



The Oratory Roman Catholic Primary School

Maths Calculation Policy – Upper Key Stage 2

Mathematical Language in Upper Key Stage 2

Autumn Term

Year Group	Key Terminology		
Year 5	Unit 1: Place Value within 100,000		
	<ul style="list-style-type: none"> ones (1s), tens (10s), hundreds (100s), thousands (1,000s), ten thousands (10,000s) place value, position partition, equivalent 	<ul style="list-style-type: none"> estimate, closer to, between round next multiple, previous multiple, nearest multiple of 10, 100, 1,000 or 10,000 	<ul style="list-style-type: none"> compare, order, greater than (>), less than (<) Roman numeral
	Unit 2: Place Value within 1,000,000		
	<ul style="list-style-type: none"> place value ones (1s), tens (10s), hundreds (100s), thousands (1,000s), ten thousands (10,000s), hundred thousands (100,000s), million (1,000,000) partition, partitioning 	<ul style="list-style-type: none"> number line, count negative number, positive number minus rounding, round up, round down estimate 	<ul style="list-style-type: none"> minus compare, order sequence, rule ascending, descending less than (<), greater than (>), nearest.
	Unit 3: Addition and Subtraction		
	<ul style="list-style-type: none"> add, subtract 1s (ones), 10s (tens), 100s (hundreds), 1,000s (thousands), 10,000s (ten thousands) 	<ul style="list-style-type: none"> total difference inverse 	<ul style="list-style-type: none"> round mentally estimate
	Unit 4: Addition and Subtraction within 10		
	<ul style="list-style-type: none"> How many are left? take away, taken away, subtract subtraction addition 	<ul style="list-style-type: none"> count back, count backwards difference How many more? How many fewer? 	<ul style="list-style-type: none"> more than, >, less than, < missing part number stories
	Unit 4: Graphs and Tables		
	<ul style="list-style-type: none"> line graph, dual line graph data, information 	<ul style="list-style-type: none"> horizontal axis, vertical axis, axes, scale 	<ul style="list-style-type: none"> read, interpret, complete table, two-way table.
Unit 5: Multiplication and Division (1)			
<ul style="list-style-type: none"> multiple factor prime number 	<ul style="list-style-type: none"> number square (x^2) cube (x^3) multiply, multiplication, times 	<ul style="list-style-type: none"> inverse operation place value 	

Year 6	<ul style="list-style-type: none"> • composite 	<ul style="list-style-type: none"> • divide, division 	<ul style="list-style-type: none"> • ones, tens, hundreds, thousands, tens of thousands
	Unit 6: Measure – Area and Perimeter		
	<ul style="list-style-type: none"> • rectangle, square, rectilinear shape, sides, length, width • measure, combine, brackets, total, double, estimate, array 	<ul style="list-style-type: none"> • centimetres (cm), metres (m), square centimetres (cm²), square metres (m²) 	<ul style="list-style-type: none"> • perimeter, distance, area, space • scale, actual area/actual size, convert
	Unit 1: Place Value within 10,000,000		
	<ul style="list-style-type: none"> • ones (1s), tens (10s), hundreds (100s), thousands (1,000s), ten thousands (10,000s), hundred thousands (100,000s), millions (1,000,000s), ten million (10,000,000) • place value 	<ul style="list-style-type: none"> • partition/partitioned/partitioning • interval • estimate • compare/comparison/comparing • order/ordering • less than (<), greater than (>), equal to (=) 	<ul style="list-style-type: none"> • rounding/rounded/round up/round down/rounds • negative, positive • odd, even • accurate/accurately, exactly, approximately
	Unit 2: Four operations (1)		
	<ul style="list-style-type: none"> • add, subtract, sum, total, difference • method, column, columnar • multiply, multiplication, product, approximation 	<ul style="list-style-type: none"> • factor, multiple, divisor, dividend, remainder • fraction, simplify, numerator, denominator 	<ul style="list-style-type: none"> • divide, division, short division, long division • inverse grid method •
	Unit 3: Four operations (2)		
	<ul style="list-style-type: none"> • factor, common factor • multiple, common multiple • prime 	<ul style="list-style-type: none"> • number square (x^2) • cube (x^3) 	<ul style="list-style-type: none"> • order of operations, brackets • inverse operation
	Unit 4: Fractions (1)		
<ul style="list-style-type: none"> • whole, part • numerator, denominator, common denominator • equivalent simplify, simplest form 	<ul style="list-style-type: none"> • factor, highest common factor, lowest common multiple • compare • order, ascending, descending • less than, greater than 	<ul style="list-style-type: none"> • proper fraction, improper fraction • mixed number • convert 	
Unit 5: Fractions (2)			
<ul style="list-style-type: none"> • numerator, denominator • multiply, divide • proper 	<ul style="list-style-type: none"> • fraction, improper fraction, mixed number, whole number 	<ul style="list-style-type: none"> • whole, part • order of operations 	

