** - WP (Two-Step): Whole numbers
		Obj. 87 - WP: Find missing information to solve problems
		Obj. 88 - WP: Solve word problems with too much information
UK Ma2.1.i - Pupils should be taught to: communicate mathematically, including the use of precise mathematical language.	**Topic 1** - Numbers and the number system	**Obj. 2** - Write numbers in usual form, given partitioned form
		Obj. 3 - Write numbers in partitioned form, given usual form
		Obj. 4 - Write words as figures (numbers to 10 000)
		Obj. 5 - Write figures as words (numbers to 10 000)
UK Ma2.2.a - Pupils should be taught to: count on and back in tens or hundreds from any two- or three-digit number; recognise and continue number sequences formed by counting on or back in steps of constant size from any integer, extending to negative integers when counting back.	**Topic 1** - Numbers and the number system	**Obj. 6** - Find 1 more/1 less than a number (3-4 digits)
		Obj. 7 - Find 10 more/10 less than a number (3-4 digits)
		Obj. 8 - Find 100 more/100 less than a number (3-4 digits)
		Obj. 9 - Count on and back in ones, tens, hundreds or thousands
		Obj. 18 - Find the missing number in a number pattern

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Standard	**Topic Description**	**Objective Description**
		Obj. 19 - Count on and back with integers
UK Ma2.2b - Pupils should be taught to: recognise and describe number patterns, including two- and three-digit multiples of 2, 5 or 10, recognising their patterns and using these to make predictions; make general statements, using words to describe a functional relationship, and test these; recognise prime numbers to 20 and square numbers up to 10 x 10; find factor pairs and all the prime factors of any two-digit integer.	**Topic 1** - Numbers and the number system	**Obj. 18** - Find the missing number in a number pattern
		Obj. 19 - Count on and back with integers
		Obj. 20 - Recognise odd and even numbers
		Obj. 21 - Recognise properties of odd and even numbers
		Obj. 22 - Find multiples of a given number
	Topic 3 - Solving problems	**Obj. 68** - Recognise, state and explain pattern rules
		Obj. 70 - Identify an example that satisfies a generalisation
UK Ma2.2.c - Pupils should be taught to: read, write and order whole numbers, recognising that the position of a digit gives its value; use correctly the symbols <, >, =; multiply and divide any integer by 10 or 100 then extend to multiplying and dividing by 1000; round integers to the nearest 10 or 100 and then 1000; order a set of negative integers, explaining methods and reasoning; multiply and divide decimals by 10 or 100.	**Topic 1** - Numbers and the number system	**Obj. 1** - Identify place value in 4-digit whole numbers
		Obj. 2 - Write numbers in usual form, given partitioned form
		Obj. 3 - Write numbers in partitioned form, given usual form
		Obj. 4 - Write words as figures (numbers to 10 000)

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Standard	**Topic Description**	**Objective Description**
		Obj. 5 - Write figures as words (numbers to 10 000)
		Obj. 10 - Multiply 2- and 3-digit numbers by 10
		Obj. 11 - Divide multiples of 10, 100 or 1000 by 10
		Obj. 12 - Compare 2-, 3- or 4-digit whole numbers
		Obj. 13 - Order 3- or 4-digit whole numbers
		Obj. 14 - Identify numbers between two given numbers (2-4 digits)
		Obj. 15 - Round 2- through 4-digit numbers to nearest 10 or 100
		Obj. 16 - Understand negative number concepts
UK Ma2.2.d - Pupils should be taught to: understand unit fractions [for example, one-third or one-eigth] then fractions that are several parts of one whole [for example, two-thirds or five-eigths], locate them on a number line and use them to find fractions of shapes and quantities.	**Topic 1** - Numbers and the number system	**Obj. 24** - Represent fractions as part of a whole
		Obj. 25 - Represent fractions as part of a set
UK Ma2.2.e - Pupils should be taught to: understand simple equivalent fractions and simplify fractions by cancelling common factors; compare and order simple fractions by converting them to fractions with a common denominator, explaining their methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 27** - Compare and order fractions
UK Ma2.2.f - Pupils should be taught to: recognise the equivalence between the decimal and fraction forms of one half, quarters, tenths and hundredths; understand that 'percentage' means the 'number of parts per 100' and that it can be used for comparisons; find percentages of whole number quantities, using a calculator where appropriate.	**Topic 1** - Numbers and the number system	**Obj. 35** - Find fraction and decimal equivalents

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.h - Pupils should be taught to: solve simple problems involving ratio and direct proportion.	**Topic 1** - Numbers and the number system	**Obj. 29** - Use ratio and proportion
UK Ma2.2.i - Pupils should be taught to: understand and use decimal notation for tenths and hundredths in context [for example, order amounts of money, round a sum of money to the nearest pound, convert a length such as 1.36 metres to centimetres and vice versa]; locate on a number line, and order, a set of numbers or measurements; then recognise thousandths (only in metric measurements).	**Topic 1** - Numbers and the number system	**Obj. 30** - Name a decimal from a pictorial representation
		Obj. 31 - Identify place value in decimals
		Obj. 32 - Write decimals in words
		Obj. 33 - Order decimals
		Obj. 34 - Convert between pound and pence notation
UK Ma2.3.a - Pupils should be taught to: develop further their understanding of the four number operations and the relationships between them including inverses; use the related vocabulary; choose suitable number operations to solve a given problem, and recognise similar problems to which they apply.	**Topic 2** - Calculations	**Obj. 38** - Practise addition and subtraction facts
		Obj. 39 - Add multiples of 10 and 100
		Obj. 40 - Subtract multiples of 10 and 100
		Obj. 41 - Find number pairs that total 100
		Obj. 42 - Find number pairs that total 1000
		Obj. 43 - Add 2 whole numbers, no regroup (2-3 digits)
		Obj. 44 - Add 3 whole numbers, no regroup (1-3 digits)
		Obj. 45 - Add 2 whole numbers, regroup (2-3 digits)

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Standard	**Topic Description**	**Objective Description**
		Obj. 46 - Add 3 or more whole numbers (2-3 digits)
		Obj. 59 - Relate multiplication to division and addition
		Obj. 60 - Check answers using inverse operation
	Topic 3 - Solving problems	**Obj. 66** - Choose the best operation to solve a problem
		Obj. 67 - Predict, generalise and use patterns to solve problems
UK Ma2.3.b - Pupils should be taught to: find remainders after division, then express a quotient as a fraction or decimal; round up or down after division, depending on the context.	**Topic 2** - Calculations	**Obj. 58** - Divide a 2-digit whole by a 1-digit whole, remainder
UK Ma2.3.c - Pupils should be taught to: understand the use of brackets to determine the order of operations; understand why the commutative, associative and distributive laws apply to addition and multiplication and how they can be used to do mental and written calculations more efficiently.	**Topic 2** - Calculations	**Obj. 37** - Use properties of addition
		Obj. 51 - Use properties of multiplication
UK Ma2.3.d - Pupils should be taught to: recall all addition and subtraction facts for each number to 20.	**Topic 2** - Calculations	**Obj. 38** - Practise addition and subtraction facts
UK Ma2.3.e - Pupils should be taught to: work out what they need to add to any two-digit number to make 100, then add or subtract any pair of two-digit whole numbers; handle particular cases of three-digit and four-digit additions and subtractions by using compensation or other methods [for example, 3000 - 1997, 4560 + 998].	**Topic 2** - Calculations	**Obj. 41** - Find number pairs that total 100
		Obj. 42 - Find number pairs that total 1000
		Obj. 43 - Add 2 whole numbers, no regroup (2-3 digits)

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Standard	**Topic Description**	**Objective Description**
		Obj. 44 - Add 3 whole numbers, no regroup (1-3 digits)
		Obj. 45 - Add 2 whole numbers, regroup (2-3 digits)
		Obj. 48 - Subtract whole numbers, no regroup (2-3 digits)
		Obj. 49 - Subtract whole numbers (2-3 digits)
UK Ma2.3.f - Pupils should be taught to: recall multiplication facts to 10 x 10 and use them to derive quickly the corresponding division facts.	**Topic 2** - Calculations	**Obj. 52** - Know multiplication facts from 6s to 9s
		Obj. 53 - Know division facts
UK Ma2.3.g - Pupils should be taught to: double and halve any two-digit number.	**Topic 2** - Calculations	**Obj. 54** - Find doubles and halves
UK Ma2.3.h - Pupils should be taught to: multiply and divide, at first in the range 1 to 100 [for example, 27 x 3, 65 divided by 5], then for particular cases of larger numbers by using factors, distribution or other methods.	**Topic 2** - Calculations	**Obj. 55** - Multiply a 2-digit whole by a 1-digit whole
		Obj. 56 - Divide a 2-digit whole by a 1-digit whole, no remainder
UK Ma2.3.i - Pupils should be taught to: use written methods to add and subtract positive integers less than 1000, then up to 10000, then add and subtract numbers involving decimals; use approximations and other strategies to check that their answers are reasonable.	**Topic 2** - Calculations	**Obj. 37** - Use properties of addition
		Obj. 43 - Add 2 whole numbers, no regroup (2-3 digits)
		Obj. 44 - Add 3 whole numbers, no regroup (1-3 digits)
		Obj. 45 - Add 2 whole numbers, regroup (2-3 digits)
		Obj. 46 - Add 3 or more whole numbers (2-3 digits)
		Obj. 47 - Add money expressions
		Obj. 48 - Subtract whole numbers, no regroup (2-3 digits)

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Standard	**Topic Description**	**Objective Description**
		Obj. 49 - Subtract whole numbers (2-3 digits)
		Obj. 50 - Subtract money expressions
		Obj. 61 - Check answers with equivalent calculation
		Obj. 62 - Approximate whole sums, round to the nearest 10 or 100
		Obj. 63 - Approximate whole differences by rounding
		Obj. 65 - Approximate sums and differences of money expressions
UK Ma2.3.j - Pupils should be taught to: use written methods for short multiplication and division by a single-digit integer of two-digit then three-digit then four-digit integers, then of numbers with decimals; then use long multiplication, at first for two-digit by two-digit integer calculations, then for three-digit by two-digit calculations; extend division to informal methods of dividing by a two-digit divisor [for example, 64 divided by 16]; use approximations and other strategies to check that their answers are reasonable.	**Topic 2** - Calculations	**Obj. 55** - Multiply a 2-digit whole by a 1-digit whole
		Obj. 56 - Divide a 2-digit whole by a 1-digit whole, no remainder
		Obj. 57 - Divide a 3-digit whole by a 1-digit whole, no remainder
		Obj. 58 - Divide a 2-digit whole by a 1-digit whole, remainder
		Obj. 60 - Check answers using inverse operation
		Obj. 64 - Approximate products and quotients by rounding
UK Ma2.4.a - Pupils should be taught to: choose, use and combine any of the four number operations to solve word problems involving numbers in 'real life', money or measures of length, mass, capacity or time, then perimeter and area.	**Topic 3** - Solving problems	**Obj. 66** - Choose the best operation to solve a problem

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Standard	**Topic Description**	**Objective Description**
		Obj. 67 - Predict, generalise and use patterns to solve problems
		Obj. 73 - WP: Add 2 whole numbers, no regroup (2-4 digits)
		Obj. 74 - WP: Add 2 whole numbers, regroup (2-4 digits)
		Obj. 75 - WP: Add 3 whole numbers (1-3 digits)
		Obj. 76 - WP: Add money expressions
		Obj. 77 - WP: Subtract whole numbers, no regroup (2-3 digits)
		Obj. 78 - WP: Subtract whole numbers (2-3 digits)
		Obj. 79 - WP: Subtract money expressions
		Obj. 80 - WP: Multiply a whole number by a 1-digit whole number
		Obj. 81 - WP: Divide with basic facts
		Obj. 82 - WP: Divide a whole number by a 1-digit whole number
		Obj. 83 - WP: Round up or down after division
		Obj. 84 - Count money and figure change
		Obj. 85 - WP: Solve problems involving money and change
		Obj. 86 - WP (Two-Step): Whole numbers
		Obj. 90 - Calculate the elapse of time
	Topic 4 - Measures, shape and space	**Obj. 100** - WP: Find perimeter
		Obj. 101 - Find perimeter of simple shapes
UK Ma2.4.c - Pupils should be taught to: estimate answers by approximating and checking that their results are reasonable by thinking about the context of the problem, and where necessary checking accuracy [for example, by using the inverse operation, by repeating the calculation in a different order].	**Topic 3** - Solving problems	**Obj. 71** - WP: Approximate whole sums and differences, round

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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 4 Standard Library	
Standard	**Topic Description**	**Objective Description**
		Obj. 72 - WP: Approximate whole products and quotients
		Obj. 89 - WP: Approximate sums & differences of money expressions
UK Ma2.4.e - Pupils should be taught to: read and plot coordinates in the first quadrant, then in all four quadrants [for example, plot the vertices of a rectangle, or a graph of the multiples of 3].	**Topic 4** - Measures, shape and space	**Obj. 113** - Plot and identify first quadrant coordinate points
UK Ma3.2.a - Pupils should be taught to: recognise right angles, perpendicular and parallel lines; know that angles are measured in degrees and that one whole turn is 360 degrees and angles at a point total 360 degrees, then recognise that angles at a point on a straight line total 180 degrees; know that the sum of the angles of a triangle is 180 degrees.	**Topic 4** - Measures, shape and space	**Obj. 115** - Explore angle measure
		Obj. 116 - Associate degrees with turns on a circle
UK Ma3.2.b - Pupils should be taught to: visualise and describe 2-D and 3-D shapes and the way they behave, making more precise use of geometrical language, especially that of triangles, quadrilaterals, and prisms and pyramids of various kinds; recognise when shapes are identical.	**Topic 4** - Measures, shape and space	**Obj. 106** - Identify polygons
		Obj. 107 - Use the vocabulary of polygons
		Obj. 109 - Identify faces, edges and vertices in solid shapes

