



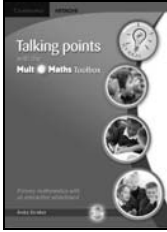

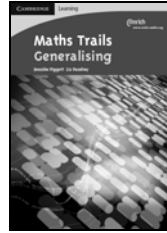
Year 6

Block A: Counting, partitioning and calculating

Unit 1

Objectives for this unit	Mult-e-Maths activities
Explain reasoning and conclusions, using words, symbols or diagrams as appropriate	See references on page 2 to <i>Apex Maths 6</i> .
Find the difference between a positive and a negative integer, or two negative integers, in context	<p>CN6S1 Positive and negative numbers Identifying positive and negative numbers with the greatest difference</p> <p>CN6S2 Temperature differences Finding temperature differences using a thermometer scale</p> <p>CN6S3 Changing temperatures Calculating rises and falls between pairs of temperatures that include at least one negative temperature</p> <p>CN6L1 Positive and negative integer differences Progressing from finding differences between positive and negative temperatures to finding similar differences out of context</p> <p>CN6L2 Temperature differences Finding differences between positive and negative temperatures</p>
Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line	<p>CN6S4 Decimal counting Counting on and back in decimal steps</p> <p>CN6S9 Place value bingo A bingo game involving recognition of the values of digits in decimal fractions with three decimal places</p> <p>CN6L3 Tenths, hundredths, thousandths Identifying numbers with up to three decimal places on a number line</p>
Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$)	NF6S1 Making products Using single-digit integers and decimals to make a target product
Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$	<p>CA6S1 Decimal number sequences Calculating with decimals to identify missing entries in number sequences with two non-consecutive entries visible</p> <p>CA6S5 Calculating mentally Using a range of mental calculation strategies</p> <p>CA6L1 Adding several numbers Applying strategies for adding several integers to decimals</p>
Use a calculator to solve problems involving multi-step calculations	See reference on page 2 to activity 21 in <i>Apex Maths 6</i> .
Use approximations, inverse operations and tests of divisibility to estimate and check results	NF6L4 Divisibility tests for 2, 4, 5, 10 and 100 Investigating tests of divisibility

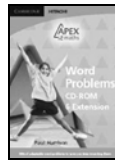
End-of-year expectations for this unit are in **bold**.

Vocabulary			
<p>problem, solution, calculate, calculation, equation, operation, answer, method, strategy, explain, reason, predict, relationship, rule, formula, pattern, sequence, term, consecutive, represent, place value, digit, numeral, partition, integer, decimal point, decimal place, thousandths, positive, negative, compare, order, ascending, descending, greater than (>), less than (<), round, estimate, approximate, approximately, add, subtract, multiply, divide, convert, sum, total, difference, plus, minus, product, quotient, dividend, divisor, remainder, calculator, display, key, enter, clear, constant, pound (£), penny/pence (p), note, coin, units of measurement and their abbreviations</p>		<p>Use <i>A Maths Dictionary for Kids</i> when discussing mathematical vocabulary for this unit.</p> 	
Other resources			
<p>Use the following <i>Mult-e-Maths Toolbox</i> tools for this unit:</p> <ul style="list-style-type: none"> • Number lines • Function machine • Multiplication grid from number grid tool • Place value chart • Place value mat • Calculator 	 <p>Use activity N6.1 Eating out from <i>Talking points with the Mult-e-Maths Toolbox</i> to practise calculating with money amounts.</p>	 <p>From <i>Apex Maths 6</i>: Use activities 3 Dartboards and 4 Magic squares to reason about numbers in the context of investigating addition totals. Use activity 21 Broken calculators to solve problems in the context of calculators with 'broken' keys.</p>	
	<p>Use the Number tricks activity from <i>Maths Trails Generalising</i> to apply mental addition strategies in the context of a number investigation.</p>		<p>Use activity PV2.1 Positive and negative integers from <i>6 Plus Maths extension activities for Year 6</i> to practise adding and subtracting negative and positive integers.</p>

These Cambridge resources are useful to extend Year 6 objectives to Year 6 progression to Year 7 objectives.