Unit 6: Geometry – Position and Direction

<ul style="list-style-type: none"> plotting, coordinates, quadrant, point, axis, x-axis, y-axis, grid, x-coordinate, y-coordinate perimeter, metre (m), distance, length, long horizontal, vertical 	<ul style="list-style-type: none"> vertices, vertex, square, side, rectangle, triangle, equilateral, oblong, shape, irregular, hexagon, identical, similar, parallelogram negative, positive 	<ul style="list-style-type: none"> halfway, line, properties, value, reason translation, reflection, original, left, down, up, right, mirror, away, diagonal
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Spring Term

Year Group	Key Terminology		
Year 5	Unit 7: Multiplication and Division (2)		
	<ul style="list-style-type: none"> total, sum, remainder place value, partition 	<ul style="list-style-type: none"> multiply, divide, add, subtract 	factor, multiple
	Unit 8: Fractions (1)		
	<ul style="list-style-type: none"> equivalent numerator, denominator whole, fraction simplify, expand remainder 	<ul style="list-style-type: none"> multiply (\times), divide (\div), multiplication, division, multiple, factor improper, mixed number 	<ul style="list-style-type: none"> convert greater than ($>$), less than ($<$), equal to ($=$) divisor, dividend, quotient
	Unit 9: Fractions (2)		
	<ul style="list-style-type: none"> fraction, whole, part, equal parts, equivalent add, sum, total, subtract, difference 	<ul style="list-style-type: none"> divide, multiply, multiple numerator, denominator, common denominator simplify, convert 	<ul style="list-style-type: none"> proper fraction, improper fraction, mixed number method, multi-step, efficient
	Unit 10: Fractions (3)		
	<ul style="list-style-type: none"> operators, add, subtract, multiply, divide convert, simplify, equivalent 	<ul style="list-style-type: none"> fraction, improper fraction, mixed number denominator, numerator 	<ul style="list-style-type: none"> whole, part factor, multiple
Unit 11: Decimals and Percentages			
<ul style="list-style-type: none"> decimal place tenths hundredths thousandths decimal point 	<ul style="list-style-type: none"> place value digits fractions percent (%) rounding 	<ul style="list-style-type: none"> improper fractions mixed numbers convert exchange 	

Year 6

Unit 7: Decimals		
<ul style="list-style-type: none"> place value, tenths, hundredths, thousandths factor, multiple, product group, share 	<ul style="list-style-type: none"> multiply (\times), divide (\div) decimal placeholder numerator, denominator 	<ul style="list-style-type: none"> convert, simplify, equivalent divisor, dividend, quotient, remainder
Unit 8: Percentages		
<ul style="list-style-type: none"> percent (%), percentage parts, whole decimal 	<ul style="list-style-type: none"> fraction, equivalent fraction, tenth, hundredth, half, quarter less than ($<$), greater than ($>$) 	<ul style="list-style-type: none"> divide (\div), share, multiply (\times) convert, compare, order, simplify
Unit 9: Algebra		
<ul style="list-style-type: none"> pattern, growing pattern sequence rule term value 	<ul style="list-style-type: none"> algebra, algebraic expression formula, formulae substitute generalise operation 	<ul style="list-style-type: none"> calculation, calculate equation inverse solution represent
Unit 10: Measure –imperial and metric measures		
<ul style="list-style-type: none"> units (of measure/ment), metric, imperial, length, mass, volume, capacity, distance measure, convert, equal, equivalent, approximate, smaller (unit), larger (unit), for every, ratio 	<ul style="list-style-type: none"> millimetres (mm), centimetres (cm), metres (m), kilometres (km), grams (g), kilograms (kg), millilitres (ml), litres (l) 	<ul style="list-style-type: none"> inches (in), feet (ft), ounces (oz), pounds (lbs), pints, miles, gallons, yards digits, decimal conversion table, conversion graph
Unit 11: Perimeter, Area and Volume		
<ul style="list-style-type: none"> perimeter, distance, area, space, volume measure, combine, total, double, estimate. 	<ul style="list-style-type: none"> centimetres (cm), metres (m), square centimetres (cm²), square metres (m²), cubic centimetres (cm³), cubic metres (m³) 	<ul style="list-style-type: none"> rectangle, square, triangle, rectilinear shape, sides, length, width, parallelogram, cube, cuboid
Unit 12: Ratio and Proportion		
<ul style="list-style-type: none"> ratio, ratio notation, 1 : 2 proportion part, whole, total group 	<ul style="list-style-type: none"> fraction unequal, equal simplest form, simplify 	<ul style="list-style-type: none"> for every x there are y similar enlarge, enlargement scale, map scale, scale factor