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Standard	**Topic Description**	**Objective Description**
UK Ma3.2.c - Pupils should be taught to: make and draw with increasing accuracy 2-D and 3-D shapes and patterns; recognise reflective symmetry in regular polygons; recognise their geometrical features and properties including angles, faces, pairs of parallel lines and symmetry, and use these to classify shapes and solve problems.	**Topic 4** - Measures, shape and space	**Obj. 106** - Identify polygons
		Obj. 108 - Identify 3-D shapes
		Obj. 109 - Identify faces, edges and vertices in solid shapes
		Obj. 110 - Classify triangles and quadrilaterals
		Obj. 112 - Understand reflections and lines of symmetry
UK Ma3.2.d - Pupils should be taught to: visualise 3-D shapes from 2-D drawings.	**Topic 4** - Measures, shape and space	**Obj. 111** - Identify simple nets of 3-D shapes
UK Ma3.4.a - Pupils should be taught to: recognise the need for standard units of length, mass and capacity, choose which ones are suitable for a task, and use them to make sensible estimates in everyday situations; convert one metric unit to another [for example, convert 3.17kg to 3170g]; know the rough metric equivalents of imperial units still in daily use.	**Topic 4** - Measures, shape and space	**Obj. 91** - Use the vocabulary of measurement
		Obj. 92 - Convert metric measures
		Obj. 93 - Choose best unit of metric measure
UK Ma3.4.b - Pupils should be taught to: recognise that measurement is approximate; choose and use suitable measuring instruments for a task; interpret numbers and read scales with increasing accuracy; record measurements using decimal notation.	**Topic 4** - Measures, shape and space	**Obj. 94** - Measure metric length
		Obj. 95 - Measure metric mass
		Obj. 96 - Measure metric capacity

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.c - Pupils should be taught to: recognise angles as greater or less than a right angle or half-turn, estimate their size and order them; measure and draw acute, obtuse and right angles to the nearest degree.	**Topic 4** - Measures, shape and space	**Obj. 115** - Explore angle measure
UK Ma3.4.d - Pupils should be taught to: read the time from analogue and digital 12- and 24-hour clocks; use units of time - seconds, minutes, hours, days, weeks - and know the relationship between them.	**Topic 4** - Measures, shape and space	**Obj. 102** - Identify correct time: hour and minute
		Obj. 103 - Identify correct time: quarter to, quarter or half past
		Obj. 104 - Determine calendar dates
		Obj. 105 - Read timetables
UK Ma3.4.e - Pupils should be taught to: find perimeters of simple shapes; find areas of rectangles using the formula, understanding its connection to counting squares and how it extends this approach; calculate the perimeter and area of shapes composed of rectangles.	**Topic 4** - Measures, shape and space	**Obj. 97** - Find the perimeter of a rectangle using diagrams
		Obj. 98 - Find the perimeter of a rectangle
		Obj. 100 - WP: Find perimeter
		Obj. 101 - Find perimeter of simple shapes
UK Ma4.1.d - Pupils should be taught to: select and use appropriate calculation skills to solve problems involving data.	**Topic 4** - Measures, shape and space	**Obj. 105** - Read timetables
UK Ma4.2.b - Pupils should be taught to: interpret tables, lists and charts used in everyday life; construct and interpret frequency tables, including tables for grouped discrete data.	**Topic 4** - Measures, shape and space	**Obj. 105** - Read timetables
	Topic 5 - Handling Data	**Obj. 118** - Read frequency tables
		Obj. 119 - Interpret pictograms
		Obj. 120 - Read bar charts
		Obj. 121 - Use tables/charts to solve problems

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Standard	**Topic Description**	**Objective Description**
		Obj. 122 - Match charts to survey data
UK Ma4.2.c - Pupils should be taught to: represent and interpret discrete data using graphs and diagrams, including pictograms, bar charts and line graphs, then interpret a wider range of graphs and diagrams, using ICT where appropriate.	**Topic 5** - Handling Data	**Obj. 119** - Interpret pictograms
		Obj. 120 - Read bar charts
		Obj. 121 - Use tables/charts to solve problems
		Obj. 123 - Use diagrams to sort data
UK Ma4.2.f - Pupils should be taught to: draw conclusions from statistics and graphs and recognise when information is presented in a misleading way; explore doubt and certainty and develop an understanding of probability through classroom situations; discuss events using a vocabulary that includes the words 'equally likely', 'fair', 'unfair', 'certain'.	**Topic 5** - Handling Data	**Obj. 122** - Match charts to survey data

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Standard	**Topic Description**	**Objective Description**
UK Ma2.1.b - Pupils should be taught to: break down a more complex problem or calculation into simpler steps before attempting a solution; identify the information needed to carry out the tasks.	**Topic 3** - Solving problems	**Obj. 83** - WP: Solve multi-step problems with whole numbers
UK Ma2.1.i - Pupils should be taught to: communicate mathematically, including the use of precise mathematical language.	**Topic 1** - Numbers and the number system	**Obj. 1** - Write figures as words (numbers to 1 000 000 000)
		Obj. 2 - Write words as figures (numbers to 1 000 000 000)
		Obj. 3 - Identify place value in 6- or 9-digit whole numbers
	Topic 3 - Solving problems	**Obj. 75** - Identify examples supporting mathematical facts
UK Ma2.1.j - Pupils should be taught to: understand and investigate general statements [for example, 'there are four prime numbers less than 10', 'wrist size is half neck size'].	**Topic 3** - Solving problems	**Obj. 75** - Identify examples supporting mathematical facts
UK Ma2.2.a - Pupils should be taught to: count on and back in tens or hundreds from any two- or three-digit number; recognise and continue number sequences formed by counting on or back in steps of constant size from any integer, extending to negative integers when counting back.	**Topic 1** - Numbers and the number system	**Obj. 16** - Count on and back with whole numbers
UK Ma2.2b - Pupils should be taught to: recognise and describe number patterns, including two- and three-digit multiples of 2, 5 or 10, recognising their patterns and using these to make predictions; make general statements, using words to describe a functional relationship, and test these; recognise prime numbers to 20 and square numbers up to 10 x 10; find factor pairs and all the prime factors of any two-digit integer.	**Topic 1** - Numbers and the number system	**Obj. 18** - Recognise properties of odd and even numbers
		Obj. 20 - Find multiples of a given number

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Standard	**Topic Description**	**Objective Description**
		Obj. 21 - Find the squares of numbers
		Obj. 22 - Find factors of numbers
	Topic 3 - Solving problems	**Obj. 74** - Use patterns to solve problems
		Obj. 76 - Recognise, state and explain pattern rules
UK Ma2.2.c - Pupils should be taught to: read, write and order whole numbers, recognising that the position of a digit gives its value; use correctly the symbols <, >, =; multiply and divide any integer by 10 or 100 then extend to multiplying and dividing by 1000; round integers to the nearest 10 or 100 and then 1000; order a set of negative integers, explaining methods and reasoning; multiply and divide decimals by 10 or 100.	**Topic 1** - Numbers and the number system	**Obj. 6** - Compare 3- through 7-digit whole numbers
		Obj. 7 - Order 5- or 6-digit whole numbers
		Obj. 8 - Round 2- through 4-digit numbers to the nearest 10
		Obj. 9 - Round 3- and 4-digit numbers to the nearest 100
		Obj. 10 - Round 4-digit numbers to the nearest 1000
		Obj. 11 - Identify integers between two given integers (1-2 digits)
		Obj. 12 - Identify integers on the number line
UK Ma2.2.d - Pupils should be taught to: understand unit fractions [for example, one-third or one-eigth] then fractions that are several parts of one whole [for example, two-thirds or five-eigths], locate them on a number line and use them to find fractions of shapes and quantities.	**Topic 1** - Numbers and the number system	**Obj. 26** - Position fractions on a number line
		Obj. 28 - Find fractions of quantities

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.e - Pupils should be taught to: understand simple equivalent fractions and simplify fractions by cancelling common factors; compare and order simple fractions by converting them to fractions with a common denominator, explaining their methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 24** - Find equivalent fractions
		Obj. 25 - Compare and order fractions
UK Ma2.2.f - Pupils should be taught to: recognise the equivalence between the decimal and fraction forms of one half, quarters, tenths and hundredths; understand that 'percentage' means the 'number of parts per 100' and that it can be used for comparisons; find percentages of whole number quantities, using a calculator where appropriate.	**Topic 1** - Numbers and the number system	**Obj. 37** - Convert fractions to decimals
		Obj. 39 - Express fractions as percentages
		Obj. 40 - Find a percentage of a number
	Topic 3 - Solving problems	**Obj. 86** - WP: Solve problems with percentage discounts
UK Ma2.2.g - Pupils should be taught to: recognise approximate proportions of a whole and use simple fractions and percentages to describe them, explaining their methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 38** - Use diagrams to express percentages
UK Ma2.2.h - Pupils should be taught to: solve simple problems involving ratio and direct proportion.	**Topic 1** - Numbers and the number system	**Obj. 30** - Solve ratio and proportion problems

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.i - Pupils should be taught to: understand and use decimal notation for tenths and hundredths in context [for example, order amounts of money, round a sum of money to the nearest pound, convert a length such as 1.36 metres to centimetres and vice versa]; locate on a number line, and order, a set of numbers or measurements; then recognise thousandths (only in metric measurements).	**Topic 1** - Numbers and the number system	**Obj. 31** - Identify place value in decimals
		Obj. 32 - Write decimal words as figures
		Obj. 33 - Order decimals
		Obj. 34 - Convert between metric units
		Obj. 36 - Round decimals to whole numbers
	Topic 3 - Solving problems	**Obj. 87** - WP: Convert between currencies
		Obj. 88 - WP: Convert between units of measure
UK Ma2.2.j - Pupils should be taught to: round a number with one or two decimal places to the nearest integer or tenth; convert between centimetres and millimetres or metres, then between millimetres and metres, and metres and kilometres, explaining methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 36** - Round decimals to whole numbers
UK Ma2.3.a - Pupils should be taught to: develop further their understanding of the four number operations and the relationships between them including inverses; use the related vocabulary; choose suitable number operations to solve a given problem, and recognise similar problems to which they apply.	**Topic 2** - Calculations	**Obj. 60** - Use inverse relationships for multiplication and division
		Obj. 61 - Understand relationship between multiplication and division

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.b - Pupils should be taught to: find remainders after division, then express a quotient as a fraction or decimal; round up or down after division, depending on the context.	**Topic 2** - Calculations	**Obj. 52** - Represent quotients as fractions
	Topic 3 - Solving problems	**Obj. 82** - WP: Round up or down after division
UK Ma2.3.c - Pupils should be taught to: understand the use of brackets to determine the order of operations; understand why the commutative, associative and distributive laws apply to addition and multiplication and how they can be used to do mental and written calculations more efficiently.	**Topic 2** - Calculations	**Obj. 50** - Know the commutative, associative, and distributive laws
		Obj. 51 - Evaluate calculations with brackets
		Obj. 57 - Rearrange factors to simplify multiplication
		Obj. 59 - Use the distributive law to partition calculations
UK Ma2.3.e - Pupils should be taught to: work out what they need to add to any two-digit number to make 100, then add or subtract any pair of two-digit whole numbers; handle particular cases of three-digit and four-digit additions and subtractions by using compensation or other methods [for example, 3000 - 1997, 4560 + 998].	**Topic 2** - Calculations	**Obj. 41** - Find number pairs that total 100 or 1000
		Obj. 43 - Add 2 whole numbers (3-4 digits)
		Obj. 44 - Add 3 whole numbers (1-4 digits)
		Obj. 45 - Add money expressions
		Obj. 46 - Subtract whole numbers (3-4 digits)
		Obj. 47 - Subtract money expressions
		Obj. 48 - Add same place decimals to 100ths

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Standard	**Topic Description**	**Objective Description**
		Obj. 49 - Subtract same place decimals to 100ths
	Topic 3 - Solving problems	**Obj. 77** - WP: Add and subtract whole numbers (2-4 digits)
		Obj. 78 - WP: Add and subtract decimals
UK Ma2.3.f - Pupils should be taught to: recall multiplication facts to 10 x 10 and use them to derive quickly the corresponding division facts.	**Topic 2** - Calculations	**Obj. 53** - Know multiplication facts from 6s to 9s
		Obj. 54 - Know division facts
UK Ma2.3.g - Pupils should be taught to: double and halve any two-digit number.	**Topic 2** - Calculations	**Obj. 55** - Find products using doubles and halves facts
		Obj. 56 - Find products using doubles and halves of multiples of 10
UK Ma2.3.h - Pupils should be taught to: multiply and divide, at first in the range 1 to 100 [for example, 27 x 3, 65 divided by 5], then for particular cases of larger numbers by using factors, distribution or other methods.	**Topic 1** - Numbers and the number system	**Obj. 4** - Multiply 2-, 3- and 4-digit numbers by 10 or 100
		Obj. 5 - Divide 3- and 4-digit numbers by 10 or 100
		Obj. 19 - Know the tests of divisibility
	Topic 2 - Calculations	**Obj. 55** - Find products using doubles and halves facts
		Obj. 56 - Find products using doubles and halves of multiples of 10
		Obj. 58 - Multiply using closely related facts
		Obj. 62 - Multiply multiples of 10 and 100 using basic facts
UK Ma2.3.i - Pupils should be taught to: use written methods to add and subtract positive integers less than 1000, then up to 10000, then add and subtract numbers involving decimals; use approximations and other strategies to check that their answers are reasonable.	**Topic 1** - Numbers and the number system	**Obj. 35** - Calculate using decimal and mixed metric units

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Standard	**Topic Description**	**Objective Description**
	Topic 2 - Calculations	**Obj. 42** - Find decimal number pairs that total 1 or 10
		Obj. 70 - Check answers with equivalent calculation
		Obj. 71 - Approximate sums, differences and quotients by rounding
UK Ma2.3.j - Pupils should be taught to: use written methods for short multiplication and division by a single-digit integer of two-digit then three-digit then four-digit integers, then of numbers with decimals; then use long multiplication, at first for two-digit by two-digit integer calculations, then for three-digit by two-digit calculations; extend division to informal methods of dividing by a two-digit divisor [for example, 64 divided by 16]; use approximations and other strategies to check that their answers are reasonable.	**Topic 1** - Numbers and the number system	**Obj. 4** - Multiply 2-, 3- and 4-digit numbers by 10 or 100
		Obj. 5 - Divide 3- and 4-digit numbers by 10 or 100
	Topic 2 - Calculations	**Obj. 62** - Multiply multiples of 10 and 100 using basic facts
		Obj. 63 - Approximate whole number products by rounding (1-3 digits)
		Obj. 64 - Approximate whole number quotients by rounding
		Obj. 65 - Multiply a 2-digit whole by a 2-digit whole
		Obj. 66 - Multiply a 3-digit whole by a 1-digit whole
		Obj. 67 - Divide whole numbers, remainders as decimals
		Obj. 68 - Divide 3-digit whole by a 1-digit whole, remainder
		Obj. 70 - Check answers with equivalent calculation
		Obj. 71 - Approximate sums, differences and quotients by rounding

