Year 5 Block A: Counting, partitioning and calculating Unit 1

Objectives for this unit	Mult-e-Maths activities
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	See references on page 2 to *Apex Maths 5.*
Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line	**CN5S1 Estimating using a number line** Estimating numbers on a 0 to 10 000 number line **CN5S4 Completing number lines** Predicting the numbers on a number line **CN5L1 Negative numbers** Ordering positive and negative integers and finding differences between them
Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers	**CN5S6 Creating integers** Playing a game with the aim of making an integer with a given property from randomly generated digits **CN5L4 Identifying large numbers** Reading numbers with more than four digits, identifying the values of their digits and partitioning them **CN5L5 Comparing numbers** Comparing numbers using inequality signs
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34)	**NF5L1 Adding and subtracting decimals** Adding and subtracting pairs of decimals with units and tenths
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**CA5L13 Written integer addition** Using the standard written method for HTU + HTU and ThHTU + ThHTU
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5L3 Missing multiples** Recognising multiples in a multiplication grid
Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9)	**NF5S11 Factors** Identifying factors of 2-digit numbers
Use understanding of place value to multiply and divide whole numbers by 10, 100 or 1000	**CA5L16 Multiplying and dividing by 10 and 100** Applying understanding of multiplying and dividing integers by 10 and 100 to multiplying and dividing decimals by 10, 100 and 1000
Extend mental methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 × 9), to multiply by 25 (e.g. 16 × 25), to subtract one near multiple of 1000 from another (e.g. 6070 – 4097)	**CA5S1 Complements to 100** Finding numbers with a total of 1000 **CA5S2 Differences in context** Finding differences between times expressed in minutes and seconds **CA5S4 Finding differences** Finding the difference between pairs of integers in the range 0 to 120 **CA5S5 Complements to 10 000 and 100 000** Finding pairs of multiples of 100 that make 10 000 and pairs of multiples of 1000 that make 100 000 **CA5S7 How many more to make?** Finding what must be added to a 3-digit number to make the next multiple of 100 **CA5S11 Related facts** Using a known multiplication fact to find the answers to related multiplications and divisions mentally **CA5L1 Adding consecutive numbers** Choosing and using strategies for adding several consecutive numbers **CA5L2 Mental addition strategies** Choosing and using mental strategies to add pairs of 3-digit numbers where at least one number is a multiple of 10 **CA5L3 Using multiples of ten** Mentally adding and subtracting 2-digit near multiples of 10 to/from 3-digit numbers **CA5L4 Missing numbers** Using inverse operations to find missing numbers in calculations

Continued overleaf

Objectives for this unit (continued)	Mult-e-Maths activities (continued)
Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations	You could incorporate this in **CA5L13** (page 1).

End-of-year expectations for this unit are in **bold**.

Vocabulary

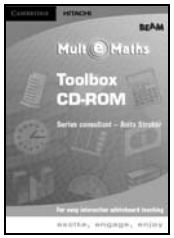
problem, solution, calculate, calculation, equation, operation, answer, method, explain, reasoning, reason, predict, relationship, rule, formula, pattern, sequence, term, consecutive, place value, digit, numeral, partition, decimal point, decimal place, thousands, ten thousands, hundred thousands, million, tenths, hundredths, positive, negative, above/below zero, compare, order, ascending, descending, greater than (>), less than (<), round, estimate, approximately, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, factor, multiple, calculator, display, key, enter, clear, constant, pound (£), penny/pence (p), units of measurement and their abbreviations, degrees Celsius (°C)

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

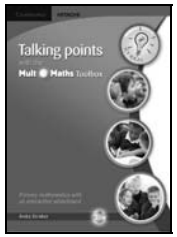
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Number lines
- Function machine
- Multiplication grid from number grid tool
- Place value chart
- Place value mat



Use activity **N5.5 Bead numbers** from ***Talking points with the Mult-e-Maths Toolbox*** to investigate place value.



Use activity **4 NIM** from ***Apex Maths 5*** to develop reasoning about numbers and identification of number patterns.

Use activity **3 Fred's Café** or activity **25 Stamps shortage** from ***Apex Maths 5*** to use knowledge of key facts and practise mental calculation strategies.

Use ***Perfect Times*** to practise recall of multiplication facts.

Year 5 Block A: Counting, partitioning and calculating Unit 2

Objectives for this unit	Mult-e-Maths activities
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	**UA5L1** (below) also links to this objective.
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	**UA5L1 More place value problems** Using knowledge of place value in puzzles and investigations
Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line	**CN5S2 Negative numbers** Identifying missing negative numbers on a number grid and ordering negative numbers **CN5S5 Estimating negative decimals** Estimating decimals with one decimal place on a -5 to 0 number line **CN5L2 Number sequences** Recognising and extending number sequences
Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers	**CN5S7 Numbers and their properties** Using digits to make numbers with a given property **CN5S8 Large numbers** Identifying and ordering large numbers **CN5S9 Rounding integers** Rounding integers to the nearest 10, 100 and 1000 **CN5L6 Comparing decimals** Using understanding of decimal place value to compare decimals with up to 2 decimal places **CN5L7 Ordering decimals** Counting in hundredths from 0.01 to 5 and comparing decimals with 2 decimal places
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34)	**NF5S1 Shopping problems** Using addition and subtraction strategies with money
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**CA5L12 Written integer subtraction** Using of the standard written method for HTU − HTU and ThHTU − ThHTU
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5S5 Multiplication and division facts** Using knowledge of times-tables to make predictions about the answers to divisions
Identify pairs of factors of two-digit numbers and find common multiples (e.g. for 6 and 9)	**NF5S13 Finding factors** Identifying factors by drawing rectangles
Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000	**CA5S17 Using place value to multiply and divide** Investigating the effect of multiplying and dividing integers and decimals by 10 and 100
Extend mental methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 × 9), to multiply by 25 (e.g. 16 × 25), to subtract one near multiple of 1000 from another (e.g. 6070 – 4097)	**CA5S10 Divisions with decimal answers** Dividing whole numbers by single-digits to produce decimal answers, and checking answers using multiplication **CA5S12 Multiplying by 9 and 11** Using knowledge of how to multiply by 10 to multiply 2-digit numbers by 9 and 11 **CA5S13 Broken calculator multiplications** Using factors to enter multiplications on a calculator whose number 2 key is 'broken' **CA5S14 Broken calculator divisions** Using factors to enter divisions on a calculator whose number 2 key is 'broken' **CA5S15 Finding and using multiplication facts** Deducing multiplication facts for 13 from known facts, and using them to solve divisions with remainders