Year Group	Key Terminology		
Year 5	Unit 12: Decimals		
	<ul style="list-style-type: none"> • difference, group, share, compare, represent • decimal, decimal point, decimal place, digit 	<ul style="list-style-type: none"> • add, subtract, multiply, divide • ones, tenths, hundredths, thousandths 	<ul style="list-style-type: none"> • column, place value, exchange • mass, weight, length, width, cost, height
	Unit 13: Geometry – Properties of Shapes (1)		
	<ul style="list-style-type: none"> • angle, turn • whole turn, half turn, quarter turn 	<ul style="list-style-type: none"> • acute angle, right angle, obtuse angle, reflex angle • degrees (°) 	<ul style="list-style-type: none"> • 90 degrees • 180 degrees, 360 degrees • interior angle protractor
	Unit 14: Geometry – Properties of Shapes (2)		
	<ul style="list-style-type: none"> • parallel • perpendicular • angle, right angle, interior angle 	<ul style="list-style-type: none"> • grid • regular, irregular • polygon, quadrilateral 	<ul style="list-style-type: none"> • 2D, 3D • viewpoint
	Unit 15: Geometry – Position and Direction		
	<ul style="list-style-type: none"> • reflection, translation • mirror line 	<ul style="list-style-type: none"> • coordinate, horizontal coordinate, vertical coordinate 	<ul style="list-style-type: none"> • horizontal axis, vertical axis
	Unit 16: Measure – Converting Units		
	<ul style="list-style-type: none"> • mass, capacity, length, time, quantity • metric units, gram, kilogram, millilitre, litre, millimetre, centimetre, metre, kilometre 	<ul style="list-style-type: none"> • imperial units, ounce (oz), pound (lb), stone (st), pint (pt), gallon, inch (in), foot (ft), yard (yd) • second, minute, hour, day, week, month, year 	<ul style="list-style-type: none"> • convert, equal to, equivalent, approximately, per, measure, remainder, multiple • timetable, 24-hour, digital, duration
Unit 17: Measure – Volume and Capacity			
<ul style="list-style-type: none"> • volume, capacity, solid, liquid, container • cube, cuboid, triangular, prism • 3D shapes, objects • calculate, estimate, compare, count, accurately, order, amount, irregular, prediction, exact 	<ul style="list-style-type: none"> • unit (cm) cubes, units of measurement, measure • less, more, less than (<), more than (>), largest, smallest, least, greatest, equal • space inside 	<ul style="list-style-type: none"> • height, length, width, size, tall • layer, slice • multiple, total, take away, whole, part, almost half, identical • litre (l), millilitre (ml) 	

Year 6	Unit 13: Geometry – properties of shapes		
	<ul style="list-style-type: none"> degrees, measurement, length angle, obtuse, acute, reflex, right angle, interior protractor, baseline, crosshairs, scale vertex, edge, face 	<ul style="list-style-type: none"> parallel properties triangle, isosceles, equilateral, scalene regular, polygon, quadrilateral, parallelogram, kite, rhombus, trapezium 	<ul style="list-style-type: none"> diameter, radius, circumference, concentric, centre perimeter pyramid, tetrahedron, cylinder, prism, cuboid, cube
	Unit 14: Problem Solving		
	<ul style="list-style-type: none"> partition percentage, ratio, proportion, convert 	<ul style="list-style-type: none"> estimate, round, compare equivalent, common denominator 	<ul style="list-style-type: none"> coordinates, vertex (vertices), reflection, translation sum of interior angle
Unit 15: Statistics			
<ul style="list-style-type: none"> more, equal, even, size, total, share, great(er/est), calculate, divide, highest, compare, lowest, group, data, represent, balance, odd, different/difference, least, inverse, operation, advantages, disadvantages, largest, half, scale, quarter, frequency, smallest, part, same, more, category, results, exact 	<ul style="list-style-type: none"> line graph, axis/axes, estimate, accurate, interpret, increase, above, below, zero (0), value, x-axis, y-axis, minus (-), between, plot, point, vertical, horizontal, construct, convert/conversion, straight, equivalent, predict, curve 	<ul style="list-style-type: none"> average, mean, set, share pie chart, segment, whole, section, degree, angle, right angle tally chart, bar chart fraction, percentage 	