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.k - Pupils should be taught to: use a calculator for calculations involving several digits, including decimals; use a calculator to solve number problems [for example, 4__ x 7= 343]; know how to enter and interpret money calculations and fractions; know how to select the correct key sequence for calculations with more than one operation [for example, 56 x (87 - 48)].	**Topic 2** - Calculations	**Obj. 69** - Use a calculator to solve maths problems
UK Ma2.4.a - Pupils should be taught to: choose, use and combine any of the four number operations to solve word problems involving numbers in 'real life', money or measures of length, mass, capacity or time, then perimeter and area.	**Topic 1** - Numbers and the number system	**Obj. 14** - Determine temperature change on a thermometer
	Topic 3 - Solving problems	**Obj. 72** - Choose the best operation to solve a problem
		Obj. 73 - Solve non-routine problems
		Obj. 77 - WP: Add and subtract whole numbers (2-4 digits)
		Obj. 78 - WP: Add and subtract decimals
		Obj. 79 - WP: Multiply a 3-digit whole by a 1-digit whole
		Obj. 80 - WP: Multiply a 2-digit whole by a 1- or 2-digit whole
		Obj. 81 - WP: Divide whole numbers
		Obj. 82 - WP: Round up or down after division
		Obj. 83 - WP: Solve multi-step problems with whole numbers
		Obj. 84 - WP: Solve problems involving money and change
		Obj. 86 - WP: Solve problems with percentage discounts
		Obj. 87 - WP: Convert between currencies
		Obj. 88 - WP: Convert between units of measure

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Standard	**Topic Description**	**Objective Description**
		Obj. 89 - WP: Calculate the elapse of time
	Topic 4 - Measures, shape and space	**Obj. 100** - Find the area of a rectangle
		Obj. 101 - Find the perimeter of a rectangle
		Obj. 102 - Find the perimeter of regular polygons
		Obj. 103 - Convert 12-hour clock to 24-hour clock notation
UK Ma2.4.b - Pupils should be taught to: choose and use an appropriate way to calculate and explain their methods and reasoning.	**Topic 3** - Solving problems	**Obj. 73** - Solve non-routine problems
UK Ma2.4.c - Pupils should be taught to: estimate answers by approximating and checking that their results are reasonable by thinking about the context of the problem, and where necessary checking accuracy [for example, by using the inverse operation, by repeating the calculation in a different order].	**Topic 2** - Calculations	**Obj. 57** - Rearrange factors to simplify multiplication
		Obj. 60 - Use inverse relationships for multiplication and division
UK Ma3.1.f - Pupils should be taught to: use geometrical notation and symbols correctly.	**Topic 4** - Measures, shape and space	**Obj. 90** - Identify abbreviations of metric units
UK Ma3.2.a - Pupils should be taught to: recognise right angles, perpendicular and parallel lines; know that angles are measured in degrees and that one whole turn is 360 degrees and angles at a point total 360 degrees, then recognise that angles at a point on a straight line total 180 degrees; know that the sum of the angles of a triangle is 180 degrees.	**Topic 4** - Measures, shape and space	**Obj. 116** - Identify parallel or perpendicular lines
		Obj. 119 - Calculate angles in a straight line

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Standard	**Topic Description**	**Objective Description**
UK Ma3.2.c - Pupils should be taught to: make and draw with increasing accuracy 2-D and 3-D shapes and patterns; recognise reflective symmetry in regular polygons; recognise their geometrical features and properties including angles, faces, pairs of parallel lines and symmetry, and use these to classify shapes and solve problems.	**Topic 4** - Measures, shape and space	**Obj. 105** - Classify 3-D shapes
		Obj. 106 - Identify number of faces, edges and vertices of 3-D shapes
		Obj. 107 - Classify triangles by angles and sides
		Obj. 110 - Identify and draw lines of symmetry
UK Ma3.2.d - Pupils should be taught to: visualise 3-D shapes from 2-D drawings.	**Topic 4** - Measures, shape and space	**Obj. 108** - Identify nets of open cubes
		Obj. 109 - Interpret drawings of shapes made with cubes
UK Ma3.3.b - Pupils should be taught to: transform objects in practical situations; transform images using ICT; visualise and predict the position of a shape following a rotation, reflection or translation.	**Topic 4** - Measures, shape and space	**Obj. 111** - Find reflections over lines of symmetry
		Obj. 113 - Identify translations in the first quadrant
UK Ma3.3.c - Pupils should be taught to: identify and draw 2-D shapes in different orientations on grids; locate and draw shapes using coordinates in the first quadrant, then in all four quadrants [for example, use coordinates to locate position in a computer game].	**Topic 4** - Measures, shape and space	**Obj. 113** - Identify translations in the first quadrant
		Obj. 115 - Plot shapes in the first quadrant

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.a - Pupils should be taught to: recognise the need for standard units of length, mass and capacity, choose which ones are suitable for a task, and use them to make sensible estimates in everyday situations; convert one metric unit to another [for example, convert 3.17kg to 3170g]; know the rough metric equivalents of imperial units still in daily use.	**Topic 3** - Solving problems	**Obj. 88** - WP: Convert between units of measure
	Topic 4 - Measures, shape and space	**Obj. 91** - Convert metric units of length
		Obj. 92 - Convert metric units of mass
		Obj. 93 - Convert metric units of capacity
		Obj. 94 - Choose the best metric unit of length
		Obj. 95 - Choose the best metric unit of capacity
		Obj. 96 - Choose the best metric unit of mass
		Obj. 99 - Round measurements to nearest whole unit
UK Ma3.4.b - Pupils should be taught to: recognise that measurement is approximate; choose and use suitable measuring instruments for a task; interpret numbers and read scales with increasing accuracy; record measurements using decimal notation.	**Topic 1** - Numbers and the number system	**Obj. 13** - Read thermometers
	Topic 4 - Measures, shape and space	**Obj. 97** - Measure metric length
		Obj. 98 - Read measuring scales between numbered divisions
UK Ma3.4.c - Pupils should be taught to: recognise angles as greater or less than a right angle or half-turn, estimate their size and order them; measure and draw acute, obtuse and right angles to the nearest degree.	**Topic 4** - Measures, shape and space	**Obj. 117** - Classify angles
		Obj. 118 - Measure angles

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.d - Pupils should be taught to: read the time from analogue and digital 12- and 24-hour clocks; use units of time - seconds, minutes, hours, days, weeks - and know the relationship between them.	**Topic 4** - Measures, shape and space	**Obj. 103** - Convert 12-hour clock to 24-hour clock notation
UK Ma3.4.e - Pupils should be taught to: find perimeters of simple shapes; find areas of rectangles using the formula, understanding its connection to counting squares and how it extends this approach; calculate the perimeter and area of shapes composed of rectangles.	**Topic 4** - Measures, shape and space	**Obj. 100** - Find the area of a rectangle
		Obj. 101 - Find the perimeter of a rectangle
		Obj. 102 - Find the perimeter of regular polygons
UK Ma4.2.b - Pupils should be taught to: interpret tables, lists and charts used in everyday life; construct and interpret frequency tables, including tables for grouped discrete data.	**Topic 4** - Measures, shape and space	**Obj. 104** - Read timetables
UK Ma4.2.c - Pupils should be taught to: represent and interpret discrete data using graphs and diagrams, including pictograms, bar charts and line graphs, then interpret a wider range of graphs and diagrams, using ICT where appropriate.	**Topic 5** - Handling data	**Obj. 121** - Read bar charts
		Obj. 122 - Read and construct bar line charts, points not connected
		Obj. 123 - Read line graphs, points connected
UK Ma4.2.d - Pupils should be taught to: know that mode is a measure of average and that range is a measure of spread, and to use both ideas to describe data sets.	**Topic 5** - Handling data	**Obj. 124** - Find the mode

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Standard	**Topic Description**	**Objective Description**
UK Ma4.2.f - Pupils should be taught to: draw conclusions from statistics and graphs and recognise when information is presented in a misleading way; explore doubt and certainty and develop an understanding of probability through classroom situations; discuss events using a vocabulary that includes the words 'equally likely', 'fair', 'unfair', 'certain'.	**Topic 5** - Handling data	**Obj. 120** - Identify events as certain, likely, unlikely or impossible

Abbreviated Standards List with Aligned Product Skills		
Agency Tag Set Name	**Product Name**	
UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
UK Ma2.1.a - Pupils should be taught to: make connections in mathematics and appreciate the need to use numerical skills and knowledge when solving problems in other parts of the mathematics curriculum.	**Topic 3** - Solving problems	**Obj. 68** - Solve non-routine problems
UK Ma2.1.i - Pupils should be taught to: communicate mathematically, including the use of precise mathematical language.	**Topic 3** - Solving problems	**Obj. 70** - Identify examples supporting mathematical facts
UK Ma2.1.j - Pupils should be taught to: understand and investigate general statements [for example, 'there are four prime numbers less than 10', 'wrist size is half neck size'].	**Topic 1** - Numbers and the number system	**Obj. 13** - Recognise properties of odd and even numbers
	Topic 3 - Solving problems	**Obj. 70** - Identify examples supporting mathematical facts
UK Ma2.2.a - Pupils should be taught to: count on and back in tens or hundreds from any two- or three-digit number; recognise and continue number sequences formed by counting on or back in steps of constant size from any integer, extending to negative integers when counting back.	**Topic 3** - Solving problems	**Obj. 69** - Find the nth number of a sequence or pattern
		Obj. 71 - Identify the rule for a sequence
UK Ma2.2b - Pupils should be taught to: recognise and describe number patterns, including two- and three-digit multiples of 2, 5 or 10, recognising their patterns and using these to make predictions; make general statements, using words to describe a functional relationship, and test these; recognise prime numbers to 20 and square numbers up to 10 x 10; find factor pairs and all the prime factors of any two-digit integer.	**Topic 1** - Numbers and the number system	**Obj. 12** - Find missing numbers in a sequence or pattern
		Obj. 13 - Recognise properties of odd and even numbers
		Obj. 14 - Find multiples of a given number

Abbreviated Standards List with Aligned Product Skills		
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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
		Obj. 15 - Identify the smallest common multiple of two numbers
		Obj. 17 - Find the squares of whole numbers
		Obj. 18 - Write prime factorisations of numbers
		Obj. 19 - Identify prime numbers
	Topic 2 - Calculations	**Obj. 67** - Find factors and multiples of numbers
	Topic 3 - Solving problems	**Obj. 71** - Identify the rule for a sequence
UK Ma2.2.c - Pupils should be taught to: read, write and order whole numbers, recognising that the position of a digit gives its value; use correctly the symbols <, >, =; multiply and divide any integer by 10 or 100 then extend to multiplying and dividing by 1000; round integers to the nearest 10 or 100 and then 1000; order a set of negative integers, explaining methods and reasoning; multiply and divide decimals by 10 or 100.	**Topic 1** - Numbers and the number system	**Obj. 3** - Multiply decimals by 10 or 100
		Obj. 4 - Divide decimals by 10 or 100
		Obj. 5 - Round 3- through 5-digit numbers to the nearest 10
		Obj. 6 - Round 4- through 6-digit numbers to the nearest 100
		Obj. 7 - Round 4- through 6-digit numbers to the nearest 1000
		Obj. 8 - Order integers
UK Ma2.2.d - Pupils should be taught to: understand unit fractions [for example, one-third or one-eigth] then fractions that are several parts of one whole [for example, two-thirds or five-eigths], locate them on a number line and use them to find fractions of shapes and quantities.	**Topic 1** - Numbers and the number system	**Obj. 24** - Recognise relationships between fractions
		Obj. 25 - Order fractions on a number line

Abbreviated Standards List with Aligned Product Skills		
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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
UK Ma2.2.e - Pupils should be taught to: understand simple equivalent fractions and simplify fractions by cancelling common factors; compare and order simple fractions by converting them to fractions with a common denominator, explaining their methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 20** - Simplify fractions
		Obj. 21 - Find equivalent fractions
		Obj. 26 - Order fractions
		Obj. 27 - Compare fractions
UK Ma2.2.f - Pupils should be taught to: recognise the equivalence between the decimal and fraction forms of one half, quarters, tenths and hundredths; understand that 'percentage' means the 'number of parts per 100' and that it can be used for comparisons; find percentages of whole number quantities, using a calculator where appropriate.	**Topic 1** - Numbers and the number system	**Obj. 36** - Convert decimals to fractions
		Obj. 37 - Convert fractions to decimals
		Obj. 38 - Convert percentages to fractions
		Obj. 39 - Convert decimals to percentages
		Obj. 40 - Convert percentages to decimals
		Obj. 41 - Convert fractions to percentages
		Obj. 42 - Find a percentage of a number
UK Ma2.2.g - Pupils should be taught to: recognise approximate proportions of a whole and use simple fractions and percentages to describe them, explaining their methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 29** - Determine simple ratios and proportions
UK Ma2.2.h - Pupils should be taught to: solve simple problems involving ratio and direct proportion.	**Topic 1** - Numbers and the number system	**Obj. 29** - Determine simple ratios and proportions
	Topic 3 - Solving problems	**Obj. 74** - WP: Solve ratio and proportion problems

Abbreviated Standards List with Aligned Product Skills		
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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
UK Ma2.2.i - Pupils should be taught to: understand and use decimal notation for tenths and hundredths in context [for example, order amounts of money, round a sum of money to the nearest pound, convert a length such as 1.36 metres to centimetres and vice versa]; locate on a number line, and order, a set of numbers or measurements; then recognise thousandths (only in metric measurements).	**Topic 1** - Numbers and the number system	**Obj. 11** - Count on and back with decimals
		Obj. 30 - Write decimal words as figures
		Obj. 31 - Identify place value in decimals
		Obj. 32 - Order decimals
		Obj. 33 - Identify decimals between two given decimals
	Topic 4 - Measures, shape and space	**Obj. 83** - Convert metric units of length
		Obj. 85 - Convert metric units of capacity
UK Ma2.2.j - Pupils should be taught to: round a number with one or two decimal places to the nearest integer or tenth; convert between centimetres and millimetres or metres, then between millimetres and metres, and metres and kilometres, explaining methods and reasoning.	**Topic 1** - Numbers and the number system	**Obj. 34** - Round decimals to whole numbers
		Obj. 35 - Round decimals to nearest 10th
	Topic 4 - Measures, shape and space	**Obj. 81** - Identify abbreviations of metric units
UK Ma2.3.a - Pupils should be taught to: develop further their understanding of the four number operations and the relationships between them including inverses; use the related vocabulary; choose suitable number operations to solve a given problem, and recognise similar problems to which they apply.	**Topic 1** - Numbers and the number system	**Obj. 2** - Divide 4- and 5-digit whole numbers by 1000