Continued overleaf

Objectives for this unit (continued)	Mult-e-Maths activities (continued)
Extend mental methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 × 9), to multiply by 25 (e.g. 16 × 25), to subtract one near multiple of 1000 from another (e.g. 6070 – 4097) (**continued)**	**CA5L5 Adding several 2-digit numbers** Applying a range of mental strategies to additions of several 2-digit integers **CA5L6 Finding differences** Finding differences, focusing on counting up **CA5L7 Mental strategies for 4-digit integers** Mentally adding and subtracting pairs of 4-digit multiples of 100 and pairs of 4-digit near multiples of 1000 **CA5L8 Doubling and halving** Using doubling and halving to make multiplication easier
Use a calculator to solve problems, including those involving decimals or fractions (e.g. find $^3/_4$ of 150 g); interpret the display correctly in the context of measurement	**CA5S13** and **CA5S14** (page 3) involve using a calculator to solve problems.
Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations	You could incorporate this in **CA5L12** (page 3).

End-of-year expectations for this unit are in **bold**.

Vocabulary

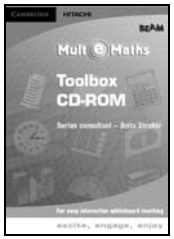
problem, solution, calculate, calculation, equation, operation, answer, method, explain, reasoning, reason, predict, relationship, rule, formula, pattern, sequence, term, consecutive, place value, digit, numeral, partition, decimal point, decimal place, thousands, ten thousands, hundred thousands, million, tenths, hundredths, positive, negative, above/below zero, compare, order, ascending, descending, greater than (>), less than (<), round, estimate, approximately, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, factor, multiple, calculator, display, key, enter, clear, constant, pound (£), penny/pence (p), units of measurement and their abbreviations, degrees Celsius (°C)

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

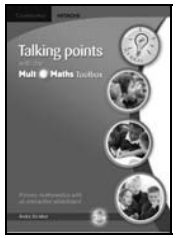
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Number lines
- Function machine
- Multiplication grid from number grid tool
- Place value chart
- Place value mat
- Calculator



Use activity **N5.9 Properties of numbers** from ***Talking points with the Mult-e-Maths Toolbox*** to investigate shared properties and relationships between numbers.



Use activity **2 Number City** from ***Apex Maths 5*** to develop reasoning skills in the context of investigating number sequences.

Use activity **7 Magazine sales** from ***Apex Maths 5*** to solve problems involving mental calculations with money.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate one-step and two-step problems.

Use ***Perfect Times*** to practise recall of multiplication facts.

Year 5 Block A: Counting, partitioning and calculating Unit 3

Objectives for this unit	Mult-e-Maths activities
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	See reference on page 6 to activities 1 and 8 in *Apex Maths 5*.
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	See references on page 6 to *Talking points with the Mult-e-Maths Toolbox* and *Apex Maths Word Problems CD-ROM 5*.
Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers	**CN5S10 Ordering decimals** Putting decimals in order **CN5S11 Fractions, decimals and rounding** Changing mixed numbers to decimals, and rounding **CN5S12 Rounding decimals** Rounding decimals with one decimal place to the nearest whole number **CN5L8 Rounding decimals** Rounding decimals with 1 or 2 decimal places to the nearest whole number
Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line	**CN5S3 Number sequences** Identifying number sequences, given non-consecutive entries, and completing them **CN5L3 Estimating decimals** Estimating the positions of decimals with one or two decimal places on number lines
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5S8 Multiplication grid** Identifying missing numbers in fragments of a multiplication grid
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34)	**NF5S2 Near doubles with decimals** Finding near doubles of 2-digit decimals with one decimal place
Refine and use efficient written methods to multiply and divide HTU × U, TU × TU, U.t × U, and HTU ÷ U	**CA5L17 The grid method of multiplication** Developing informal written methods to multiply TU × TU
Use a calculator to solve problems, including those involving decimals or fractions (e.g. find $^3/_4$ of 150 g); interpret the display correctly in the context of measurement	**CA5L30 Using a calculator** Using a calculator to solve word problems involving multiplication and division
Use knowledge of rounding, place value and number facts to estimate and check calculations	**CA5L30** (above) also provides opportunities to develop this objective.

End-of-year expectations for this unit are in **bold**.

Vocabulary

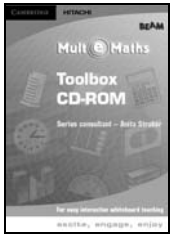
problem, solution, calculate, calculation, equation, operation, answer, method, explain, reasoning, reason, predict, relationship, rule, formula, pattern, sequence, term, consecutive, place value, digit, numeral, partition, decimal point, decimal place, thousands, ten thousands, hundred thousands, million, tenths, hundredths, positive, negative, above/below zero, compare, order, ascending, descending, greater than (>), less than (<), round, estimate, approximately, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, factor, multiple, calculator, display, key, enter, clear, constant, pound (£), penny/pence (p), units of measurement and their abbreviations, degrees Celsius (°C)

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

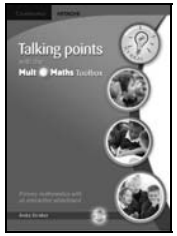
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Number lines
- Function machine
- Multiplication grid from number grid tool
- Place value chart
- Place value mat
- Calculator



Use activity **N5.3 Sports** from ***Talking points with the Mult-e-Maths Toolbox*** to solve word problems in the context of money.



Use activity **1 Odd number sums** or activity **8 Consecutive sums** from ***Apex Maths 5*** to develop the identification of patterns and systematic recording techniques.

Use activity **27 Mini-bikes** from ***Apex Maths 5*** to focus on solving problems involving the use of mental addition and subtraction strategies.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate one-step and two-step problems.

Use ***Perfect Times*** to practise recall of multiplication facts.