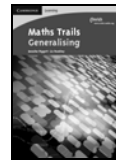
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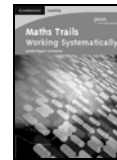
**Apex Maths Word
Problems CD-ROM
6 Extension**



**6 Plus
Maths extension
activities for
Year 6**



**Maths Trails
Generalising**



**Maths Trails
Working
systematically**



**Maths Trails
Visualising**



Perfect Times



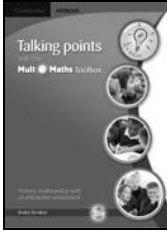




**Ideas using the
Mult-e-Maths
Toolbox at lower
secondary**

Related Year 6 progression to Year 7 objectives	Suggestions for Cambridge resources to use in this unit
Explain and justify reasoning and conclusions, using notation, symbols and diagrams; find a counter-example to disprove a conjecture; use step-by-step deductions to solve problems involving shapes	Maths Trails Generalising Got it now
Compare and order integers and decimals in different contexts	6 Plus PV2.2 Ordering and rounding decimals
Consolidate rapid recall of number facts, including multiplication facts to 10×10 and the associated division facts	Use Perfect Times to consolidate the rapid recall of multiplication facts.
Understand how the commutative, associative and distributive laws, and the relationships between operations, including inverse operations, can be used to calculate more efficiently; use the order of operations, including brackets	6 Plus MD1.2 Doubles and halves
Consolidate and extend mental methods of calculation to include decimals, fractions and percentages	6 Plus AS1.3 Mental problems and puzzles
Make and justify estimates and approximations to calculations	6 Plus C2.4 Using estimation to find products of consecutive numbers

Objectives for this unit	Mult-e-Maths activities
Explain reasoning and conclusions, using words, symbols or diagrams as appropriate	UA6L2 (below) also links to this objective.
Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use	UA6L2 Adding decimals Solving problems involving adding and ordering decimals
Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line	CN6S7 Comparing distances Comparing two distances with up to two decimal places CN6S8 Zap the digits Using a calculator to change a decimal with up to three decimal places to zero, digit by digit CN6L4 Rounding decimals Rounding decimals to the nearest tenth
Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$)	NF6S4 Times-tables facts and place value Identifying multiplications and divisions of integers and decimals with a given answer
Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$	CA6S4 Decimal additions and subtractions Finding missing numbers in additions and subtractions involving one place decimals CA6S6 Multiplying by teens Using known multiplication facts to multiply by 'teens' numbers CA6L3 Multiplying integers mentally Using multiplication facts to 10×10 to find multiplication facts for larger numbers
Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer	CA6L12 Written decimal additions and subtractions Using the standard written method for adding and subtracting numbers with up to three decimal places
Use a calculator to solve problems involving multi-step calculations	See reference on page 5 to <i>Talking points with the Mult-e-Maths Toolbox</i> .
Use approximations, inverse operations and tests of divisibility to estimate and check results	NF6L5 Divisibility tests for 3, 6 and 9 Finding and applying tests of divisibility for 3, 6 and 9

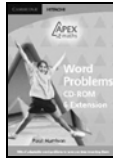
End-of-year expectations for this unit are in **bold**.

Vocabulary			
<p>problem, solution, calculate, calculation, equation, operation, answer, method, strategy, explain, reason, predict, relationship, rule, formula, pattern, sequence, term, consecutive, represent, place value, digit, numeral, partition, integer, decimal point, decimal place, thousandths, positive, negative, compare, order, ascending, descending, greater than (>), less than (<), round, estimate, approximate, approximately, add, subtract, multiply, divide, convert, sum, total, difference, plus, minus, product, quotient, dividend, divisor, remainder, calculator, display, key, enter, clear, constant, pound (£), penny/pence (p), note, coin, units of measurement and their abbreviations</p>		<p>Use <i>A Maths Dictionary for Kids</i> when discussing mathematical vocabulary for this unit.</p> 	
Other resources			
<p>Use the following <i>Mult-e-Maths Toolbox</i> tools for this unit:</p> <ul style="list-style-type: none"> • Number lines • Function machine • Multiplication grid from number grid tool • Place value chart • Place value mat • Calculator 	 <p>Use activity N6.2 Open the safe from <i>Talking points with the Mult-e-Maths Toolbox</i> to explore relationships between numbers.</p>	 <p>Use activity 6 Financial fudge or activity 7 Marco's pizzeria from <i>Apex Maths 6</i> to explore 'real-life' multi-step problems involving a variety of operations and checking strategies.</p>	
	<p>Use <i>Apex Maths Word Problems CD-ROM 6</i> as a source of multi-step problems.</p>		<p>Use activity F4.2 Rounding large numbers and decimals from <i>6 Plus Maths extension activities for Year 6</i> to practise rounding numbers in order to compare them.</p>

These Cambridge resources are useful to extend Year 6 objectives to Year 6 progression to Year 7 objectives.