Abbreviated Standards List with Aligned Product Skills		
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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
		Obj. 4 - Divide decimals by 10 or 100
		Obj. 9 - WP: Add and subtract integers
		Obj. 16 - Know the tests of divisibility
		Obj. 17 - Find the squares of whole numbers
		Obj. 28 - Multiply a fraction by a whole number
	Topic 2 - Calculations	**Obj. 43** - Add whole numbers (3-7 digits)
		Obj. 44 - Subtract whole numbers (4-6 digits)
		Obj. 45 - Add different place decimals to 100ths
		Obj. 46 - Subtract different place decimals to 100ths
		Obj. 49 - WP: Divide by sharing or grouping
		Obj. 50 - Relate division to multiplication
		Obj. 57 - Multiply a 3-digit whole by a 2-digit whole
		Obj. 58 - Multiply a 4-digit whole by a 1-digit whole
		Obj. 60 - Divide whole numbers
		Obj. 64 - Check answers using inverse operation
	Topic 3 - Solving problems	**Obj. 68** - Solve non-routine problems
UK Ma2.3.b - Pupils should be taught to: find remainders after division, then express a quotient as a fraction or decimal; round up or down after division, depending on the context.	**Topic 2** - Calculations	**Obj. 51** - Relate division to fractions
		Obj. 62 - Divide a whole by a 1-digit whole, remainders as decimals

Abbreviated Standards List with Aligned Product Skills		
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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
UK Ma2.3.c - Pupils should be taught to: understand the use of brackets to determine the order of operations; understand why the commutative, associative and distributive laws apply to addition and multiplication and how they can be used to do mental and written calculations more efficiently.	**Topic 2** - Calculations	**Obj. 47** - Know the commutative, associative, and distributive laws
		Obj. 48 - Simplify calculations by partitioning
UK Ma2.3.e - Pupils should be taught to: work out what they need to add to any two-digit number to make 100, then add or subtract any pair of two-digit whole numbers; handle particular cases of three-digit and four-digit additions and subtractions by using compensation or other methods [for example, 3000 - 1997, 4560 + 998].	**Topic 2** - Calculations	**Obj. 43** - Add whole numbers (3-7 digits)
		Obj. 44 - Subtract whole numbers (4-6 digits)
UK Ma2.3.g - Pupils should be taught to: double and halve any two-digit number.	**Topic 2** - Calculations	**Obj. 53** - Find doubles and halves of decimals to 100ths
		Obj. 54 - Find doubles and halves of multiples of 100
UK Ma2.3.h - Pupils should be taught to: multiply and divide, at first in the range 1 to 100 [for example, 27 x 3, 65 divided by 5], then for particular cases of larger numbers by using factors, distribution or other methods.	**Topic 1** - Numbers and the number system	**Obj. 1** - Multiply 2- and 3-digit whole numbers by 1000
		Obj. 2 - Divide 4- and 5-digit whole numbers by 1000
		Obj. 4 - Divide decimals by 10 or 100
		Obj. 17 - Find the squares of whole numbers
	Topic 2 - Calculations	**Obj. 49** - WP: Divide by sharing or grouping
		Obj. 52 - Find the squares of multiples of 10 up to 100

Abbreviated Standards List with Aligned Product Skills		
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Standard	**Topic Description**	**Objective Description**
		Obj. 53 - Find doubles and halves of decimals to 100ths
		Obj. 57 - Multiply a 3-digit whole by a 2-digit whole
		Obj. 58 - Multiply a 4-digit whole by a 1-digit whole
		Obj. 59 - Multiply a decimal by a 1- or 2-digit whole
		Obj. 60 - Divide whole numbers
		Obj. 62 - Divide a whole by a 1-digit whole, remainders as decimals
UK Ma2.3.i - Pupils should be taught to: use written methods to add and subtract positive integers less than 1000, then up to 10000, then add and subtract numbers involving decimals; use approximations and other strategies to check that their answers are reasonable.	**Topic 2** - Calculations	**Obj. 43** - Add whole numbers (3-7 digits)
		Obj. 44 - Subtract whole numbers (4-6 digits)
		Obj. 45 - Add different place decimals to 100ths
		Obj. 46 - Subtract different place decimals to 100ths
		Obj. 66 - Approximate by rounding to the nearest 10 or 100
UK Ma2.3.j - Pupils should be taught to: use written methods for short multiplication and division by a single-digit integer of two-digit then three-digit then four-digit integers, then of numbers with decimals; then use long multiplication, at first for two-digit by two-digit integer calculations, then for three-digit by two-digit calculations; extend division to informal methods of dividing by a two-digit divisor [for example, 64 divided by 16]; use approximations and other strategies to check that their answers are reasonable.	**Topic 1** - Numbers and the number system	**Obj. 2** - Divide 4- and 5-digit whole numbers by 1000
		Obj. 4 - Divide decimals by 10 or 100

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Standard	**Topic Description**	**Objective Description**
		Obj. 16 - Know the tests of divisibility
	Topic 2 - Calculations	**Obj. 49** - WP: Divide by sharing or grouping
		Obj. 55 - Approximate whole number products by rounding
		Obj. 56 - Approximate decimal products by rounding to a whole number
		Obj. 60 - Divide whole numbers
		Obj. 61 - Divide a decimal by a 1-digit whole
		Obj. 62 - Divide a whole by a 1-digit whole, remainders as decimals
UK Ma2.3.k - Pupils should be taught to: use a calculator for calculations involving several digits, including decimals; use a calculator to solve number problems [for example, 4__ x 7= 343]; know how to enter and interpret money calculations and fractions; know how to select the correct key sequence for calculations with more than one operation [for example, 56 x (87 - 48)].	**Topic 2** - Calculations	**Obj. 63** - Use a calculator to solve maths problems
UK Ma2.4.a - Pupils should be taught to: choose, use and combine any of the four number operations to solve word problems involving numbers in 'real life', money or measures of length, mass, capacity or time, then perimeter and area.	**Topic 1** - Numbers and the number system	**Obj. 9** - WP: Add and subtract integers
	Topic 2 - Calculations	**Obj. 49** - WP: Divide by sharing or grouping
	Topic 3 - Solving problems	**Obj. 72** - WP: Solve 1-step problems with whole numbers
		Obj. 73 - WP: Solve multi-step problems with whole numbers
		Obj. 74 - WP: Solve ratio and proportion problems
		Obj. 75 - WP: Solve percentage problems

Abbreviated Standards List with Aligned Product Skills		
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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
		Obj. 76 - WP: Solve problems involving money
		Obj. 77 - WP: Solve problems with percentage discounts
		Obj. 78 - WP: Convert between currencies
		Obj. 79 - WP: Solve problems involving measurement
		Obj. 80 - WP: Solve problems involving time
	Topic 5 - Handling data	**Obj. 103** - Identify events as certain, likely, unlikely or impossible
		Obj. 104 - Read and interpret pie charts
		Obj. 105 - Read and interpret bar charts
UK Ma2.4.c - Pupils should be taught to: estimate answers by approximating and checking that their results are reasonable by thinking about the context of the problem, and where necessary checking accuracy [for example, by using the inverse operation, by repeating the calculation in a different order].	**Topic 2** - Calculations	**Obj. 64** - Check answers using inverse operation
		Obj. 65 - Check answers with equivalent calculation
		Obj. 66 - Approximate by rounding to the nearest 10 or 100
UK Ma2.4.e - Pupils should be taught to: read and plot coordinates in the first quadrant, then in all four quadrants [for example, plot the vertices of a rectangle, or a graph of the multiples of 3].	**Topic 4** - Measures, shape and space	**Obj. 97** - Plot and identify coordinates on a coordinate plane
		Obj. 98 - Plot and identify coordinates of transformations
UK Ma3.1.b - Pupils should be taught to: select and use appropriate calculation skills to solve geometrical problems.	**Topic 4** - Measures, shape and space	**Obj. 88** - Find the perimeter of composite shapes
		Obj. 89 - Find the area of composite shapes

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UK, Maths, 1999, Key Stage 2 (Years 3-6), National Curriculum Programmes of Study:Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 6 Standard Libraries	
Standard	**Topic Description**	**Objective Description**
UK Ma3.2.a - Pupils should be taught to: recognise right angles, perpendicular and parallel lines; know that angles are measured in degrees and that one whole turn is 360 degrees and angles at a point total 360 degrees, then recognise that angles at a point on a straight line total 180 degrees; know that the sum of the angles of a triangle is 180 degrees.	**Topic 4** - Measures, shape and space	**Obj. 99** - Classify angles
		Obj. 101 - Find the size of a missing angle in a triangle
UK Ma3.2.b - Pupils should be taught to: visualise and describe 2-D and 3-D shapes and the way they behave, making more precise use of geometrical language, especially that of triangles, quadrilaterals, and prisms and pyramids of various kinds; recognise when shapes are identical.	**Topic 4** - Measures, shape and space	**Obj. 91** - Classify quadrilaterals
		Obj. 92 - Identify number of faces, edges and vertices of 3-D shapes
		Obj. 93 - Know properties of 3-D shapes
		Obj. 98 - Plot and identify coordinates of transformations
UK Ma3.2.c - Pupils should be taught to: make and draw with increasing accuracy 2-D and 3-D shapes and patterns; recognise reflective symmetry in regular polygons; recognise their geometrical features and properties including angles, faces, pairs of parallel lines and symmetry, and use these to classify shapes and solve problems.	**Topic 4** - Measures, shape and space	**Obj. 95** - Find reflections over lines of symmetry
		Obj. 96 - Identify translations on a coordinate plane
UK Ma3.2.d - Pupils should be taught to: visualise 3-D shapes from 2-D drawings.	**Topic 4** - Measures, shape and space	**Obj. 94** - Visualise 3-D shapes from 2-D or 3-D drawings

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Standard	**Topic Description**	**Objective Description**
UK Ma3.3.c - Pupils should be taught to: identify and draw 2-D shapes in different orientations on grids; locate and draw shapes using coordinates in the first quadrant, then in all four quadrants [for example, use coordinates to locate position in a computer game].	**Topic 4** - Measures, shape and space	**Obj. 102** - Find coordinates of rotated shapes on a coordinate plane
UK Ma3.4.a - Pupils should be taught to: recognise the need for standard units of length, mass and capacity, choose which ones are suitable for a task, and use them to make sensible estimates in everyday situations; convert one metric unit to another [for example, convert 3.17kg to 3170g]; know the rough metric equivalents of imperial units still in daily use.	**Topic 4** - Measures, shape and space	**Obj. 82** - Convert between imperial and metric measurements
		Obj. 83 - Convert metric units of length
		Obj. 84 - Convert metric units of mass
		Obj. 85 - Convert metric units of capacity
		Obj. 86 - Relate appropriate metric units to objects
		Obj. 87 - Relate appropriate imperial units to objects
UK Ma3.4.c - Pupils should be taught to: recognise angles as greater or less than a right angle or half-turn, estimate their size and order them; measure and draw acute, obtuse and right angles to the nearest degree.	**Topic 4** - Measures, shape and space	**Obj. 100** - Measure angles
UK Ma3.4.d - Pupils should be taught to: read the time from analogue and digital 12- and 24-hour clocks; use units of time - seconds, minutes, hours, days, weeks - and know the relationship between them.	**Topic 4** - Measures, shape and space	**Obj. 90** - Find the time in different time zones around the world

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.e - Pupils should be taught to: find perimeters of simple shapes; find areas of rectangles using the formula, understanding its connection to counting squares and how it extends this approach; calculate the perimeter and area of shapes composed of rectangles.	**Topic 4** - Measures, shape and space	**Obj. 88** - Find the perimeter of composite shapes
		Obj. 89 - Find the area of composite shapes
UK Ma4.2.a - Pupils should be taught to: solve problems involving data.	**Topic 5** - Handling data	**Obj. 103** - Identify events as certain, likely, unlikely or impossible
		Obj. 104 - Read and interpret pie charts
		Obj. 105 - Read and interpret bar charts
		Obj. 106 - Read line graphs, points connected
		Obj. 107 - Find the mean
		Obj. 108 - Find the median
		Obj. 109 - Find the mode
		Obj. 110 - Find the range
UK Ma4.2.b - Pupils should be taught to: interpret tables, lists and charts used in everyday life; construct and interpret frequency tables, including tables for grouped discrete data.	**Topic 5** - Handling data	**Obj. 104** - Read and interpret pie charts
		Obj. 105 - Read and interpret bar charts
		Obj. 106 - Read line graphs, points connected
UK Ma4.2.c - Pupils should be taught to: represent and interpret discrete data using graphs and diagrams, including pictograms, bar charts and line graphs, then interpret a wider range of graphs and diagrams, using ICT where appropriate.	**Topic 5** - Handling data	**Obj. 104** - Read and interpret pie charts
		Obj. 105 - Read and interpret bar charts
		Obj. 106 - Read line graphs, points connected

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Standard	**Topic Description**	**Objective Description**
UK Ma4.2.d - Pupils should be taught to: know that mode is a measure of average and that range is a measure of spread, and to use both ideas to describe data sets.	**Topic 5** - Handling data	**Obj. 109** - Find the mode
		Obj. 110 - Find the range
UK Ma4.2.f - Pupils should be taught to: draw conclusions from statistics and graphs and recognise when information is presented in a misleading way; explore doubt and certainty and develop an understanding of probability through classroom situations; discuss events using a vocabulary that includes the words 'equally likely', 'fair', 'unfair', 'certain'.	**Topic 5** - Handling data	**Obj. 103** - Identify events as certain, likely, unlikely or impossible