National Curriculum Objectives

Year Groups	Addition and Subtraction	Multiplication and Division	Fractions
Year 5	<ul style="list-style-type: none"> add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) add and subtract numbers mentally with increasingly large numbers use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 	<ul style="list-style-type: none"> identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers multiply and divide numbers mentally, drawing upon known facts divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates 	<ul style="list-style-type: none"> compare and order fractions whose denominators are all multiples of the same number identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] add and subtract fractions with the same denominator, and denominators that are multiples of the same number multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents round decimals with 2 decimal places to the nearest whole number and to 1 decimal place read, write, order and compare numbers with up to 3 decimal places solve problems involving number up to 3 decimal places recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25

Year 6

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| <ul style="list-style-type: none"> multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context perform mental calculations, including with mixed operations and large numbers identify common factors, common multiples and prime numbers use their knowledge of the order of operations to carry out calculations involving the 4 operations solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy | <ul style="list-style-type: none"> use common factors to simplify fractions; use common multiples to express fractions in the same denomination compare and order fractions, including fractions >1 add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places multiply one-digit numbers with up to 2 decimal places by whole numbers use written division methods in cases where the answer has up to 2 decimal places solve problems which require answers to be rounded to specified degrees of accuracy recall and use equivalences between simple fractions, decimals and percentages, including in different contexts |
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Power Maths calculation policy

Upper KS2

The following pages show the *Power Maths* progression in calculation (addition, subtraction, multiplication and division) and how this works in line with the National Curriculum. The consistent use of the CPA (concrete, pictorial, abstract) approach across *Power Maths* helps children develop mastery across all the operations in an efficient and reliable way. This policy shows how these methods develop children's confidence in their understanding of both written and mental methods.

KEY STAGE 2

In upper Key Stage 2, children build on secure foundations in calculation, and develop fluency, accuracy and flexibility in their approach to the four operations. They work with whole numbers and adapt their skills to work with decimals, and they continue to develop their ability to select appropriate, accurate and efficient operations.

Key language: decimal, column methods, exchange, partition, mental method, ten thousand, hundred thousand, million, factor, multiple, prime number, square number, cube number

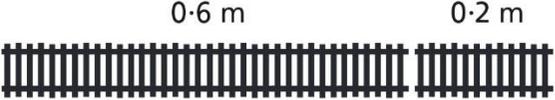
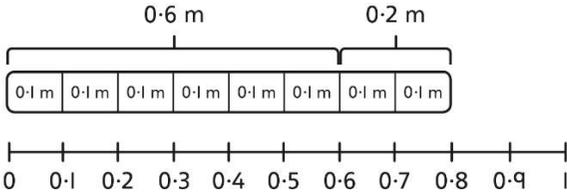
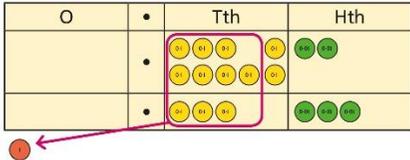
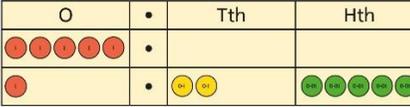
Addition and subtraction: Children build on their column methods to add and subtract numbers with up to seven digits, and they adapt the methods to calculate efficiently and effectively with decimals, ensuring understanding of place value at every stage. Children compare and contrast methods, and they select mental methods or jottings where appropriate and where these are more likely to be efficient or accurate when compared with formal column methods. Bar models are used to represent the calculations required to solve problems and may indicate where efficient methods can be chosen.