Year 5 Block B: Securing number facts, understanding shape Unit 1

Objectives for this unit	Mult-e-Maths activities
Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false	**UA5S2 Using multiplication by 11** Using multiplying by 11 as an aid to adding a sequence of ten numbers where a number in the sequence is the sum of the two previous numbers **UA5L9 Adding multiples** Investigating sums of multiples of two different numbers
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5S9 Product game** Identifying pairs of numbers with a given product **NF5L4 Using brackets** Investigating the use of brackets in calculations
Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9)	**NF5S12 Multiples of two numbers** Identifying numbers that are multiples of two numbers
Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations	**NF5L7 Using and applying estimation** Estimating answers to multiplications involving decimals and applying estimation to multiplication puzzles
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**CA5L14 Written decimal addition, page 1** Using the standard written method for adding numbers with up to two decimal places
Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes	**SH5L1 2-D shape properties** Identifying the properties of 2-D shapes in order to classify them

End-of-year expectations for this unit are in **bold**.

Vocabulary

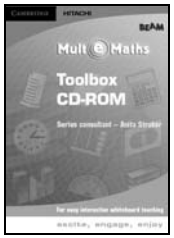
problem, solution, calculate, calculation, equation, method, explain, reasoning, reason, predict, pattern, relationship, formula, rule, classify, property, criterion/criteria, generalise, general statement, integer, square number, multiple, factor, divisor, divisible by, decimal, decimal point, decimal place, operation, inverse, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, double, halve, factor, multiple, divisor, round, estimate, approximate, 3-D, three-dimensional, vertex, vertices, face, edge, 2-D, two-dimensional, regular, irregular, polygon, side, parallel, perpendicular, angle, degrees (°), acute, obtuse, protractor, angle measurer, names of shapes, including equilateral triangle, isosceles triangle, scalene triangle, quadrilateral, octahedron, reflection, reflective symmetry, line of symmetry, mirror line, rotation, translation, origin, coordinates, *x*-coordinate, *y*-coordinate, *x*-axis, *y*-axis

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

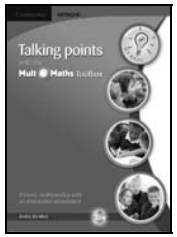
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Function machine
- Multiplication grid from number grid tool
- Regular polygon drawing tools
- Shape drawing tools
- Line drawing tools



Use activity **N5.4 Patterns from shapes** and **N5.7 Number pyramids** from ***Talking points with the Mult-e-Maths Toolbox*** to practise describing shapes and predict patterns in shape growth.



Use activity **6 Card collections** from ***Apex Maths 5*** to focus on a problem involving reasoning about numbers and drawing on understanding of multiples.

Use activity **26 Grids** from ***Apex Maths 5*** to investigate rectangular grids using a systematic recording procedure.

Use ***Perfect Times*** to practise recall of multiplication facts.

Year 5 Block B: Securing number facts, understanding shape Unit 2

Objectives for this unit	Mult-e-Maths activities
Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false	**UA5S1 Odds and evens** Identifying odd and even numbers, and predicting how they can be used to create odd and even totals and differences **UA5L10 Investigating diagonals** Investigating general statements about diagonals
Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem	See reference on page 10 to *Apex Maths 5.*
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34)	**NF5L2 Decimal doubles** Finding doubles of 2-digit decimals with one decimal place
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5S6 Using times-tables facts** Completing multiplication grids given some heading numbers and some entries **NF5S10 Finding division facts** Deducing all the possibilities for missing integers in a division sentence
Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations	You could incorporate this in *Talking Points with the Mult-e-Maths Toolbox* activity N5.8. See reference on page 10.
Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes, and to identify and draw nets of 3-D shapes	**SH5S2 2-D shapes** Sketching 2-D shapes based on descriptions
Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation	**SH5L5 Symmetry and reflection** Investigating lines of symmetry and reflections of 2-D shapes

End-of-year expectations for this unit are in **bold**.

Vocabulary

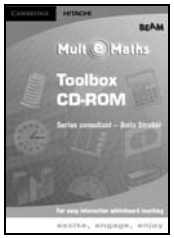
problem, solution, calculate, calculation, equation, method, explain, reasoning, reason, predict, pattern, relationship, formula, rule, classify, property, criterion/criteria, generalise, general statement, integer, square number, multiple, factor, divisor, divisible by, decimal, decimal point, decimal place, operation, inverse, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, double, halve, factor, multiple, divisor, round, estimate, approximate, 3-D, three-dimensional, vertex, vertices, face, edge, 2-D, two-dimensional, regular, irregular, polygon, side, parallel, perpendicular, angle, degrees (°), acute, obtuse, protractor, angle measurer, names of shapes, including equilateral triangle, isosceles triangle, scalene triangle, quadrilateral, octahedron, reflection, reflective symmetry, line of symmetry, mirror line, rotation, translation, origin, coordinates, x-coordinate, y-coordinate, x-axis, y-axis

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

Other resources

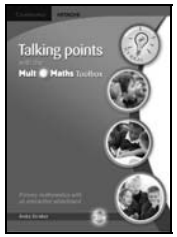
Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Function machine
- Multiplication grid from number grid tool
- Regular polygon drawing tools
- Shape drawing tools
- Line drawing tools
- Coordinate and background grids



Use activity **S5.1 Jigsaw** from ***Talking points with the Mult-e-Maths Toolbox*** to investigate moving and rotating shapes.

Use activity **N5.8 Spokes** from ***Talking points with the Mult-e-Maths Toolbox*** to explore number patterns by mentally calculating sums and differences.



Use activity **9 Cutting corners** from ***Apex Maths 5*** to investigate the capacity of boxes constructed from a variety of nets.

Use activity **14 Triangles are banned** from ***Apex Maths 5*** to explore systematic recording in the context of a shape investigation.

Use ***Perfect Times*** to practise recall of multiplication facts.