Abbreviated Standards List with Aligned Product Skills		
Agency Tag Set Name	**Product Name**	
UK, Maths, 1999, Key Stage 3 (Years 7-9), National Curriculum Programmes of Study: Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 7 Standard Library	
Standard	**Topic Description**	**Objective Description**
UK Ma2.1.a - Pupils should be taught to: explore connections in mathematics to develop flexible approaches to increasingly demanding problems; select appropriate strategies to use for numerical or algebraic problems.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 145** - Solve problems involving algebra
UK Ma2.1.e - Pupils should be taught to: make mental estimates of the answers to calculations; use checking procedures to monitor the accuracy of their results.	**Topic 2** - Calculations	**Obj. 68** - Check answers using inverse operations
UK Ma2.1.f - Pupils should be taught to: represent problems and solutions in algebraic or graphical forms; move from one form of representation to another to get different perspectives on the problem; present and interpret solutions in the context of the original problem.	**Topic 2** - Calculations	**Obj. 52** - WP: Interpret remainders in division
		Obj. 56 - Determine reasonable estimates in context
		Obj. 66 - Use context to determine if an answer is sensible
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 142** - WP: Solve problems involving money
		Obj. 145 - Solve problems involving algebra
UK Ma2.1.i - Pupils should be taught to: explore, identify, and use pattern and symmetry in algebraic contexts, investigating whether particular cases can be generalised further and understanding the importance of a counter-example; identify exceptional cases when solving problems; make conjectures and check them for new cases.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 151** - Identify counter-examples

Abbreviated Standards List with Aligned Product Skills		
Agency Tag Set Name	**Product Name**	
UK, Maths, 1999, Key Stage 3 (Years 7-9), National Curriculum Programmes of Study: Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 7 Standard Library	
Standard	**Topic Description**	**Objective Description**
UK Ma2.2.a - Pupils should be taught to: use their previous understanding of integers and place value to deal with arbitrarily large positive numbers and round them to a given power of 10; understand and use negative numbers, both as positions and translations on a number line; order integers; use the concepts and vocabulary of factor (divisor), multiple, common factor, highest common factor, least common multiple, prime number and prime factor decomposition.	**Topic 1** - Numbers and the number system	**Obj. 11** - Round whole numbers to nearest 10, 100 or 1000
		Obj. 13 - Represent integers on a number line
		Obj. 14 - Order integers
		Obj. 19 - Identify prime numbers
		Obj. 20 - Find factors of numbers
		Obj. 21 - Write prime factorisation of numbers
		Obj. 22 - Find the lowest common multiple of two numbers
		Obj. 23 - Find the highest common factor of two numbers
UK Ma2.2.c - Pupils should be taught to: use fraction notation; understand equivalent fractions, simplifying a fraction by cancelling all common factors; order fractions by rewriting them with a common denominator.	**Topic 1** - Numbers and the number system	**Obj. 27** - Recognise fractions as part of a whole
		Obj. 29 - Find equivalent fractions
		Obj. 30 - Simplify fractions
		Obj. 31 - Convert between mixed numbers and improper fractions
		Obj. 34 - Compare and order fractions
UK Ma2.2.d - Pupils should be taught to: use decimal notation and recognise that each terminating decimal is a fraction [for example, 0.137 = 137/1000]; order decimals.	**Topic 1** - Numbers and the number system	**Obj. 1** - Understand and use decimal place value
		Obj. 2 - Convert between decimal and partitioned notation

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UK, Maths, 1999, Key Stage 3 (Years 7-9), National Curriculum Programmes of Study: Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 7 Standard Library	
Standard	**Topic Description**	**Objective Description**
		Obj. 3 - Add or subtract 0.1 and 0.01 from any number
		Obj. 8 - Compare and order decimals
		Obj. 9 - Compare and order decimals in context
		Obj. 10 - Find and estimate decimal fractions on a number line
		Obj. 32 - Convert decimals to fractions
UK Ma2.2.e - Pupils should be taught to: understand that 'percentage' means 'number of parts per 100' and use this to compare proportions; interpret percentage as the operator 'so many hundredths of' [for example, 10% means 10 parts per 100 and 15% of Y means 15/100 x Y].	**Topic 1** - Numbers and the number system	**Obj. 40** - Convert percentages to fractions
		Obj. 41 - Convert percentages to decimals
		Obj. 43 - Convert fractions to percentages
		Obj. 44 - Find percentages of numbers, quantities and measures
		Obj. 45 - Find the percent when the whole and part is known
		Obj. 46 - Write proportions as fractions, decimals or percentages
		Obj. 47 - WP: Solve proportion problems
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 143** - WP: Solve percentage problems
UK Ma2.2.f - Pupils should be taught to: use ratio notation, including reduction to its simplest form and its various links to fraction notation.	**Topic 1** - Numbers and the number system	**Obj. 48** - Use the relationship between ratio and proportion
		Obj. 49 - Find equivalent ratios
		Obj. 50 - Write ratios in simplified (reduced) form

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.g - Pupils should be taught to: recognise where fractions or percentages are needed to compare proportions; identify problems that call for proportional reasoning, and choose the correct numbers to take as 100%, or as a whole.	**Topic 1** - Numbers and the number system	**Obj. 45** - Find the percent when the whole and part is known
		Obj. 46 - Write proportions as fractions, decimals or percentages
		Obj. 47 - WP: Solve proportion problems
		Obj. 48 - Use the relationship between ratio and proportion
UK Ma2.3.a - Pupils should be taught to: add, subtract, multiply and divide integers and then any number; multiply or divide any number by powers of 10, and any positive number by a number between 0 and 1; find the prime factor decomposition of positive integers [for example, 8000 = 2^6 x 5^3].	**Topic 1** - Numbers and the number system	**Obj. 3** - Add or subtract 0.1 and 0.01 from any number
		Obj. 4 - Multiply decimals by powers of 10
		Obj. 5 - Divide decimals by powers of 10
		Obj. 6 - Multiply positive integers by powers of 10
		Obj. 7 - Divide positive integers by powers of 10
		Obj. 15 - Add integers
		Obj. 16 - Subtract integers
		Obj. 17 - WP: Add and subtract integers
	Topic 2 - Calculations	**Obj. 57** - Add whole numbers
		Obj. 58 - Subtract whole numbers
		Obj. 59 - Add decimals
		Obj. 60 - Subtract decimals
		Obj. 61 - Multiply whole numbers
		Obj. 62 - Divide whole numbers
		Obj. 63 - Multiply decimals
		Obj. 64 - Divide decimals by whole numbers

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.b - Pupils should be taught to: use brackets and the hierarchy of operations; know how to use the commutative, associative and distributive laws to do mental and written calculations more efficiently.	**Topic 2** - Calculations	**Obj. 53** - Use the laws of arithmetic
		Obj. 54 - Use the order of operations
		Obj. 55 - Solve word problems (all four operations)
UK Ma2.3.c - Pupils should be taught to: calculate a given fraction of a given quantity, expressing the answer as a fraction; express a given number as a fraction of another; add and subtract fractions by writing them with a common denominator; perform short division to convert a simple fraction to a decimal.	**Topic 1** - Numbers and the number system	**Obj. 27** - Recognise fractions as part of a whole
		Obj. 28 - Express a number as a fraction of a larger number
		Obj. 33 - Convert fractions to decimals
		Obj. 35 - Know and use addition facts for simple fractions
		Obj. 36 - Add fractions with the same denominator
		Obj. 37 - Subtract fractions with the same denominator
		Obj. 38 - Find fractions of quantities or measures
UK Ma2.3.d - Pupils should be taught to: understand and use unit fractions as multiplicative inverses [for example, by thinking of multiplication by 1/5 as division by 5, or multiplication by 6/7 as multiplication by 6 followed by division by 7 (or vice versa)]; multiply and divide a given fraction by an integer, by a unit fraction and by a general fraction.	**Topic 1** - Numbers and the number system	**Obj. 39** - Multiply a positive integer by a fraction

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.e - Pupils should be taught to: convert simple fractions of a whole to percentages of the whole and vice versa, then understand the multiplicative nature of percentages as operators [for example, 20% discount on 150 pounds gives a total calculated as (0.8 x 150) pounds].	**Topic 1** - Numbers and the number system	**Obj. 40** - Convert percentages to fractions
		Obj. 41 - Convert percentages to decimals
		Obj. 42 - Convert decimals to percentages
		Obj. 43 - Convert fractions to percentages
		Obj. 44 - Find percentages of numbers, quantities and measures
UK Ma2.3.f - Pupils should be taught to: divide a quantity in a given ratio [for example, share 15 pounds in the ratio 1:2].	**Topic 1** - Numbers and the number system	**Obj. 51** - Divide a quantity into two parts in a given ratio
UK Ma2.3.h - Pupils should be taught to: round to the nearest integer and to one significant figure; estimate answers to problems involving decimals.	**Topic 1** - Numbers and the number system	**Obj. 12** - Round decimals
	Topic 2 - Calculations	**Obj. 56** - Determine reasonable estimates in context
UK Ma2.3.m - Pupils should be taught to: solve simple percentage problems, including increase and decrease [for example, simple interest, VAT, discounts, pay rises, annual rate of inflation, income tax, discounts].	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 143** - WP: Solve percentage problems
UK Ma2.3.n - solve word problems about ratio and proportion, including using informal strategies and the unitary method of solution [for example, given that m identical items cost y pounds, then one item costs y pounds divided by n and n items costs (n X y divided by m) pounds, the number of items that can be bought for z pounds is z X m divided by y].	**Topic 1** - Numbers and the number system	**Obj. 47** - WP: Solve proportion problems
		Obj. 48 - Use the relationship between ratio and proportion

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.q - Pupils should be taught to: understand the calculator display, interpreting it correctly [for example, in money calculations, and when the display has been rounded by the calculator], and knowing not to round during the intermediate steps of a calculation.	**Topic 2** - Calculations	**Obj. 65** - Interpret calculator displays in context
UK Ma2.4.a - Pupils should be taught to: draw on their knowledge of the operations and the relationships between them, and of simple integer powers and their corresponding roots, to solve problems involving ratio and proportion, a range of measures and compound measures, metric units, and conversion between metric and common imperial units, set in a variety of contexts.	**Topic 4** - Shape, space and measures	**Obj. 118** - Approximate and use metric equivalents of imperial measures
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 142** - WP: Solve problems involving money
		Obj. 144 - Find numerical solutions
UK Ma2.4.c - Pupils should be taught to: use a variety of checking procedures, including working the problem backwards, and considering whether a result is of the right order of magnitude.	**Topic 2** - Calculations	**Obj. 67** - Determine order of magnitude of solutions
		Obj. 68 - Check answers using inverse operations
UK Ma2.4.d - Pupils should be taught to: give solutions in the context of the problem to an appropriate degree of accuracy, recognising limitations on the accuracy of data and measurements.	**Topic 2** - Calculations	**Obj. 56** - Determine reasonable estimates in context

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Standard	**Topic Description**	**Objective Description**
UK Ma2.5.a - Pupils should be taught to: distinguish the different roles played by letter symbols in algebra, knowing that letter symbols represent definite unknown numbers in equations [for example, x^3 + 1 = 65], defined quantities or variables in formulae [for example, V = IR], general, unspecified and independent numbers in identities [for example, 3x + 2x = 5x, or 3(a + b) = 3a + 3b, or (x + 1)(x - 1) = x^2 - 1] and in functions they define new expressions or quantities by referring to known quantities [for example, y = 2 - 7x].	**Topic 3** - Algebra	**Obj. 69** - Recognise algebraic conventions
		Obj. 70 - Write variable expressions given a word phrase
		Obj. 73 - Simplify expressions by collecting like terms
		Obj. 74 - Use the distributive law with algebraic expressions
		Obj. 75 - Construct simple linear equations, unknown on one side only
		Obj. 79 - Substitute whole numbers into linear expressions
		Obj. 81 - Derive algebraic expressions and formulae

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Standard	**Topic Description**	**Objective Description**
UK Ma2.5.b - Pupils should be taught to: understand that the transformation of algebraic expressions obeys and generalises the rules of arithmetic; simplify or transform algebraic expressions by collecting like terms [for example, x^2 + 3x + 5 - 4x + 2x^2 = 3x^2 - x + 5], by multiplying a single term over a bracket, by taking out single term common factors [for example, x^2 + x = x(x+1)], and by expanding the product of two linear expressions including squaring a linear expression [for example, (x+1)^2 = x^2 + 2x + 1, (x - 3)(x + 2) = x^2 - x - 6]; distinguish in meaning between the words 'equation', 'formula', 'identity' and 'expression'.	**Topic 3** - Algebra	**Obj. 71** - Relate the order of operations to algebra
		Obj. 72 - Apply associative/commutative laws to algebraic expressions
		Obj. 73 - Simplify expressions by collecting like terms
		Obj. 74 - Use the distributive law with algebraic expressions
UK Ma2.5.d - Pupils should be taught to: set up simple equations [for example, find the angle a in a triangle with angles a, a + 10, a + 20]; solve simple equations [for example, 5x = 7, 3(2x +1) = 8, 2(1 - x) = 6 (2 + x), 4x^2 = 36, 3 = 12/x], by using inverse operations or by transforming both sides in the same way.	**Topic 3** - Algebra	**Obj. 75** - Construct simple linear equations, unknown on one side only
		Obj. 76 - Solve addition or subtraction equations
		Obj. 77 - Solve multiplication or division equations
		Obj. 81 - Derive algebraic expressions and formulae

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Standard	**Topic Description**	**Objective Description**
UK Ma2.5.e - Pupils should be taught to: solve linear equations, with integer coefficients, in which the unknown appears on either side or on both sides of the equation; solve linear equations that require prior simplification of brackets, including those that have negative signs occurring anywhere in the equation, and those with a negative solution.	**Topic 3** - Algebra	**Obj. 78** - Solve 2-step equations
UK Ma2.5.f - Pupils should be taught to: use formulae from mathematics and other subjects [for example, formulae for the area of a triangle, the area enclosed by a circle, density = mass/volume]; substitute numbers into a formula; derive a formula and change its subject [for example, convert temperatures between degrees Fahrenheit and degrees Celsius, find the perimeter of a rectangle given its area A and the length l of one side].	**Topic 3** - Algebra	**Obj. 80** - WP: Substitute whole numbers into formulae
UK Ma2.5.h - Pupils should be taught to: link a graphical representation of an equation to its algebraic solution; find an approximate solution of a pair of linear simultaneous equations by graphical methods, then find the exact solution by eliminating one variable; consider the graphs of cases that have no solution, or an infinite number of solutions.	**Topic 3** - Algebra	**Obj. 97** - Plot and read a conversion graph
UK Ma2.6.a - Pupils should be taught to: generate common integer sequences (including sequences of odd or even integers, squared integers, powers of 2, powers of 10, triangular numbers).	**Topic 1** - Numbers and the number system	**Obj. 24** - Find squares of numbers and triangular numbers