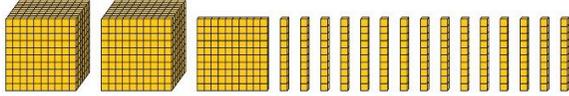
Multiplication and division: Building on their understanding, children develop methods to multiply up to 4-digit numbers by single-digit and 2-digit numbers. Children develop column methods with an understanding of place value, and they continue to use the key skill of unitising to multiply and divide by 10, 100 and 1,000. Written division methods are introduced and adapted for division by single-digit and 2-digit numbers and are understood alongside the area model and place value. In Year 6, children develop a secure understanding of how division is related to fractions. Multiplication and division of decimals are also introduced and refined in Year 6.

Fractions: Children find fractions of amounts, multiply a fraction by a whole number and by another fraction, divide a fraction by a whole number, and add and subtract fractions with different denominators. Children become more confident working with improper fractions and mixed numbers and can calculate with them. Understanding of decimals with up to 3 decimal places is built through place value and as fractions, and children calculate with decimals in the context of measure as well as in pure arithmetic. Children develop an understanding of percentages in relation to hundredths, and they understand how to work with common percentages: 50%, 25%, 10% and 1%.

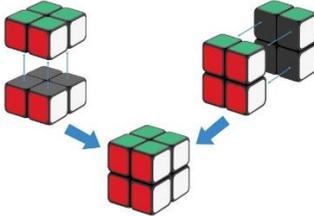
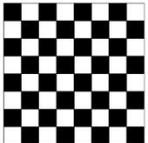
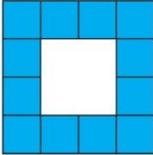
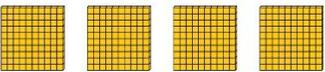
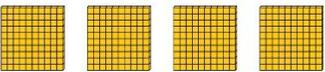
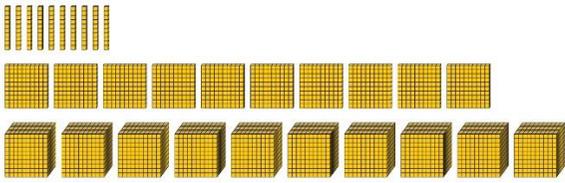
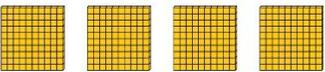
Year 5