Year 5 Block B: Securing number facts, understanding shape Unit 3

Objectives for this unit	Mult-e-Maths activities
Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false	**UA5L11 Odd or even** Investigating the outcomes of adding and subtracting odd and even numbers
Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem	**UA5L6 Remainders** Investigating sequences and patterns involving remainders
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34)	**NF5S3 Halving decimals** Halving decimals with up to two decimal places
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5S7 What's the number?** Using knowledge of times-tables facts to identify a number from clues
Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations	You could incorporate this in work on **CA5L15 page 1** (below).
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**CA5L15 Written decimal subtraction, page 1** Using the standard written method for subtracting numbers with up to two decimal places
Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find ¾ of 150 g); interpret the display correctly in the context of measurement	See reference on page 12 to fraction problems in *Apex Maths Word Problems CD-Rom 5*.
Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes	**SH5S1 Odd triangle out** Describing and naming triangles and identifying similarities and differences between them **SH5L2 3-D shapes** Visualising 3-D shapes from 2-D drawings

End-of-year expectations for this unit are in **bold**.

Vocabulary

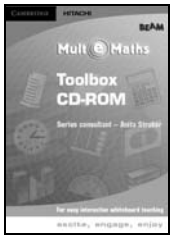
problem, solution, calculate, calculation, equation, method, explain, reasoning, reason, predict, pattern, relationship, formula, rule, classify, property, criterion/criteria, generalise, general statement, integer, square number, multiple, factor, divisor, divisible by, decimal, decimal point, decimal place, operation, inverse, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, double, halve, factor, multiple, divisor, round, estimate, approximate, 3-D, three-dimensional, vertex, vertices, face, edge, 2-D, two-dimensional, regular, irregular, polygon, side, parallel, perpendicular, angle, degrees (°), acute, obtuse, protractor, angle measurer, names of shapes, including equilateral triangle, isosceles triangle, scalene triangle, quadrilateral, octahedron, reflection, reflective symmetry, line of symmetry, mirror line, rotation, translation, origin, coordinates, *x*-coordinate, *y*-coordinate, *x*-axis, *y*-axis

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

Other resources

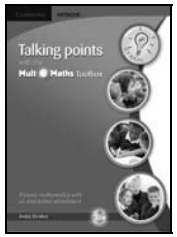
Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Function machine
- Multiplication grid from number grid tool
- Regular polygon drawing tools
- Shape drawing tools
- Line drawing tools
- Coordinate and background grids
- Calculator



Use activity **S5.2 Rugs** from ***Talking points with the Mult-e-Maths Toolbox*** to explore working systematically in the context of a shape investigation.

Use activity **N5.2 Picking 100 carrots** from ***Talking points with the Mult-e-Maths Toolbox*** to develop recognition of number patterns.



Use ***Perfect Times*** to practise recall of multiplication facts.

Use activity **22 Dotty squares** or **29 Red faces** from ***Apex Maths 5*** to identify patterns and make generalisations in the context of shape.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate fraction problems.

Year 5 Block C: Handling data and measures Unit 1

Objectives for this unit	Mult-e-Maths activities
Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry	**UA5L12** (below) also links to this objective.
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	**UA5L12 Investigating triangles** Classifying the triangles formed by a regular hexagon and its diagonals, and investigating the different triangles that can be drawn on dotty grids
Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask	**HD5L2 Computer survey** Testing a hypothesis by collecting, representing and interpreting data
Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time	You could use one of the ideas from the 'Other tasks' section of the Teacher's notes for **HD5L2** (above).
Find and interpret the mode of a set of data	**HD5S4 Finding the mode** Finding the mode of given sets of data
Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)	**ME5L1 Mass** Estimating and measuring masses, and expressing masses in different ways
Interpret a reading that lies between two unnumbered divisions on a scale	**ME5S4 Interpreting readings** Estimating mass readings on a circular scale

End-of-year expectations for this unit are in **bold**.

Vocabulary

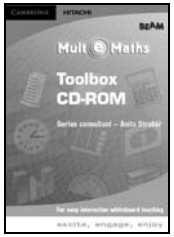
problem, solution, calculate, calculation, method, explain, reasoning, reason, predict, pattern, relationship, classify, represent, analyse, interpret, fair, unfair, risk, doubt, likely, unlikely, likelihood, certain, uncertain, probable, possible, impossible, chance, good chance, poor chance, no chance, outcome, units of measurement and their abbreviations, data, information, survey, questionnaire, graph, chart, table, horizontal axis, vertical axis, axes, label, title, scale, pictogram, bar chart, bar line chart, line graph, mode, maximum/minimum value

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

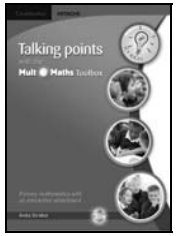
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Block graphs
- Tally chart
- Pictogram
- Tree diagrams
- Scales
- Ruler
- Measuring cylinder
- Mass/Volume category in Image bank



Use activity **D5.1 Bar charts** from ***Talking points with the Mult-e-Maths Toolbox*** to develop graph interpretation skills.



Use activity **17 Sports survey** from ***Apex Maths 5*** to practise reasoning about data in order to deduce further data.

Year 5 Block C: Handling data and measures Unit 2

Objectives for this unit	Mult-e-Maths activities
Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry	**UA5L7 Totting up numbers** Arranging numbers along the sides of triangles or squares so that the numbers along each side have the same total
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	**UA5L7** (above) also links to this objective.
Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask	**HD5S2 Investigating dice throws** Investigating which number on a dice is most likely to be thrown
Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time	**HD5L1** (below) also links to this objective.
Describe the occurrence of familiar events using the language of chance or likelihood	**HD5L1 Chance** Discussing the likelihood of events occurring
Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)	**ME5S3 How much water?** Measuring and interpreting capacities and finding ways of combining them to make 1 litre of water
Interpret a reading that lies between two unnumbered divisions on a scale	Children could carry out practical measuring activities that involve recording from a variety of different scales.

End-of-year expectations for this unit are in **bold**.