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UK Ma2.6.b - Pupils should be taught to: find the first terms of a sequence given a rule arising naturally from a context [for example, the number of ways of paying in pence using only 1p and 2p coins, or from a regularly increasing spatial pattern]; find the rule (and express it in words) for the nth term of a sequence.	**Topic 3** - Algebra	**Obj. 82** - Use the vocabulary of sequences
		Obj. 84 - Extend and create geometric patterns
		Obj. 85 - Write terms of sequence from a term-to-term rule
		Obj. 87 - Identify the rule for a sequence
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 150** - Find terms in real-life number patterns
UK Ma2.6.c - Pupils should be taught to: generate terms of a sequence using term-to-term and position-to-term definitions of the sequence; use linear expressions to describe the nth term of an arithmetic sequence, justifying its form by referring to the activity or context from which it was generated.	**Topic 3** - Algebra	**Obj. 83** - Extend a sequence
		Obj. 85 - Write terms of sequence from a term-to-term rule
		Obj. 86 - Write terms of sequence from a position-to-term rule
UK Ma2.6.d - Pupils should be taught to: express simple functions, at first in words and then in symbols; explore the properties of simple polynomial functions.	**Topic 3** - Algebra	**Obj. 88** - Use function machines
		Obj. 89 - Construct input-output tables
		Obj. 90 - Draw simple mapping diagrams
		Obj. 91 - Find a rule of a function machine

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Standard	**Topic Description**	**Objective Description**
UK Ma2.6.e - Pupils should be taught to: use the conventions for coordinates in the plane; plot points in all four quadrants; recognise (when values are given for m and c) that equations of the form y = mx + c correspond to straight-line graphs in the coordinate plane; plot graphs of functions in which y is given explicitly in terms of x [for example, y = 2x + 3], or implicitly [for example, x + y = 7].	**Topic 3** - Algebra	**Obj. 93** - Find and plot coordinates from a linear equation
		Obj. 94 - Plot graphs of the form y = mx
		Obj. 95 - Plot graphs of the form y = x + c and y = c - x
		Obj. 96 - Recognise and plot graphs of the form y = c or x = c
	Topic 4 - Shape, space and measures	**Obj. 108** - Plot and identify coordinates on a coordinate plane
UK Ma2.6.f - Pupils should be taught to: construct linear functions arising from real-life problems and plot their corresponding graphs; discuss and interpret graphs arising from real situations [for example, distance-time graph for an object moving with constant speed].	**Topic 3** - Algebra	**Obj. 97** - Plot and read a conversion graph
		Obj. 98 - Plot and read graphs of real-life situations
		Obj. 99 - Interpret graphs of linear functions
UK Ma3.1.a - Pupils should be taught to: select problem-solving strategies and resources, including ICT, to use in geometrical work, and monitor their effectiveness.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 148** - Identify the information needed to solve a problem
UK Ma3.1.c - Pupils should be taught to: identify what further information is needed to solve a problem; break complex problems down into a series of tasks.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 148** - Identify the information needed to solve a problem
		Obj. 149 - Solve complex problems by breaking them into smaller parts

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Standard	**Topic Description**	**Objective Description**
UK Ma3.1.e - Pupils should be taught to: communicate mathematically, making use of geometrical diagrams and related explanatory text.	**Topic 4** - Shape, space and measures	**Obj. 100** - Use labelling conventions for lines, angles and shapes
		Obj. 105 - Know the properties of triangles and quadrilaterals
UK Ma3.1.f - Pupils should be taught to: use precise language and exact methods to analyse geometrical configurations.	**Topic 4** - Shape, space and measures	**Obj. 100** - Use labelling conventions for lines, angles and shapes
		Obj. 104 - Visualise 2-D shapes
		Obj. 106 - Visualise 3-D shapes from 2-D or 3-D drawings
UK Ma3.2.a - Pupils should be taught to: recall and use properties of angles at a point, angles on a straight line (including right angles), perpendicular lines, and opposite angles at a vertex.	**Topic 4** - Shape, space and measures	**Obj. 101** - Identify intersecting, parallel and perpendicular lines
		Obj. 102 - Use angle properties at a point and on a line
UK Ma3.2.b - Pupils should be taught to: distinguish between acute, obtuse, reflex and right angles; estimate the size of an angle in degrees.	**Topic 4** - Shape, space and measures	**Obj. 119** - Measure angles
UK Ma3.2.c - Pupils should be taught to: use parallel lines, alternate angles and corresponding angles; understand the properties of parallelograms and a proof that the angle sum of a triangle is 180 degrees; understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices.	**Topic 4** - Shape, space and measures	**Obj. 103** - Angle properties of a triangle
UK Ma3.2.d - Pupils should be taught to: use angle properties of equilateral, isosceles and right-angled triangles; understand congruence, recognising when two triangles are congruent; explain why the angle sum of any quadrilateral is 360 degrees.	**Topic 4** - Shape, space and measures	**Obj. 105** - Know the properties of triangles and quadrilaterals

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Standard	**Topic Description**	**Objective Description**
UK Ma3.2.f - Pupils should be taught to: recall the essential properties of special types of quadrilateral, including square, rectangle, parallelogram, trapezium and rhombus; classify quadrilaterals by their geometric properties.	**Topic 4** - Shape, space and measures	**Obj. 105** - Know the properties of triangles and quadrilaterals
UK Ma3.2.g - Pupils should be taught to: calculate and use the sums of the interior and exterior angles of quadrilaterals, pentagons and hexagons; calculate and use the angles of regular polygons.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 146** - Solve quadrilateral angle size problems
UK Ma3.2.j - Pupils should be taught to: explore the geometry of cuboids (including cubes), and shapes made from cuboids.	**Topic 4** - Shape, space and measures	**Obj. 106** - Visualise 3-D shapes from 2-D or 3-D drawings
UK Ma3.2.k - Pupils should be taught to: use 2-D representations of 3-D shapes and analyse 3-D shapes through 2-D projections and cross-sections, including plan and elevation.	**Topic 4** - Shape, space and measures	**Obj. 106** - Visualise 3-D shapes from 2-D or 3-D drawings
		Obj. 107 - Identify number of faces, edges and vertices of 3-D shapes
UK Ma3.3.a - Pupils should be taught to: understand that rotations are specified by a centre and an (anti-clockwise) angle; use right angles, fractions of a turn or degrees to measure the angle of rotation; understand that reflections are specified by a mirror line, translations by a distance and direction, and enlargements by a centre and positive scale factor.	**Topic 4** - Shape, space and measures	**Obj. 110** - Know and apply the properties of reflections
		Obj. 112 - Know and apply the properties of rotations
		Obj. 114 - Know and apply the properties of translations

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Standard	**Topic Description**	**Objective Description**
UK Ma3.3.b - Pupils should be taught to: recognise and visualise rotations, reflections and translations, including reflection symmetry of 2-D and 3-D shapes, and rotation symmetry of 2-D shapes; transform 2-D shapes by translation, rotation and reflection, recognising that these transformations preserve length and angle, so that any figure is congruent to its image under any of these transformations.	**Topic 4** - Shape, space and measures	**Obj. 110** - Know and apply the properties of reflections
		Obj. 111 - Know and use reflection symmetry
		Obj. 112 - Know and apply the properties of rotations
		Obj. 113 - Know and use rotation symmetry
		Obj. 114 - Know and apply the properties of translations
UK Ma3.3.e - Pupils should be taught to: understand that one coordinate identifies a point on a number line, two coordinates identify a point in a plane and three coordinates identify a point in space, using the terms '1-D', '2-D' and '3-D'; use axes and coordinates to specify points in all four quadrants; locate points with given coordinates; find the coordinates of points identified by geometrical information [for example, find the coordinates of the fourth vertex of a parallelogram with vertices at (2, 1) (-7, 3) and (5, 6)]; find the coordinates of the midpoint of the line segment AB, given points A and B, then calculate the length AB.	**Topic 4** - Shape, space and measures	**Obj. 109** - Plot points determined by geometric information

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.a - Pupils should be taught to: interpret scales on a range of measuring instruments, including those for time and mass; know that measurements using real numbers depend on the choice of unit; recognise that measurements given to the nearest whole unit may be inaccurate by up to one half in either direction; convert measurements from one unit to another; know rough metric equivalents of pounds, feet, miles, pints and gallons; make sensible estimates of a range of measures in everyday settings.	**Topic 4** - Shape, space and measures	**Obj. 115** - Convert metric units of length
		Obj. 116 - Convert metric units of mass
		Obj. 117 - Convert metric units of capacity
		Obj. 118 - Approximate and use metric equivalents of imperial measures
UK Ma3.4.b - Pupils should be taught to: understand angle measure, using the associated language [for example, use bearings to specify direction].	**Topic 4** - Shape, space and measures	**Obj. 119** - Measure angles
UK Ma3.4.f - Pupils should be taught to: find areas of rectangles, recalling the formula, understanding the connection to counting squares and how it extends this approach; recall and use the formulae for the area of a parallelogram and a triangle; find the surface area of simple shapes using the area formulae for triangles and rectangles; calculate perimeters and areas of shapes made from triangles and rectangles.	**Topic 4** - Shape, space and measures	**Obj. 120** - Use formulae for the perimeter and area of a rectangle
		Obj. 121 - Use formulae for the area of a right-angled triangle
		Obj. 122 - Find the perimeter and area of shapes made from rectangles

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Standard	**Topic Description**	**Objective Description**
		Obj. 123 - Find the surface areas of cuboids
		Obj. 124 - Find the surface area of 3-D shapes made from cuboids
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 147** - Find the area and perimeter of compound figures
UK Ma4.1.c - Pupils should be taught to: select and organise the appropriate mathematics and resources to use for a task.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 148** - Identify the information needed to solve a problem
UK Ma4.3.a - Pupils should be taught to: design and use data-collection sheets for grouped discrete and continuous data; collect data using various methods including observation, controlled experiment, data logging, questionnaires and surveys.	**Topic 5** - Handling data	**Obj. 125** - Create frequency tables
UK Ma4.3.c - Pupils should be taught to: design and use two-way tables for discrete and grouped data.	**Topic 5** - Handling data	**Obj. 125** - Create frequency tables
UK Ma4.4.a - Pupils should be taught to: draw and produce, using paper and ICT, pie charts for categorical data and diagrams for continuous data, including line graphs for time series, scatter graphs, frequency diagrams and stem-and-leaf diagrams.	**Topic 5** - Handling data	**Obj. 131** - Identify and construct pie charts
		Obj. 132 - Identify and construct bar charts for grouped discrete data
		Obj. 133 - Identify and construct bar-line graphs
UK Ma4.4.b - Pupils should be taught to: calculate mean, range and median of small data sets with discrete then continuous data; identify the modal class for grouped data.	**Topic 5** - Handling data	**Obj. 126** - Find the mode
		Obj. 127 - Find the mean
		Obj. 128 - Find the range
		Obj. 129 - Find the median

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Standard	**Topic Description**	**Objective Description**
UK Ma4.4.d - Pupils should be taught to: understand and use estimates or measures of probability from theoretical models, including equally likely outcomes, or from relative frequency.	**Topic 5** - Handling data	**Obj. 139** - Find the probability of single events
UK Ma4.5.b - Pupils should be taught to: interpret a wide range of graphs and diagrams and draw conclusions.	**Topic 5** - Handling data	**Obj. 131** - Identify and construct pie charts
		Obj. 134 - Interpret pie charts
		Obj. 135 - Interpret bar charts
		Obj. 136 - Interpret a compound bar chart
		Obj. 137 - Compare two simple distributions
UK Ma4.5.h - Pupils should be taught to: use the vocabulary of probability in interpreting results involving uncertainty and prediction.	**Topic 5** - Handling data	**Obj. 138** - Use vocabulary and ideas of probability
UK Ma4.5.i - Pupils should be taught to: compare experimental data and theoretical probabilities.	**Topic 5** - Handling data	**Obj. 140** - Find experimental probability
		Obj. 141 - Compare experimental and theoretical probability

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Standard	**Topic Description**	**Objective Description**
UK Ma2.1.b - Pupils should be taught to: break down a complex calculation into simpler steps before attempting to solve it.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 126** - Solve complex problems by breaking them into smaller steps
UK Ma2.1.e - Pupils should be taught to: make mental estimates of the answers to calculations; use checking procedures to monitor the accuracy of their results.	**Topic 2** - Calculations	**Obj. 41** - Determine order of magnitude of solutions
UK Ma2.1.f - Pupils should be taught to: represent problems and solutions in algebraic or graphical forms; move from one form of representation to another to get different perspectives on the problem; present and interpret solutions in the context of the original problem.	**Topic 3** - Algebra	**Obj. 42** - Represent multiplication and division algebraically
		Obj. 61 - Construct input-output tables
	Topic 5 - Handling data	**Obj. 95** - Construct frequency tables from continuous data
		Obj. 96 - Design and use two-way tables
		Obj. 98 - Find the mode or modal class
		Obj. 99 - Determine mean, median and mode from stem-and-leaf diagrams
		Obj. 101 - Identify and construct scatter graphs
		Obj. 102 - Identify and construct bar charts
		Obj. 103 - Identify and construct pie charts
		Obj. 104 - Identify and construct frequency diagrams for continuous variables
		Obj. 105 - Identify and construct line graphs comparing two sets of data
		Obj. 106 - Identify and construct line graphs for continuous data
		Obj. 107 - Interpret data tables
		Obj. 108 - Interpret pie charts
		Obj. 109 - Interpret bar charts
		Obj. 110 - Interpret line graphs

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Standard	**Topic Description**	**Objective Description**
		Obj. 111 - Compare two simple distributions
UK Ma2.1.i - Pupils should be taught to: explore, identify, and use pattern and symmetry in algebraic contexts, investigating whether particular cases can be generalised further and understanding the importance of a counter-example; identify exceptional cases when solving problems; make conjectures and check them for new cases.	**Topic 3** - Algebra	**Obj. 59** - Describe the nth term of an arithmetic sequence
		Obj. 60 - Describe the nth term of a geometrical pattern
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 127** - Identify counter-examples
UK Ma2.2.a - Pupils should be taught to: use their previous understanding of integers and place value to deal with arbitrarily large positive numbers and round them to a given power of 10; understand and use negative numbers, both as positions and translations on a number line; order integers; use the concepts and vocabulary of factor (divisor), multiple, common factor, highest common factor, least common multiple, prime number and prime factor decomposition.	**Topic 1** - Numbers and the number system	**Obj. 1** - Read and write positive integer powers of 10
		Obj. 5 - Round numbers and understand the effects of rounding
		Obj. 8 - Subtract integers
		Obj. 9 - Divide integers
		Obj. 10 - Multiply integers
		Obj. 11 - Write prime factorisation of numbers
		Obj. 12 - Use prime factors to find the highest common factor
		Obj. 13 - Use prime factors to find the lowest common multiple