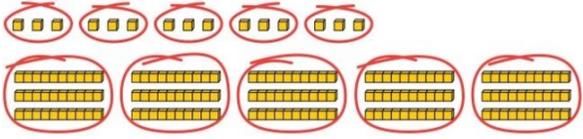
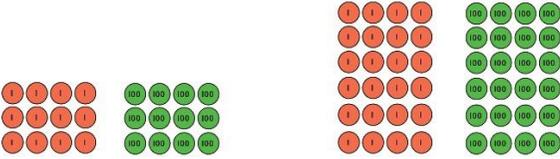
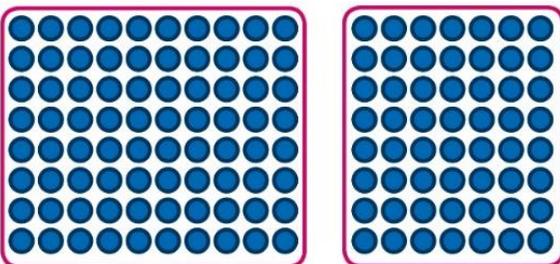
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Year 5 Addition																																																																																																								
Column addition with whole numbers	<p>Use place value equipment to represent additions.</p> <p><i>Add a row of counters onto the place value grid to show 15,735 + 4,012.</i></p> <div style="text-align: center; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="width: 12.5%;">TTh</th> <th style="width: 12.5%;">Th</th> <th style="width: 12.5%;">H</th> <th style="width: 12.5%;">T</th> <th style="width: 12.5%;">O</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">●</td> <td style="text-align: center;">●●●●●●●●</td> <td style="text-align: center;">●●●●●●●● ●●</td> <td style="text-align: center;">●●●●●●●●</td> <td style="text-align: center;">●●●●●●●●</td> </tr> </tbody> </table> </div>	TTh	Th	H	T	O	●	●●●●●●●●	●●●●●●●● ●●	●●●●●●●●	●●●●●●●●	<p>Represent additions, using place value equipment on a place value grid alongside written methods.</p> <div style="text-align: center; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="width: 12.5%;">TTh</th> <th style="width: 12.5%;">Th</th> <th style="width: 12.5%;">H</th> <th style="width: 12.5%;">T</th> <th style="width: 12.5%;">O</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">●●</td> <td></td> <td style="text-align: center;">●</td> <td style="text-align: center;">●●●●●●●●</td> <td style="text-align: center;">●●●●</td> </tr> <tr> <td style="text-align: center;">●</td> <td style="text-align: center;">●●●●●●●● ●●●●●●</td> <td style="text-align: center;">●</td> <td style="text-align: center;">●●●●●●●● ●●</td> <td style="text-align: center;">●●●●●●●●</td> </tr> </tbody> </table> <p style="text-align: center; margin-top: 5px;"><i>I need to exchange 10 tens for a 100.</i></p> <div style="text-align: center; margin-top: 10px;"> <table style="margin: auto;"> <tr><td></td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>0</td><td>1</td><td>5</td><td>3</td></tr> <tr><td>+</td><td>1</td><td>9</td><td>1</td><td>7</td><td>5</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>3</td><td>9</td><td>3</td><td>2</td><td>8</td></tr> </table> </div> </div>	TTh	Th	H	T	O	●●		●	●●●●●●●●	●●●●	●	●●●●●●●● ●●●●●●	●	●●●●●●●● ●●	●●●●●●●●		TTh	Th	H	T	O		2	0	1	5	3	+	1	9	1	7	5		3	9	3	2	8	<p>Use column addition, including exchanges.</p> <div style="text-align: center; margin-top: 10px;"> <table style="margin: auto;"> <tr><td></td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>1</td><td>9</td><td>1</td><td>7</td><td>5</td></tr> <tr><td>+</td><td>1</td><td>8</td><td>4</td><td>1</td><td>7</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>3</td><td>7</td><td>5</td><td>9</td><td>2</td></tr> </table> </div>		TTh	Th	H	T	O		1	9	1	7	5	+	1	8	4	1	7		3	7	5	9	2																												
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Representing additions		<p>Bar models represent addition of two or more numbers in the context of problem solving.</p> <div style="text-align: center; margin-top: 10px;"> <table style="margin: auto;"> <tr><td colspan="3" style="text-align: center;">?</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">£19,579</td><td style="border: 1px solid black; padding: 2px;">£28,370</td><td style="border: 1px solid black; padding: 2px;">£16,725</td></tr> </table> <table style="margin: auto;"> <tr><td>Jen</td><td style="border: 1px solid black; padding: 2px;">£2,600</td><td rowspan="2" style="font-size: 2em; vertical-align: middle;">}</td><td rowspan="2" style="vertical-align: middle;">?