Mult-e-Maths © Cambridge University Press 2007

Vocabulary

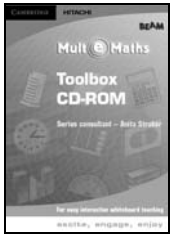
problem, solution, calculate, calculation, method, explain, reasoning, reason, predict, pattern, relationship, classify, represent, analyse, interpret, fair, unfair, risk, doubt, likely, unlikely, likelihood, certain, uncertain, probable, possible, impossible, chance, good chance, poor chance, no chance, outcome, units of measurement and their abbreviations, data, information, survey, questionnaire, graph, chart, table, horizontal axis, vertical axis, axes, label, title, scale, pictogram, bar chart, bar line chart, line graph, mode, maximum/minimum value

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

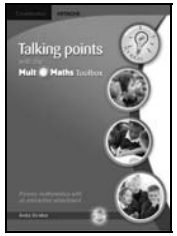
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Block graphs
- Tally chart
- Pictogram
- Tree diagrams
- Scales
- Ruler
- Measuring cylinder
- Mass/Volume category in Image bank
- Spinners
- Dice
- Coins
- Marble bag



Use activity **D5.2 Using data** from ***Talking points with the Mult-e-Maths Toolbox*** to discuss bar charts and develop graph interpretation skills.



Use activity **20 Cycle rides** from ***Apex Maths 5*** to practise interpreting points on a distance-time line graph. Children can also practise drawing line graphs from a given set of data.

Year 5 Block C: Handling data and measures Unit 3

Objectives for this unit	Mult-e-Maths activities
Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry	**UA5L8 Multiplying puzzles** Solving puzzles that involve finding products of single-digit numbers, doubling and trebling
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	See reference on page 18 to *Apex Maths 5.*
Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask	To tie in with **HD5S3**, children could carry out an investigation to find out how the temperature of the classroom changes during the day.
Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time	**HD5S3 Temperatures** Reading temperatures from a thermometer and presenting and interpreting the data collected
Find and interpret the mode of a set of data	Repeat **HD5S4** (Block C Unit 1) for different sets of data.
Describe the occurrence of familiar events using the language of chance or likelihood	**HD5S1 How likely?** Discussing the likelihood of events
Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)	**ME5S1 Changing units** Converting larger metric units to smaller ones
Interpret a reading that lies between two unnumbered divisions on a scale	Children could carry out practical measuring activities that involve recording from a variety of different scales.

End-of-year expectations for this unit are in **bold**.

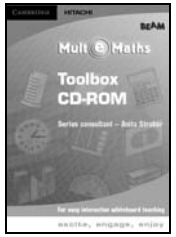
Vocabulary

problem, solution, calculate, calculation, method, explain, reasoning, reason, predict, pattern, relationship, classify, represent, analyse, interpret, fair, unfair, risk, doubt, likely, unlikely, likelihood, certain, uncertain, probable, possible, impossible, chance, good chance, poor chance, no chance, outcome, units of measurement and their abbreviations, data, information, survey, questionnaire, graph, chart, table, horizontal axis, vertical axis, axes, label, title, scale, pictogram, bar chart, bar line chart, line graph, mode, maximum/minimum value

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:



- Block graphs
- Tally chart
- Pictogram
- Tree diagrams
- Scales
- Ruler
- Measuring cylinder
- Mass/Volume category in Image bank
- Spinners
- Dice
- Coins
- Marble bag

Use activity **30 Sports Day refreshments** from ***Apex Maths 5*** to practise interpreting a range of data and selecting appropriate methods of calculation.

Year 5 Block D: Calculating, measuring and understanding shape Unit 1

Objectives for this unit	Mult-e-Maths activities
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	**UA5L3 Distance problems** Using a distance chart in kilometres to solve problems involving mental addition and subtraction
Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000	**CA5S19 Multiplying and dividing by 10 and 100** Multiplying and dividing integers and decimals by 10 and 100
Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find ¾ of 150 g); interpret the display correctly in the context of measurement	**CA5S25 Using a calculator** Using a calculator to find non-unit fractions of measurements and money amount
Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)	**ME5L3** (below) provides opportunities to develop this objective in the context of length.
Interpret a reading that lies between two unnumbered divisions on a scale	Children could carry out practical measuring activities that involve interpreting a reading from a variety of different scales.
Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals	**ME5S6 Telling the time** Writing the time from an analogue clock using 12-hour and 24-hour digital notation **ME5L5 Organising time** Using a calendar to investigate the current school year and planning a new school year with six terms **ME5L6 Using a calendar** Investigating the features of calendars and finding time lengths between dates
Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area	**ME5L3 Perimeter** Finding the perimeters of polygons
Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides	**SH5L3 Coordinates** Using compass directions and then coordinates to plot the outlines of polygons

End-of-year expectations for this unit are in **bold**.

Vocabulary

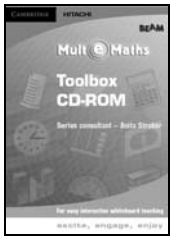
problem, solution, answer, method, strategy, compare, order, explain, predict, reason, reasoning, pattern, relationship, operation, calculation, calculate, calculator, equation, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, calculator, memory, display, key, enter, clear, place, place value, decimal, decimal point, decimal place, estimate, approximate approximately, measure, measurement, measuring scale, scales, balance, metre stick, tape measure, ruler, measuring cylinder, metric unit, standard unit, length, distance, perimeter, area, surface area, mass, weight, capacity, units of measurement and their abbreviations, days of the week, months of the year, second (s), minute (min), hour (h), day, month, calendar, timetable, 12-hour clock, 24-hour clock, am and pm, angle, degrees (°), angle measurer, protractor, set-square, acute, obtuse, right angle, position, direction, parallel, perpendicular, reflection, reflective symmetry, line of symmetry, mirror line, translation, coordinates, x-coordinate, y-coordinate, origin, x-axis, y-axis

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

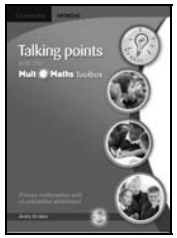
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Scales
- Ruler
- Measuring cylinder
- Mass category in Image bank
- Volume category in Image bank
- Money category in Image bank
- Calendar
- Clocks
- Calculator
- Line drawing tools
- Coordinate and background grids



Use activity **S5.3 Perimeters** from ***Talking points with the Mult-e-Maths Toolbox*** to explore different perimeters that fit given criteria.



Use activity **12 Pencil boxes** from ***Apex Maths 5*** to systematically investigate the costs of combinations of items.

Use activity **13 Special dates** from ***Apex Maths 5*** to investigate in the context of months and years.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate one-step and two-step problems.