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.b - Pupils should be taught to: use the terms square, positive and negative square root (knowing that the square root sign denotes the positive square root), cube, cube root; use index notation for small integer powers and index laws for multiplication and division of positive integer powers.	**Topic 1** - Numbers and the number system	**Obj. 14** - Find squares or cubes of numbers
		Obj. 15 - Find cube roots and square roots of perfect squares
		Obj. 17 - Approximate square roots of whole numbers
	Topic 3 - Algebra	**Obj. 43** - Use index notation
UK Ma2.2.c - Pupils should be taught to: use fraction notation; understand equivalent fractions, simplifying a fraction by cancelling all common factors; order fractions by rewriting them with a common denominator.	**Topic 1** - Numbers and the number system	**Obj. 18** - Express a number as a fraction of another number
		Obj. 21 - Compare and order fractions
UK Ma2.2.d - Pupils should be taught to: use decimal notation and recognise that each terminating decimal is a fraction [for example, 0.137 = 137/1000]; order decimals.	**Topic 1** - Numbers and the number system	**Obj. 4** - Compare and order decimals
		Obj. 19 - Convert decimals to fractions
		Obj. 20 - Convert fractions to decimals
UK Ma2.2.e - Pupils should be taught to: understand that 'percentage' means 'number of parts per 100' and use this to compare proportions; interpret percentage as the operator 'so many hundredths of' [for example, 10% means 10 parts per 100 and 15% of Y means 15/100 x Y].	**Topic 1** - Numbers and the number system	**Obj. 30** - Write proportions as percentages
		Obj. 31 - Find the outcome of a given percentage increase/decrease
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 119** - WP: Solve percentage problems

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Standard	**Topic Description**	**Objective Description**
UK Ma2.2.g - Pupils should be taught to: recognise where fractions or percentages are needed to compare proportions; identify problems that call for proportional reasoning, and choose the correct numbers to take as 100%, or as a whole.	**Topic 1** - Numbers and the number system	**Obj. 30** - Write proportions as percentages
UK Ma2.3.a - Pupils should be taught to: add, subtract, multiply and divide integers and then any number; multiply or divide any number by powers of 10, and any positive number by a number between 0 and 1; find the prime factor decomposition of positive integers [for example, 8000 = 2^6 x 5^3].	**Topic 1** - Numbers and the number system	**Obj. 2** - Multiply numbers by 0.1 and 0.01
		Obj. 3 - Divide numbers by 0.1 and 0.01
		Obj. 7 - Add integers
		Obj. 8 - Subtract integers
		Obj. 9 - Divide integers
		Obj. 10 - Multiply integers
	Topic 2 - Calculations	**Obj. 36** - Add and subtract different place decimals
		Obj. 37 - Multiply decimals
		Obj. 38 - Divide a decimal by a whole number
		Obj. 39 - Divide two decimals
		Obj. 40 - Divide whole numbers by decimals
UK Ma2.3.b - Pupils should be taught to: use brackets and the hierarchy of operations; know how to use the commutative, associative and distributive laws to do mental and written calculations more efficiently.	**Topic 2** - Calculations	**Obj. 35** - Use the order of operations
	Topic 3 - Algebra	**Obj. 45** - Combine like terms
		Obj. 46 - Use the distributive law with algebraic expressions
		Obj. 47 - Simplify algebraic expressions

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.c - Pupils should be taught to: calculate a given fraction of a given quantity, expressing the answer as a fraction; express a given number as a fraction of another; add and subtract fractions by writing them with a common denominator; perform short division to convert a simple fraction to a decimal.	**Topic 1** - Numbers and the number system	**Obj. 18** - Express a number as a fraction of another number
		Obj. 20 - Convert fractions to decimals
		Obj. 22 - Add fractions with unlike denominators
		Obj. 23 - Subtract fractions with unlike denominators
		Obj. 24 - Find fractions of numbers, quantities or measurements
UK Ma2.3.d - Pupils should be taught to: understand and use unit fractions as multiplicative inverses [for example, by thinking of multiplication by 1/5 as division by 5, or multiplication by 6/7 as multiplication by 6 followed by division by 7 (or vice versa)]; multiply and divide a given fraction by an integer, by a unit fraction and by a general fraction.	**Topic 1** - Numbers and the number system	**Obj. 25** - Multiply a positive integer by a fraction
		Obj. 26 - Divide a positive integer by a fraction
UK Ma2.3.e - Pupils should be taught to: convert simple fractions of a whole to percentages of the whole and vice versa, then understand the multiplicative nature of percentages as operators [for example, 20% discount on 150 pounds gives a total calculated as (0.8 x 150) pounds].	**Topic 1** - Numbers and the number system	**Obj. 28** - Convert fractions to percentages
		Obj. 29 - Find percentages of numbers, quantities and measures
UK Ma2.3.f - Pupils should be taught to: divide a quantity in a given ratio [for example, share 15 pounds in the ratio 1:2].	**Topic 1** - Numbers and the number system	**Obj. 33** - Divide a quantity into two or more parts in a given ratio

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.h - Pupils should be taught to: round to the nearest integer and to one significant figure; estimate answers to problems involving decimals.	**Topic 1** - Numbers and the number system	**Obj. 5** - Round numbers and understand the effects of rounding
		Obj. 6 - Round decimals
	Topic 4 - Shape, space and measures	**Obj. 87** - Determine the accuracy of measurements
UK Ma2.3.i - Pupils should be taught to: develop a range of strategies for mental calculation; derive unknown facts from those they know [for example, estimate the square root of 85]; add and subtract mentally numbers with up to two decimal places [for example, 13.76 - 5.21, 20.08 + 12.4]; multiply and divide numbers with no more than one decimal digit [for example, 14.3 x 4, 56.7 divided by 7], using factorisation when possible.	**Topic 1** - Numbers and the number system	**Obj. 16** - Locate two integers between which a square root lies
UK Ma2.3.j - Pupils should be taught to: use standard column procedures for addition and subtraction of integers and decimals.	**Topic 2** - Calculations	**Obj. 36** - Add and subtract different place decimals
UK Ma2.3.k - Pupils should be taught to: use standard column procedures for multiplication of integers and decimals, understanding where to position the decimal point by considering what happens if they multiply equivalent fractions [for example, 0.6 x 0.7 = 0.42 since 6/10 x 7/10 = 42/100 = 0.42]; solve a problem involving division by a decimal by transforming it to a problem involving division by an integer.	**Topic 2** - Calculations	**Obj. 37** - Multiply decimals
		Obj. 38 - Divide a decimal by a whole number
		Obj. 39 - Divide two decimals

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Standard	**Topic Description**	**Objective Description**
UK Ma2.3.l - Pupils should be taught to: use efficient methods to calculate with fractions, including cancelling common factors before carrying out the calculation, recognising that, in many cases, only a fraction can express the exact answer.	**Topic 1** - Numbers and the number system	**Obj. 22** - Add fractions with unlike denominators
		Obj. 23 - Subtract fractions with unlike denominators
		Obj. 24 - Find fractions of numbers, quantities or measurements
		Obj. 25 - Multiply a positive integer by a fraction
		Obj. 26 - Divide a positive integer by a fraction
UK Ma2.3.m - Pupils should be taught to: solve simple percentage problems, including increase and decrease [for example, simple interest, VAT, discounts, pay rises, annual rate of inflation, income tax, discounts].	**Topic 1** - Numbers and the number system	**Obj. 29** - Find percentages of numbers, quantities and measures
		Obj. 30 - Write proportions as percentages
		Obj. 31 - Find the outcome of a given percentage increase/decrease
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 119** - WP: Solve percentage problems
UK Ma2.3.n - solve word problems about ratio and proportion, including using informal strategies and the unitary method of solution [for example, given that m identical items cost y pounds, then one item costs y pounds divided by n and n items costs (n X y divided by m) pounds, the number of items that can be bought for z pounds is z X m divided by y].	**Topic 1** - Numbers and the number system	**Obj. 32** - Solve simple direct proportion problems
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 120** - WP: Solve ratio and proportion problems

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Standard	**Topic Description**	**Objective Description**
UK Ma2.4.a - Pupils should be taught to: draw on their knowledge of the operations and the relationships between them, and of simple integer powers and their corresponding roots, to solve problems involving ratio and proportion, a range of measures and compound measures, metric units, and conversion between metric and common imperial units, set in a variety of contexts.	**Topic 4** - Shape, space and measures	**Obj. 85** - Convert metric units of mass, capacity, length and area
		Obj. 86 - Know and use rough metric equivalents of imperial units
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 120** - WP: Solve ratio and proportion problems
		Obj. 121 - Find unknown numbers
		Obj. 124 - WP: Solve problems involving perimeter, area and volume
UK Ma2.4.b - Pupils should be taught to: select appropriate operations, methods and strategies to solve number problems, including trial and improvement where a more efficient method to find the solution is not obvious.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 125** - Identify the information needed to solve a problem
UK Ma2.4.d - Pupils should be taught to: give solutions in the context of the problem to an appropriate degree of accuracy, recognising limitations on the accuracy of data and measurements.	**Topic 4** - Shape, space and measures	**Obj. 87** - Determine the accuracy of measurements

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Standard	**Topic Description**	**Objective Description**
UK Ma2.5.a - Pupils should be taught to: distinguish the different roles played by letter symbols in algebra, knowing that letter symbols represent definite unknown numbers in equations [for example, x^3 + 1 = 65], defined quantities or variables in formulae [for example, V = IR], general, unspecified and independent numbers in identities [for example, 3x + 2x = 5x, or 3(a + b) = 3a + 3b, or (x + 1)(x - 1) = x^2 - 1] and in functions they define new expressions or quantities by referring to known quantities [for example, y = 2 - 7x].	**Topic 3** - Algebra	**Obj. 42** - Represent multiplication and division algebraically
		Obj. 43 - Use index notation
		Obj. 44 - Relate the order of operations to algebra
		Obj. 46 - Use the distributive law with algebraic expressions
		Obj. 55 - Derive algebraic expressions and equations
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 122** - Solve problems involving algebra
UK Ma2.5.b - Pupils should be taught to: understand that the transformation of algebraic expressions obeys and generalises the rules of arithmetic; simplify or transform algebraic expressions by collecting like terms [for example, x^2 + 3x + 5 - 4x + 2x^2 = 3x^2 - x + 5], by multiplying a single term over a bracket, by taking out single term common factors [for example, x^2 + x = x(x+1)], and by expanding the product of two linear expressions including squaring a linear expression [for example, (x+1)^2 = x^2 + 2x + 1, (x - 3)(x + 2) = x^2 - x - 6]; distinguish in meaning between the words 'equation', 'formula', 'identity' and 'expression'.	**Topic 3** - Algebra	**Obj. 45** - Combine like terms

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Standard	**Topic Description**	**Objective Description**
		Obj. 46 - Use the distributive law with algebraic expressions
		Obj. 47 - Simplify algebraic expressions
UK Ma2.5.c - Pupils should be taught to: use index notation for simple integer powers, and simple instances of index laws; substitute positive and negative numbers into expressions such as 3x^2 + 4 and 2x^3.	**Topic 3** - Algebra	**Obj. 43** - Use index notation
UK Ma2.5.d - Pupils should be taught to: set up simple equations [for example, find the angle a in a triangle with angles a, a + 10, a + 20]; solve simple equations [for example, 5x = 7, 3(2x +1) = 8, 2(1 - x) = 6 (2 + x), 4x^2 = 36, 3 = 12/x], by using inverse operations or by transforming both sides in the same way.	**Topic 2** - Calculations	**Obj. 34** - Use inverse operations
	Topic 3 - Algebra	**Obj. 49** - Solve 2-step equations
		Obj. 50 - Solve equations involving more than 2-steps
		Obj. 52 - Set up equations to solve simple direct proportion problems
		Obj. 55 - Derive algebraic expressions and equations
UK Ma2.5.e - Pupils should be taught to: solve linear equations, with integer coefficients, in which the unknown appears on either side or on both sides of the equation; solve linear equations that require prior simplification of brackets, including those that have negative signs occurring anywhere in the equation, and those with a negative solution.	**Topic 3** - Algebra	**Obj. 49** - Solve 2-step equations
		Obj. 50 - Solve equations involving more than 2-steps
		Obj. 61 - Construct input-output tables

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Standard	**Topic Description**	**Objective Description**
UK Ma2.5.f - Pupils should be taught to: use formulae from mathematics and other subjects [for example, formulae for the area of a triangle, the area enclosed by a circle, density = mass/volume]; substitute numbers into a formula; derive a formula and change its subject [for example, convert temperatures between degrees Fahrenheit and degrees Celsius, find the perimeter of a rectangle given its area A and the length l of one side].	**Topic 3** - Algebra	**Obj. 54** - Substitute values into simple formulae
	Topic 4 - Shape, space and measures	**Obj. 85** - Convert metric units of mass, capacity, length and area
		Obj. 89 - Calculate areas of parallelograms
		Obj. 90 - Calculate areas of trapezia
		Obj. 91 - Calculate areas of triangles
		Obj. 92 - Calculate areas of shapes made from rectangles and triangles
		Obj. 93 - Use the cuboid volume formula to solve problems
		Obj. 94 - Calculate surface areas of cuboids and related shapes
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 124** - WP: Solve problems involving perimeter, area and volume
UK Ma2.5.g - Pupils should be taught to: set up and use equations to solve word and other problems involving direct proportion, and relate their algebraic solutions to graphical representations of the equations.	**Topic 3** - Algebra	**Obj. 51** - Use graphs to solve simple proportion problems
		Obj. 52 - Set up equations to solve simple direct proportion problems
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 120** - WP: Solve ratio and proportion problems