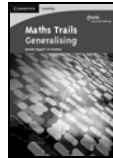
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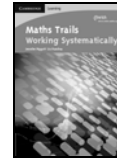
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**6 Plus
Maths extension
activities for
Year 6**



**Maths Trails
Generalising**



**Maths Trails
Working
systematically**



**Maths Trails
Visualising**



Perfect Times



**Ideas using the
Mult-e-Maths
Toolbox at lower
secondary**

Related Year 6 progression to Year 7 objectives	Suggestions for Cambridge resources to use in this unit
Explain and justify reasoning and conclusions, using notation, symbols and diagrams; find a counter-example to disprove a conjecture; use step-by-step deductions to solve problems involving shapes	Maths Trails Generalising Number pyramids Think of two numbers
Solve problems by breaking down complex calculations into simpler steps; choose and use operations and calculation strategies appropriate to the numbers and context; try alternative approaches to overcome difficulties; present, interpret and compare solutions	Create word problems for your chosen mathematical topics and operations using Apex Maths Word Problems CD-ROM 6 Extension . 6 Plus PV1.2 Using multiplication and division by 10, 100 or 1000 to solve problems
Compare and order integers and decimals in different contexts	6 Plus F1.2 Comparing and ordering decimals
Consolidate rapid recall of number facts, including multiplication facts to 10×10 and the associated division facts	Use Perfect Times to consolidate the rapid recall of multiplication facts.
Consolidate and extend mental methods of calculation to include decimals, fractions and percentages	6 Plus F5.1 Digits on the move
Use standard column procedures to add and subtract integers and decimals, and to multiply two-digit and three-digit integers by a one-digit or two-digit integer; extend division to dividing three-digit integers by a two-digit integer	6 Plus AS1.2 Written methods of adding and subtracting 1
Make and justify estimates and approximations to calculations	6 Plus AS1.4 Checking results



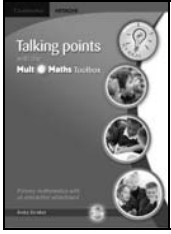


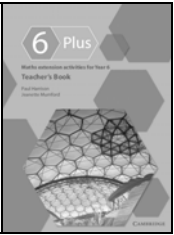
Year 6

Block A: Counting, partitioning and calculating

Unit 3

Objectives for this unit	Mult-e-Maths activities
Explain reasoning and conclusions, using words, symbols or diagrams as appropriate	See references on page 8 to <i>Apex Maths 6</i> .
Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use	UA6L6 Problems involving decimals Using understanding of place value and calculating with decimals to solve problems
Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line	<p>CN6S5 Rounding decimals Rounding decimals with 1 or 2 places</p> <p>CN6S6 Estimating and rounding Estimating positions of decimals on a number line and rounding them to the nearest integer and tenth</p> <p>CN6S10 Decimal positions Ordering decimals with either 1 or 2 decimal places or a mixture of both</p> <p>CN6L5 Ordering decimals Ordering measurements and numbers with up to three decimal places</p>
Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$	<p>CA6S8 Consolidating mental calculation Practising mental calculation methods with integers and decimals</p> <p>CA6S10 Missing number multiplications Calculating mentally with decimals to identify missing numbers in diagrams involving multiplication</p> <p>CA6S12 Egyptian multiplication Discussing the Ancient Egyptian method for multiplying larger integers</p> <p>CA6L6 Mental multiplication Using partitioning to multiply mentally 2-digit integers then 2-digit decimals by single digits, and extending this to 3-digit integers</p>
Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer	CA6L14 Developing multiplication with decimals Using an informal written method to multiply two place decimals by single digits
Use a calculator to solve problems involving multi-step calculations	CA6L14 and UA6L6 (above) involve using a calculator to solve problems.
Use approximations, inverse operations and tests of divisibility to estimate and check results	NF6S7 Estimating totals Approximating answers to additions of 4-digit numbers

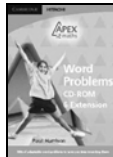
End-of-year expectations for this unit are in **bold**.