Year 5 Block D: Calculating, measuring and understanding shape Unit 2

Objectives for this unit	Mult-e-Maths activities
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	**UA5L4 Money problems** Solving money problems in the context of a trip to the zoo, including investigations of combinations of amounts with a given total
Use knowledge of rounding, place value and number facts to estimate and check calculations	**CA5S18** (below) links to this objective.
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**CA5L14 Written decimal addition, page 2** Using the standard written method for adding numbers with up to two decimal places
Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000	**CA5S18 Multiplying and dividing by 1000** Multiplying and dividing whole numbers by 1000 to give whole-number answers
Refine and use efficient written methods to multiply and divide HTU × U, TU × TU, U.t × U, and HTU ÷ U	**CA5L18 Multiplying decimals** Developing informal written methods to multiply U.t × U
Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $^3/_4$ of 150 g); interpret the display correctly in the context of measurement	See reference on page 22 to activity 11 in *Apex Maths 5.*
Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides	**SH5L4 Parallel and perpendicular sides** Identifying and drawing parallel and perpendicular lines
Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line	**SH5L7 Angles** Estimating, measuring and drawing angles
Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)	**ME5S2 Balancing masses** Identifying combinations of masses, expressed in different units, with the same mass
Interpret a reading that lies between two unnumbered divisions on a scale	Repeat **ME5S4** (Block C Unit 1) for different scales.
Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area	**ME5L2 Area** Developing understanding that the area of a rectangle can be calculated by multiplying its length by its breadth

End-of-year expectations for this unit are in **bold**.

Vocabulary

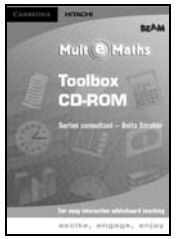
problem, solution, answer, method, strategy, compare, order, explain, predict, reason, reasoning, pattern, relationship, operation, calculation, calculate, calculator, equation, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, calculator, memory, display, key, enter, clear, place, place value, decimal, decimal point, decimal place, estimate, approximate approximately, measure, measurement, measuring scale, scales, balance, metre stick, tape measure, ruler, measuring cylinder, metric unit, standard unit, length, distance, perimeter, area, surface area, mass, weight, capacity, units of measurement and their abbreviations, days of the week, months of the year, second (s), minute (min), hour (h), day, month, calendar, timetable, 12-hour clock, 24-hour clock, am and pm, angle, degrees (°), angle measurer, protractor, set-square, acute, obtuse, right angle, position, direction, parallel, perpendicular, reflection, reflective symmetry, line of symmetry, mirror line, translation, coordinates, x-coordinate, y-coordinate, origin, x-axis, y-axis

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Scales
- Ruler
- Measuring cylinder
- Mass/Volume/Money category in Image bank
- Calculator
- Line/Shape drawing tools
- Regular polygon drawing tools
- Coordinate and background grids
- Angle Tools
- Protractor



Use activity **10 Puzzling addition** from ***Apex Maths 5*** to practise efficient written methods for addition in the context of an investigation.

Use activity **11 Calculator conundrums** from ***Apex Maths 5*** to practise using a calculator to find the lengths and widths of rectangles with given areas.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate one-step and two-step problems.

Year 5 Block D: Calculating, measuring and understanding shape Unit 3

Objectives for this unit	Mult-e-Maths activities
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	**UA5L5 Euro problems** Solving problems that involve converting pounds to euros and vice versa
Use knowledge of rounding, place value and number facts to estimate and check calculations	You could use the idea from the 'Other tasks' section of the Teacher's notes for **CA5L15** (below).
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**CA5L15 Written decimal subtraction, page 2** Using the standard written method for subtracting numbers with up to two decimal places
Refine and use efficient written methods to multiply and divide HTU × U, TU × TU, U.t × U, and HTU ÷ U	**CA5S20 Short multiplication** Using missing number column multiplications to review the method of short multiplication **CA5L21 Rounding after division** Solving word problems using division where rounding is required
Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find ¾ of 150 g); interpret the display correctly in the context of measurement	See reference on page 24 to *Apex Maths Word Problems CD-ROM 5.*
Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)	Children could carry out practical measuring activities.
Interpret a reading that lies between two unnumbered divisions on a scale	Repeat **ME5S4** (Block C Unit 1) for different scales.
Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals.	**ME5L4 The 24-hour clock** Interpreting and applying 24-hour clock times
Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area	**ME5S5 Area pairs** Finding areas that match the dimensions of rectangles
Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides	**SH5S3 Coordinates** Giving and plotting coordinates on a grid of squares
Complete patterns with up to two lines of symmetry and draw the position of a shape after a reflection or translation	**SH5S4 Symmetrical patterns** Completing symmetrical patterns on a grid of squares **SH5L6 Translating shapes** Investigating the effect of translating shapes on the coordinates of their vertices
Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line	**SH5S5 Angles** Estimating and measuring acute and obtuse angles

End-of-year expectations for this unit are in **bold**.

Vocabulary

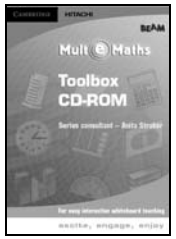
problem, solution, answer, method, strategy, compare, order, explain, predict, reason, reasoning, pattern, relationship, operation, calculation, calculate, calculator, equation, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, calculator, memory, display, key, enter, clear, place, place value, decimal, decimal point, decimal place, estimate, approximate approximately, measure, measurement, measuring scale, scales, balance, metre stick, tape measure, ruler, measuring cylinder, metric unit, standard unit, length, distance, perimeter, area, surface area, mass, weight, capacity, units of measurement and their abbreviations, days of the week, months of the year, second (s), minute (min), hour (h), day, month, calendar, timetable, 12-hour clock, 24-hour clock, am and pm, angle, degrees (°), angle measurer, protractor, set-square, acute, obtuse, right angle, position, direction, parallel, perpendicular, reflection, reflective symmetry, line of symmetry, mirror line, translation, coordinates, x-coordinate, y-coordinate, origin, x-axis, y-axis

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Scales
- Ruler
- Measuring cylinder
- Volume/Money/Mass category in Image bank
- Clocks
- Calendar
- Calculator
- Line/Shape drawing tools
- Regular polygon drawing tools
- Coordinate and background grids
- Angle Tools
- Protractor



Use activity **16 Changing gardens** from ***Apex Maths 5*** to investigate the lengths and widths of given areas.