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Standard	**Topic Description**	**Objective Description**
UK Ma2.5.h - Pupils should be taught to: link a graphical representation of an equation to its algebraic solution; find an approximate solution of a pair of linear simultaneous equations by graphical methods, then find the exact solution by eliminating one variable; consider the graphs of cases that have no solution, or an infinite number of solutions.	**Topic 3** - Algebra	**Obj. 48** - Construct linear equations
		Obj. 49 - Solve 2-step equations
		Obj. 50 - Solve equations involving more than 2-steps
		Obj. 64 - Plot graphs of the form y = mx + c
		Obj. 65 - Identify properties of functions of the form y = mx + c
UK Ma2.6.a - Pupils should be taught to: generate common integer sequences (including sequences of odd or even integers, squared integers, powers of 2, powers of 10, triangular numbers).	**Topic 3** - Algebra	**Obj. 56** - Generate sequences
UK Ma2.6.c - Pupils should be taught to: generate terms of a sequence using term-to-term and position-to-term definitions of the sequence; use linear expressions to describe the nth term of an arithmetic sequence, justifying its form by referring to the activity or context from which it was generated.	**Topic 3** - Algebra	**Obj. 57** - Find terms of a sequence given a term-to-term rule
		Obj. 58 - Find terms of a sequence given a formula for the nth term
		Obj. 59 - Describe the nth term of an arithmetic sequence
		Obj. 60 - Describe the nth term of a geometrical pattern
UK Ma2.6.d - Pupils should be taught to: express simple functions, at first in words and then in symbols; explore the properties of simple polynomial functions.	**Topic 3** - Algebra	**Obj. 63** - Use inputs and outputs to find a linear function
		Obj. 65 - Identify properties of functions of the form y = mx + c

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Standard	**Topic Description**	**Objective Description**
UK Ma2.6.e - Pupils should be taught to: use the conventions for coordinates in the plane; plot points in all four quadrants; recognise (when values are given for m and c) that equations of the form y = mx + c correspond to straight-line graphs in the coordinate plane; plot graphs of functions in which y is given explicitly in terms of x [for example, y = 2x + 3], or implicitly [for example, x + y = 7].	**Topic 3** - Algebra	**Obj. 67** - Interpret graphs of functions
UK Ma2.6.f - Pupils should be taught to: construct linear functions arising from real-life problems and plot their corresponding graphs; discuss and interpret graphs arising from real situations [for example, distance-time graph for an object moving with constant speed].	**Topic 3** - Algebra	**Obj. 66** - Write and plot functions of real-life situations
UK Ma3.1.a - Pupils should be taught to: select problem-solving strategies and resources, including ICT, to use in geometrical work, and monitor their effectiveness.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 123** - Solve problems involving shape and space
UK Ma3.1.b - Pupils should be taught to: select and combine known facts and problem-solving strategies to solve complex problems.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 118** - WP: Solve problems involving money
		Obj. 126 - Solve complex problems by breaking them into smaller steps
UK Ma3.1.c - Pupils should be taught to: identify what further information is needed to solve a problem; break complex problems down into a series of tasks.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 125** - Identify the information needed to solve a problem
		Obj. 126 - Solve complex problems by breaking them into smaller steps

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Standard	**Topic Description**	**Objective Description**
UK Ma3.2.a - Pupils should be taught to: recall and use properties of angles at a point, angles on a straight line (including right angles), perpendicular lines, and opposite angles at a vertex.	**Topic 4** - Shape, space and measures	**Obj. 68** - Identify interior and exterior angles in triangles
		Obj. 69 - Find alternate and corresponding angles in parallel lines
		Obj. 70 - Calculate interior and exterior angles of triangles
		Obj. 71 - Calculate interior angles of quadrilaterals
UK Ma3.2.c - Pupils should be taught to: use parallel lines, alternate angles and corresponding angles; understand the properties of parallelograms and a proof that the angle sum of a triangle is 180 degrees; understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices.	**Topic 4** - Shape, space and measures	**Obj. 69** - Find alternate and corresponding angles in parallel lines
		Obj. 74 - Use properties of triangles, parallel and intersecting lines
UK Ma3.2.d - Pupils should be taught to: use angle properties of equilateral, isosceles and right-angled triangles; understand congruence, recognising when two triangles are congruent; explain why the angle sum of any quadrilateral is 360 degrees.	**Topic 4** - Shape, space and measures	**Obj. 68** - Identify interior and exterior angles in triangles
		Obj. 70 - Calculate interior and exterior angles of triangles
UK Ma3.2.e - Pupils should be taught to: use their knowledge of rectangles, parallelograms and triangles to deduce formulae for the area of a parallelogram, and a triangle, from the formula for the area of a rectangle.	**Topic 4** - Shape, space and measures	**Obj. 89** - Calculate areas of parallelograms
		Obj. 91 - Calculate areas of triangles
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 124** - WP: Solve problems involving perimeter, area and volume

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Standard	**Topic Description**	**Objective Description**
UK Ma3.2.f - Pupils should be taught to: recall the essential properties of special types of quadrilateral, including square, rectangle, parallelogram, trapezium and rhombus; classify quadrilaterals by their geometric properties.	**Topic 4** - Shape, space and measures	**Obj. 73** - Classify quadrilaterals by their geometric properties
		Obj. 90 - Calculate areas of trapezia
UK Ma3.2.j - Pupils should be taught to: explore the geometry of cuboids (including cubes), and shapes made from cuboids.	**Topic 4** - Shape, space and measures	**Obj. 94** - Calculate surface areas of cuboids and related shapes
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 123** - Solve problems involving shape and space
UK Ma3.2.k - Pupils should be taught to: use 2-D representations of 3-D shapes and analyse 3-D shapes through 2-D projections and cross-sections, including plan and elevation.	**Topic 4** - Shape, space and measures	**Obj. 72** - Visualise and sketch 2-D shapes
		Obj. 75 - Identify equal sides and angles of congruent 2-D shapes
		Obj. 76 - Recognise and draw nets of 3-D shapes
		Obj. 77 - Relate 3-D shapes to top and side views
		Obj. 80 - Recognise symmetries of 2-D shapes
		Obj. 81 - Enlarge 2-D shapes
UK Ma3.3.b - Pupils should be taught to: recognise and visualise rotations, reflections and translations, including reflection symmetry of 2-D and 3-D shapes, and rotation symmetry of 2-D shapes; transform 2-D shapes by translation, rotation and reflection, recognising that these transformations preserve length and angle, so that any figure is congruent to its image under any of these transformations.	**Topic 4** - Shape, space and measures	**Obj. 78** - Use repeated transformations
		Obj. 79 - Use combinations of two transformations
		Obj. 80 - Recognise symmetries of 2-D shapes

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Standard	**Topic Description**	**Objective Description**
UK Ma3.3.c - Pupils should be taught to: recognise, visualise and construct enlargements of objects using positive integer scale factors greater than one, then positive scale factors less than one; understand from this that any two circles and any two squares are mathematically similar, while, in general, two rectangles are not.	**Topic 4** - Shape, space and measures	**Obj. 81** - Enlarge 2-D shapes
UK Ma3.3.d - Pupils should be taught to: recognise that enlargements preserve angle but not length; identify the scale factor of an enlargement as the ratio of the lengths of any two corresponding line segments and apply this to triangles; understand the implications of enlargement for perimeter; use and interpret maps and scale drawings; understand the implications of enlargement for area and for volume.	**Topic 4** - Shape, space and measures	**Obj. 81** - Enlarge 2-D shapes
		Obj. 82 - Find scales and lengths in simple scale drawings
UK Ma3.3.e - Pupils should be taught to: understand that one coordinate identifies a point on a number line, two coordinates identify a point in a plane and three coordinates identify a point in space, using the terms '1-D', '2-D' and '3-D'; use axes and coordinates to specify points in all four quadrants; locate points with given coordinates; find the coordinates of points identified by geometrical information [for example, find the coordinates of the fourth vertex of a parallelogram with vertices at (2, 1) (-7, 3) and (5, 6)]; find the coordinates of the midpoint of the line segment AB, given points A and B, then calculate the length AB.	**Topic 4** - Shape, space and measures	**Obj. 83** - Find midpoints of segments on the coordinate grid
		Obj. 84 - Describe a locus in a plane

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Standard	**Topic Description**	**Objective Description**
UK Ma3.4.a - Pupils should be taught to: interpret scales on a range of measuring instruments, including those for time and mass; know that measurements using real numbers depend on the choice of unit; recognise that measurements given to the nearest whole unit may be inaccurate by up to one half in either direction; convert measurements from one unit to another; know rough metric equivalents of pounds, feet, miles, pints and gallons; make sensible estimates of a range of measures in everyday settings.	**Topic 4** - Shape, space and measures	**Obj. 82** - Find scales and lengths in simple scale drawings
		Obj. 85 - Convert metric units of mass, capacity, length and area
		Obj. 86 - Know and use rough metric equivalents of imperial units
		Obj. 87 - Determine the accuracy of measurements
UK Ma3.4.b - Pupils should be taught to: understand angle measure, using the associated language [for example, use bearings to specify direction].	**Topic 4** - Shape, space and measures	**Obj. 88** - Use bearings to specify direction
UK Ma3.4.d - Pupils should be taught to: measure and draw lines to the nearest millimetre, and angles to the nearest degree; draw triangles and other 2-D shapes using a ruler and protractor, given information about their side lengths and angles; understand, from their experience of constructing them, that triangles satisfying SSS, SAS, ASA and RHS are unique, but SSA triangles are not; construct cubes, regular tetrahedra, square-based pyramids and other 3-D shapes from given information.	**Topic 4** - Shape, space and measures	**Obj. 76** - Recognise and draw nets of 3-D shapes
		Obj. 77 - Relate 3-D shapes to top and side views

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UK, Maths, 1999, Key Stage 3 (Years 7-9), National Curriculum Programmes of Study: Mathematics, jointly produced by the Department for Education and Employment and the Qualifications and Curriculum Authority	UK Year 8 Standard Library	
Standard	**Topic Description**	**Objective Description**
UK Ma3.4.f - Pupils should be taught to: find areas of rectangles, recalling the formula, understanding the connection to counting squares and how it extends this approach; recall and use the formulae for the area of a parallelogram and a triangle; find the surface area of simple shapes using the area formulae for triangles and rectangles; calculate perimeters and areas of shapes made from triangles and rectangles.	**Topic 4** - Shape, space and measures	**Obj. 91** - Calculate areas of triangles
		Obj. 92 - Calculate areas of shapes made from rectangles and triangles
	Topic 6 - Using and applying mathematics to solve problems	**Obj. 124** - WP: Solve problems involving perimeter, area and volume
UK Ma3.4.g - Pupils should be taught to: find volumes of cuboids, recalling the formula and understanding the connection to counting cubes and how it extends this approach; calculate volumes of right prisms and of shapes made from cubes and cuboids.	**Topic 4** - Shape, space and measures	**Obj. 93** - Use the cuboid volume formula to solve problems
UK Ma3.4.j - Pupils should be taught to: find loci, both by reasoning and by using ICT to produce shapes and paths [for example, equilateral triangles].	**Topic 4** - Shape, space and measures	**Obj. 84** - Describe a locus in a plane
UK Ma4.1.b - Pupils should be taught to: identify what further information is required to pursue a particular line of enquiry.	**Topic 6** - Using and applying mathematics to solve problems	**Obj. 125** - Identify the information needed to solve a problem
#NAME?	**Topic 3** - Algebra	**Obj. 67** - Interpret graphs of functions
	Topic 5 - Handling data	**Obj. 95** - Construct frequency tables from continuous data
		Obj. 96 - Design and use two-way tables
		Obj. 97 - Find the range, mean and median
		Obj. 98 - Find the mode or modal class

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Standard	**Topic Description**	**Objective Description**
		Obj. 99 - Determine mean, median and mode from stem-and-leaf diagrams
		Obj. 100 - Calculate using statistics
		Obj. 101 - Identify and construct scatter graphs
		Obj. 102 - Identify and construct bar charts
		Obj. 103 - Identify and construct pie charts
		Obj. 104 - Identify and construct frequency diagrams for continuous variables
		Obj. 105 - Identify and construct line graphs comparing two sets of data
		Obj. 106 - Identify and construct line graphs for continuous data
		Obj. 107 - Interpret data tables
		Obj. 108 - Interpret pie charts
		Obj. 109 - Interpret bar charts
		Obj. 110 - Interpret line graphs
		Obj. 111 - Compare two simple distributions
		Obj. 112 - Use the vocabulary and ideas of probability
		Obj. 113 - Find the probability that an event does not occur
		Obj. 114 - Find outcomes involving two successive events
		Obj. 115 - Find probabilities involving two successive events
		Obj. 116 - Find experimental probability
		Obj. 117 - Compare experimental and theoretical probability
UK Ma4.1.f - Pupils should be taught to: communicate mathematically, making use of diagrams and related explanatory text.	**Topic 3** - Algebra	**Obj. 62** - Draw mapping diagrams for simple functions
	Topic 5 - Handling data	**Obj. 99** - Determine mean, median and mode from stem-and-leaf diagrams
		Obj. 104 - Identify and construct frequency diagrams for continuous variables

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Standard	**Topic Description**	**Objective Description**
UK Ma4.4.b - Pupils should be taught to: calculate mean, range and median of small data sets with discrete then continuous data; identify the modal class for grouped data.	**Topic 5** - Handling data	**Obj. 97** - Find the range, mean and median
		Obj. 98 - Find the mode or modal class
UK Ma4.4.e - Pupils should be taught to: list all outcomes for single events, and for two successive events, in a systematic way.	**Topic 5** - Handling data	**Obj. 114** - Find outcomes involving two successive events
UK Ma4.5.b - Pupils should be taught to: interpret a wide range of graphs and diagrams and draw conclusions.	**Topic 3** - Algebra	**Obj. 62** - Draw mapping diagrams for simple functions
	Topic 5 - Handling data	**Obj. 99** - Determine mean, median and mode from stem-and-leaf diagrams
		Obj. 104 - Identify and construct frequency diagrams for continuous variables
		Obj. 105 - Identify and construct line graphs comparing two sets of data
		Obj. 106 - Identify and construct line graphs for continuous data
		Obj. 110 - Interpret line graphs
UK Ma4.5.d - Pupils should be taught to: compare distributions and make inferences, using the shapes of distributions and measures of average and range.	**Topic 5** - Handling data	**Obj. 111** - Compare two simple distributions
UK Ma4.5.h - Pupils should be taught to: use the vocabulary of probability in interpreting results involving uncertainty and prediction.	**Topic 5** - Handling data	**Obj. 112** - Use the vocabulary and ideas of probability
UK Ma4.5.i - Pupils should be taught to: compare experimental data and theoretical probabilities.	**Topic 5** - Handling data	**Obj. 117** - Compare experimental and theoretical probability

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Standard	**Topic Description**	**Objective Description**
UK Ma4.5.j - Pupils should be taught to: understand that if they repeat an experiment, they may - and usually will - get different outcomes, and that increasing sample size generally leads to better estimates of probability and population characteristics.	**Topic 5** - Handling data	**Obj. 114** - Find outcomes involving two successive events