</td></tr> <tr><td>Holly</td><td style="border: 1px solid black; padding: 2px;">£2,600</td><td style="border: 1px solid black; padding: 2px;">£1,450</td></tr> <tr><td colspan="2"></td><td colspan="2" style="text-align: center;">£4,050</td></tr> </table> <table style="margin: auto;"> <tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr><td>2</td><td>6</td><td>0</td><td>0</td></tr> <tr><td>+</td><td>1</td><td>4</td><td>5</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>4</td><td>0</td><td>5</td><td>0</td></tr> </table> <table style="margin: auto;"> <tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr><td>2</td><td>6</td><td>0</td><td>0</td></tr> <tr><td>+</td><td>4</td><td>0</td><td>5</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>6</td><td>6</td><td>5</td><td>0</td></tr> </table> </div>	?			£19,579	£28,370	£16,725	Jen	£2,600	}	?	Holly	£2,600	£1,450			£4,050		Th	H	T	O	2	6	0	0	+	1	4	5	0		4	0	5	0	Th	H	T	O	2	6	0	0	+	4	0	5	0		6	6	5	0	<p>Use approximation to check whether answers are reasonable.</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <table style="margin: auto;"> <tr><td></td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>3</td><td>4</td><td>0</td><td>5</td></tr> <tr><td>+</td><td></td><td>7</td><td>8</td><td>9</td><td>2</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>2</td><td>0</td><td>2</td><td>9</td><td>7</td></tr> </table> <table style="margin: auto;"> <tr><td></td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>3</td><td>4</td><td>0</td><td>5</td></tr> <tr><td>+</td><td></td><td>7</td><td>8</td><td>9</td><td>2</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>3</td><td>1</td><td>2</td><td>9</td><td>7</td></tr> </table> </div> <p style="text-align: center; margin-top: 10px;"><i>I will use 23,000 + 8,000 to check.</i></p>		TTh	Th	H	T	O		2	3	4	0	5	+		7	8	9	2		2	0	2	9	7		TTh	Th	H	T	O		2	3	4	0	5	+		7	8	9	2		3	1	2	9	7
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<p>Adding tenths</p>	<p>Link measure with addition of decimals.</p> <p><i>Two lengths of fencing are 0.6 m and 0.2 m.</i></p> <p><i>How long are they when added together?</i></p> 	<p>Use a bar model with a number line to add tenths.</p>  <p>$0.6 + 0.2 = 0.8$</p> <p><i>6 tenths + 2 tenths = 8 tenths</i></p>	<p>Understand the link with adding fractions.</p> $\frac{6}{10} + \frac{2}{10} = \frac{8}{10}$ <p><i>6 tenths + 2 tenths = 8 tenths</i></p> <p><i>0.6 + 0.2 = 0.8</i></p>
<p>Adding decimals using column addition</p>	<p>Use place value equipment to represent additions.</p> <p><i>Show $0.23 + 0.45$ using place value counters.</i></p>	<p>Use place value equipment on a place value grid to represent additions.</p> <p>Represent exchange where necessary.</p>  <p>Include examples where the numbers of decimal places are different.</p> 	<p>Add using a column method, ensuring that children understand the link with place value.</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 0 \cdot 2 \ 3 \\ + 0 \cdot 4 \ 5 \\ \hline 0 \cdot 6 \ 8 \end{array}$ <p>Include exchange where required, alongside an understanding of place value.</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 0 \cdot 9 \ 2 \\ + 0 \cdot 3 \ 3 \\ \hline 1 \cdot 2 \ 5 \end{array}$ <p>Include additions where the numbers of decimal places are different.</p> <p>$3.4 + 0.65 = ?$</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 3 \cdot 4 \ 0 \\ + 0 \cdot 6 \ 5 \\ \hline \end{array}$