Use activity **21 Crazy rectangles** from ***Apex Maths 5*** to practise finding the fraction of parts of a rectangle.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate one-step and two-step problems.

Year 5 Block E: Securing number facts, relationships and calculating Unit 1

Objectives for this unit	Mult-e-Maths activities
Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem	See reference on page 26 to activity 24 in *Apex Maths 5.*
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	**UA5L2 Missing digits** Solving calculation problems with missing digits
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	See reference on page 26 to activity 18 in *Apex Maths 5.*
Express a smaller whole number as a fraction of a larger one, (e.g. recognise that 5 out of 8 is $\frac{5}{8}$); find equivalent fractions (e.g. $\frac{7}{10} = \frac{14}{20}$, or $\frac{19}{10} = 1\frac{9}{10}$); relate fractions to their decimal representations	**CN5S13 Counting in fractions** Counting on in fractional steps using improper fractions and mixed numbers **CN5S14 Equivalent fractions** Recognising equivalent fractions **CN5L9 Improper fractions and mixed numbers** Finding improper fractions and mixed numbers that are equivalent
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5L5 Multiplying multiples of 10 and 100** Using the answer from one calculation to help with another
Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9)	**NF5S14 Factor puzzles** Using knowledge of factors to solve a puzzle **NF5L6 Finding factors** Finding factors of numbers less than 100
Extend mental methods for whole-number calculations, for example to multiply a two-digit number by a one-digit number (e.g. 12 × 9), to multiply by 25, to subtract one near-multiple of 1000 from another (e.g. 6070 – 4097)	**CA5S3 Adding several money amounts** Adding several money amounts up to £1 and giving the answer in pence and in pounds **CA5S6 Near doubles** Finding sums of 2-digit and 3-digit near doubles **CA5S8 Missing addition digits** Finding the missing digits in additions involving 3-digit integers **CA5S9 Missing subtraction digits** Finding the missing digits in subtractions involving 3-digit integers **CA5S16 Multiplying 2-digit numbers by 6** Using multiplication facts for 2 and 4 to multiply 2-digit numbers by 6 **CA5L9 Splitting larger numbers** Multiplying 2-digit numbers by single-digit numbers, by splitting the 2-digit numbers into smaller parts **CA5L10 Using factors to multiply** Using factors to multiply larger numbers **CA5L11 Using factors to divide** Using factors to divide larger numbers
Refine and use efficient written methods to multiply and divide HTU × U, TU × TU, U.t × U, and HTU ÷ U	**CA5L19 Written division with no remainders** Developing an informal written method, using multiples of the divisor, for division of HTU by U
Find fractions using division (e.g. $\frac{1}{100}$ of 5 kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80)	**CA5S21 Fractions of numbers and inverses** Identifying the starting number given a fractional part **CA5L22 Dividing pizzas** Sharing pizzas to demonstrate the relationship between fractions and division **CA5L23 Relating fractions to division** Relating finding a unit fraction of a number to division
Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $\frac{3}{4}$ of 150 g); interpret the display correctly in the context of measurement	Use **UA5L2** (above) to help develop this objective.

End-of-year expectations for this unit are in **bold**.

Vocabulary

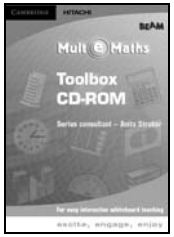
problem, solution, calculator, calculate, calculation, equation, operation, symbol, inverse, answer, method, explain, predict, reason, reasoning, pattern, relationship, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, multiple, common multiple, factor, divisor, divisible by, decimal fraction, decimal place, decimal point, percentage, per cent (%), fraction, proper fraction, improper fraction, mixed number, numerator, denominator, unit fraction, equivalent, cancel, proportion, in every, for every, to every

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

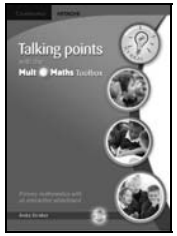
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Multiplication grid from number grid tool
- Fraction labels
- Fraction wall
- Equivalence machine
- Fractions of quantities
- Fractions of circles
- Fractions of squares
- Money category from Image bank
- Calculator



Use activity **N5.1 Four in a row** from ***Talking points with the Mult-e-Maths Toolbox*** to practise mental calculation strategies in a game context.



Use activity **18 CD Sales** from ***Apex Maths 5*** to develop reasoning skills in the context of a number investigation.

Use activity **24 Alien operations** from ***Apex Maths 5*** to apply understanding of number in an investigation that shows number operations represented by unknown symbols.

Use activity **28 Flag fractions** from ***Apex Maths 5*** to practise identifying fractions by reducing fractions to their simplest form and recognising equivalent fractions.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate one-step and two-step problems.

Use ***Perfect Times*** to practise recall of multiplication facts.

Year 5 Block E: Securing number facts, relationships and calculating Unit 2

Objectives for this unit	Mult-e-Maths activities
Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem	See reference on page 28 to activity 23 in *Apex Maths 5.*
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	See reference on page 28 to activity 19 in *Apex Maths 5.*
Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is $^{5}/_{8}$); find equivalent fractions (e.g. $^{7}/_{10} = {}^{14}/_{20}$, or $^{19}/_{10} = 1{}^{9}/_{10}$); relate fractions to their decimal representations	**CN5S16 Fractions and decimals on number lines** Identifying fractions and decimals on a number line **CN5L10 Fraction relationships** Identifying the relationships between fractions, e.g. that $^{1}/_{6}$ is a half of $^{1}/_{3}$
Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages	**CN5S18 Percentages** Finding percentages that make a whole and percentages of multiples of 100 **CN5L11 Showing percentages** Colouring different percentages of a grid with 100 squares
Use sequences to scale numbers up or down; solve problems involving proportions of quantities (e.g. decrease quantities in a recipe designed to feed six people)	**CN5S20 Scaling** Completing sequences involving scaling **CN5L13 Shopping offers** Investigating shopping offers where you get one free item when you buy a given number of items
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34)	**NF5S4 Adding and subtracting decimals** Adding and subtracting decimals less than 1 with up to two decimal places
Find fractions using division (e.g. $^{1}/_{100}$ of 5 kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80)	**CA5S22 Inverse relationships with decimals** Multiplying decimals to find the missing number in sentences such as '3.5 is one half of …' **CA5S23 Fraction measures** Finding unit fractions of measures **CA5L24 Finding non-unit fractions of numbers** Using known fractions of numbers to work out new fractions, and checking fractions of numbers using division **CA5L25 Fractions of numbers** Finding fractions of numbers by using familiar fractions **CA5L28 Percentages of amounts** Finding 10% of an amount and using this to work out other percentages of the same amount
Use a calculator to solve problems, including those involving decimals or fractions (e.g. to find $^{3}/_{4}$ of 150 g); interpret the display correctly in the context of measurement	Providing calculators for the independent activity in **CN5L13** (above) will help to develop this objective.