Vocabulary				
<p>problem, solution, calculate, calculation, equation, operation, answer, method, strategy, explain, reason, predict, relationship, rule, formula, pattern, sequence, term, consecutive, represent, place value, digit, numeral, partition, integer, decimal point, decimal place, thousandths, positive, negative, compare, order, ascending, descending, greater than (>), less than (<), round, estimate, approximate, approximately, add, subtract, multiply, divide, convert, sum, total, difference, plus, minus, product, quotient, dividend, divisor, remainder, calculator, display, key, enter, clear, constant, pound (£), penny/pence (p), note, coin, units of measurement and their abbreviations</p>		<p>Use <i>A Maths Dictionary for Kids</i> when discussing mathematical vocabulary for this unit.</p> 		
Other resources				
<p>Use the following <i>Mult-e-Maths Toolbox</i> tools for this unit:</p> <ul style="list-style-type: none"> • Number lines • Function machine • Multiplication grid from number grid tool • Place value chart • Place value mat • Calculator 		<p>Use activity N6.3 Differences from <i>Talking points with the Mult-e-Maths Toolbox</i> to solve a variety of multi-step problems involving differences.</p>		
	<p>Use <i>Apex Maths Word Problems CD-ROM 6</i> as a source of multi-step problems.</p>		<p>From <i>Apex Maths 6</i>:</p> <p>Use activity 16 Calculation investigation to investigate the arrangements of digits in standard written algorithms.</p> <p>Use activity 5 Multiplication investigation to explore trial and improvement methods involving recalling multiplication facts and adding several 1- and 2-digit numbers.</p>	
			<p>Use activity F2.1 Rounding decimals from <i>6 Plus Maths extension activities for Year 6</i> to practise rounding decimals.</p>	

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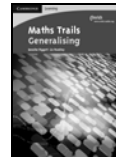
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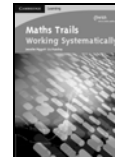
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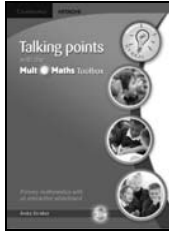
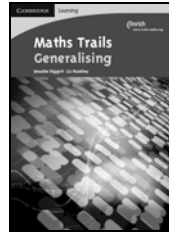


Perfect Times



**Ideas using the
Mult-e-Maths
Toolbox at lower
secondary**

Related Year 6 progression to Year 7 objectives	Suggestions for Cambridge resources to use in this unit
Explain and justify reasoning and conclusions, using notation, symbols and diagrams; find a counter-example to disprove a conjecture; use step-by-step deductions to solve problems involving shapes	Maths Trails Generalising More number pyramids Reach 100
Solve problems by breaking down complex calculations into simpler steps; choose and use operations and calculation strategies appropriate to the numbers and context; try alternative approaches to overcome difficulties; present, interpret and compare solutions	Create word problems for your chosen mathematical topics and operations using Apex Maths Word Problems CD-ROM 6 Extension . 6 Plus SP3.2 Puzzles involving decimals
Consolidate and extend mental methods of calculation to include decimals, fractions and percentages	6 Plus AS2.1 Adding and subtracting mentally 2 MD1.1 Recalling known facts
Make and justify estimates and approximations to calculations	6 Plus AS2.4 Working with approximations

Vocabulary			
<p>problem, solution, calculate, calculation, equation, method, explain, reasoning, reason, predict, rule, formula, relationship, sequence, pattern, classify, property, criterion/criteria, generalise, construct, integer, decimal, fraction, square number, multiple, factor, factorise, divisor, divisible, divisibility, prime, prime factor, consecutive, operation, inverse, product, quotient, round, estimate, approximate, parallel, perpendicular, regular, irregular, face, edge, vertex/vertices, polyhedron, dodecahedron, octahedron, tetrahedron, polygon, quadrilateral, rhombus, kite, parallelogram, trapezium, triangle, isosceles, equilateral, scalene, radius, diameter, circumference, intersecting, intersection, plane</p>		<p>Use <i>A Maths Dictionary for Kids</i> when discussing mathematical vocabulary for this unit.</p> 	
Other resources			
<p>Use the following <i>Mult-e-Maths Toolbox</i> tools for this unit:</p> <ul style="list-style-type: none"> • Function machine • Multiplication grid from number grid tool • Regular polygon drawing tools • Shape drawing tools • Line drawing tools 		<p>Use activity S6.1 Shape show from <i>Talking points with the Mult-e-Maths Toolbox</i> to practise identification of shapes and their properties.</p>	
	<p>Use the Tilted squares activity from <i>Maths Trails Generalising</i> to explore the properties of squares and begin to construct simple expressions.</p>		<p>From <i>Apex Maths 6</i>:</p> <p>Use activity 18 Window investigations to investigate number relationships in a 100 square and a multiplication square.</p> <p>Use activity 20 Patio patterns to undertake an algebraic investigation involving patterns and relationships.</p> <p>Use activity 28 Economical boxes to investigate cuboid boxes and their surface areas.</p>
		<p>Use the Take three from five activity from <i>Maths Trails Working Systematically</i> to investigate the properties of odd and even numbers and develop simple expressions and formulae.</p>	