End-of-year expectations for this unit are in **bold**.

Vocabulary

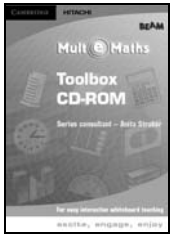
problem, solution, calculator, calculate, calculation, equation, operation, symbol, inverse, answer, method, explain, predict, reason, reasoning, pattern, relationship, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, multiple, common multiple, factor, divisor, divisible by, decimal fraction, decimal place, decimal point, percentage, per cent (%), fraction, proper fraction, improper fraction, mixed number, numerator, denominator, unit fraction, equivalent, cancel, proportion, in every, for every, to every

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

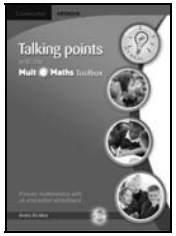
Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

- Fraction labels
- Fraction wall
- Equivalence machine
- Fractions of quantities
- Fractions of circles
- Fractions of squares
- Calculator
- Function machine



Use activity **N5.6 Clock face problems** from ***Talking points with the Mult-e-Maths Toolbox*** to practise using sequences and ideas of ratio and proportion to scale numbers.



Use activity **19 Heads up** from ***Apex Maths 5*** to practise solving problems involving reasoning about fractions.

Use activity **23 Fish and tanks** from ***Apex Maths 5*** to investigate an algebraic problem using a trial and improvement method.

Year 5 Block E: Securing number facts, relationships and calculating Unit 3

Objectives for this unit	Mult-e-Maths activities
Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem	See reference on page 30 to *Apex Maths 5.*
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	See reference on page 30 to *Apex Maths Word Problems CD-ROM 5.*
Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is $^{5}/_{8}$); find equivalent fractions (e.g. $^{7}/_{10} = {}^{14}/_{20}$, or $^{19}/_{10} = 1{}^{9}/_{10}$); relate fractions to their decimal representations	**CN5S15 Fraction relationships** Identifying equivalent fractions and relationships between fractions **CN5S17 Equivalent fractions and decimals** Finding equivalent fractions and decimals
Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages	**CN5S19 Percentage bingo** Class game of bingo using fraction, decimal and percentage equivalents **CN5L12 Percentages and fractions** Finding equivalent percentages and fractions
Refine and use efficient written methods to multiply and divide HTU × U, TU × TU, U.t × U, and HTU ÷ U	**CA5L20 Written division with remainders** Developing informal written methods for division of HTU by U with remainders
Use sequences to scale numbers up or down; solve problems involving proportions of quantities, e.g. decrease quantities in a recipe designed to feed six people	**CN5S21 Proportions in patterns** Identifying the proportions of each colour in patterns and predicting the quantities of each colour in extended patterns **CN5S22 Using doubling and halving** Use doubling and halving to change ounces to grams and pounds to ounces **CN5S23 Applying division** Using mental division strategies to compare the nutritional information for a chocolate bar with that of a banana
Find fractions using division (e.g. $^{1}/_{100}$ of 5 kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80)	**CA5S24 Percentages of numbers** Positioning percentages on a number line and finding percentages of whole numbers **CA5L26 Identifying numbers on a number line** Using relationships between fractions to calculate fractions of numbers mentally **CA5L27 Mixed numbers and decimals** Finding one quarter of numbers and expressing answers that are not whole numbers as mixed numbers and as decimals **CA5L29 Percentage reductions** Finding simple percentage reductions of prices that are multiples of 10, and using them to calculate new prices

End-of-year expectations for this unit are in **bold**.

Mult-e-Maths © Cambridge University Press 2007

Vocabulary

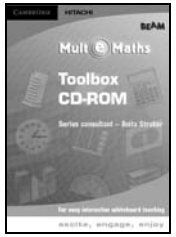
problem, solution, calculator, calculate, calculation, equation, operation, symbol, inverse, answer, method, explain, predict, reason, reasoning, pattern, relationship, add, subtract, multiply, divide, sum, total, difference, plus, minus, product, quotient, remainder, multiple, common multiple, factor, divisor, divisible by, decimal fraction, decimal place, decimal point, percentage, per cent (%), fraction, proper fraction, improper fraction, mixed number, numerator, denominator, unit fraction, equivalent, cancel, proportion, in every, for every, to every

Use ***A Maths Dictionary for Kids*** when discussing mathematical vocabulary for this unit.

Other resources

Use the following ***Mult-e-Maths Toolbox*** tools for this unit:

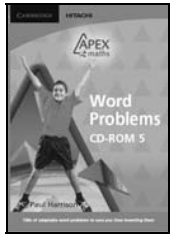
- Fraction labels
- Fraction wall
- Equivalence machine
- Fractions of quantities
- Fractions of circles
- Fractions of squares
- Calculator
- Function machine
- Money category in Image bank



Use activity **5 Age old problem** from ***Apex Maths 5*** to practise extracting relevant data from a word problem and employing a trial and improvement approach.

Use activity **15 The fruit stall** from ***Apex Maths 5*** to explore algebraic problems in the context of money.

Use ***Apex Maths Word Problems CD-ROM 5*** as a source of appropriate one-step and two-step problems.



Use ***Perfect Times*** to practise recall of multiplication facts.