<p>Year 5 Subtraction</p>																																																																																																																																																																								
<p>Column subtraction with whole numbers</p>	<p>Use place value equipment to understand where exchanges are required.</p> <p style="text-align: center;">$2,250 - 1,070$</p> 	<p>Represent the stages of the calculation using place value equipment on a grid alongside the calculation, including exchanges where required.</p> <p style="text-align: center;">$15,735 - 2,582 = 13,153$</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">TTh</td><td style="width: 12.5%;">Th</td><td style="width: 12.5%;">H</td><td style="width: 12.5%;">T</td><td style="width: 12.5%;">O</td><td style="width: 12.5%;"></td><td style="width: 12.5%;">TTh</td><td style="width: 12.5%;">Th</td><td style="width: 12.5%;">H</td><td style="width: 12.5%;">T</td><td style="width: 12.5%;">O</td> </tr> <tr> <td style="text-align: center;">●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">-</td><td style="text-align: center;">1</td><td style="text-align: center;">5</td><td style="text-align: center;">7</td><td style="text-align: center;">3</td><td style="text-align: center;">5</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">-</td><td style="text-align: center;">2</td><td style="text-align: center;">5</td><td style="text-align: center;">8</td><td style="text-align: center;">2</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">3</td><td></td> </tr> </table> <p>Now subtract the 10s. Exchange 1 hundred for 10 tens.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">TTh</td><td style="width: 12.5%;">Th</td><td style="width: 12.5%;">H</td><td style="width: 12.5%;">T</td><td style="width: 12.5%;">O</td><td style="width: 12.5%;"></td><td style="width: 12.5%;">TTh</td><td style="width: 12.5%;">Th</td><td style="width: 12.5%;">H</td><td style="width: 12.5%;">T</td><td style="width: 12.5%;">O</td> </tr> <tr> <td style="text-align: center;">●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">-</td><td style="text-align: center;">1</td><td style="text-align: center;">5</td><td style="text-align: center;">7</td><td style="text-align: center;">3</td><td style="text-align: center;">5</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">-</td><td style="text-align: center;">2</td><td style="text-align: center;">5</td><td style="text-align: center;">8</td><td style="text-align: center;">2</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">5</td><td style="text-align: center;">3</td> </tr> </table> <p>Subtract the 100s, 1,000s and 10,000s.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">TTh</td><td style="width: 12.5%;">Th</td><td style="width: 12.5%;">H</td><td style="width: 12.5%;">T</td><td style="width: 12.5%;">O</td><td style="width: 12.5%;"></td><td style="width: 12.5%;">TTh</td><td style="width: 12.5%;">Th</td><td style="width: 12.5%;">H</td><td style="width: 12.5%;">T</td><td style="width: 12.5%;">O</td> </tr> <tr> <td style="text-align: center;">●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">●●●●●</td><td style="text-align: center;">-</td><td style="text-align: center;">1</td><td style="text-align: center;">5</td><td style="text-align: center;">7</td><td style="text-align: center;">3</td><td style="text-align: center;">5</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">-</td><td style="text-align: center;">2</td><td style="text-align: center;">5</td><td style="text-align: center;">8</td><td style="text-align: center;">2</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">1</td><td style="text-align: center;">3</td><td style="text-align: center;">1</td><td style="text-align: center;">5</td><td style="text-align: center;">3</td> </tr> </table>	TTh	Th	H	T	O		TTh	Th	H	T	O	●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	-	1	5	7	3	5								-	2	5	8	2											3		TTh	Th	H	T	O		TTh	Th	H	T	O	●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	-	1	5	7	3	5								-	2	5	8	2											5	3	TTh	Th	H	T	O		TTh	Th	H	T	O	●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	-	1	5	7	3	5								-	2	5	8	2											1	3	1	5	3	<p>Use column subtraction methods with exchange where required.</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td style="text-align: center;">TTh</td><td style="text-align: center;">Th</td><td style="text-align: center;">H</td><td style="text-align: center;">T</td><td style="text-align: center;">O</td></tr> <tr><td style="text-align: center;">58</td><td style="text-align: center;">12</td><td style="text-align: center;">10</td><td style="text-align: center;">9</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">-</td><td style="text-align: center;">1</td><td style="text-align: center;">8</td><td style="text-align: center;">5</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">3</td><td style="text-align: center;">5</td><td style="text-align: center;">6</td><td style="text-align: center;">3</td></tr> </table> <p style="text-align: center;">$62,097 - 18,534 = 43,563$</p>	TTh	Th	H	T	O	5 8	1 2	10	9	7	-	1	8	5	3	4	4	3	5	6	3
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<p>Checking strategies and representing subtractions</p>		<p>Bar models represent subtractions in problem contexts, including 'find the difference'.</p> <p>Athletics Stadium 75,450</p> <p>Hockey Centre ← $42,300$ →</p> <p>Velodrome 15,735 ← ? →</p>	<p>Children can explain the mistake made when the columns have not been ordered correctly.</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="border: 1px solid black; padding: 2px;">Bella's working</td> <td style="border: 1px solid black; padding: 2px;">Correct method</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">TTh</td><td style="text-align: center;">Th</td><td style="text-align: center;">H</td><td style="text-align: center;">T</td><td style="text-align: center;">O</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td style="text-align: center;">7</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">+</td><td style="text-align: center;">4</td><td style="text-align: center;">0</td><td style="text-align: center;">1</td><td style="text-align: center;">2</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">7</td><td style="text-align: center;">9</td><td style="text-align: center;">9</td><td style="text-align: center;">7</td></tr> </table> </td> <td style="border: 1px solid black; padding: 2px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">TTh</td><td style="text-align: center;">Th</td><td style="text-align: center;">H</td><td style="text-align: center;">T</td><td style="text-align: center;">O</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td style="text-align: center;">7</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">+</td><td style="text-align: center;">4</td><td style="text-align: center;">0</td><td style="text-align: center;">1</td><td style="text-align: center;">2</td></tr> <tr><td style="text-align: center;">2</td><td style="text-align: center;">1</td><td style="text-align: center;">8</td><td style="text-align: center;">8</td><td style="text-align: center;">9</td></tr> </table> </td> </tr> </table> <p>Use approximation to check calculations.</p> <p style="text-align: center;"><i>I calculated $18,000 + 4,000$ mentally to check my subtraction.</i></p>	Bella's working	Correct method	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">TTh</td><td style="text-align: center;">Th</td><td style="text-align: center;">H</td><td style="text-align: center;">T</td><td style="text-align: center;">O</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td style="text-align: center;">7</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">+</td><td style="text-align: center;">4</td><td style="text-align: center;">0</td><td style="text-align: center;">1</td><td style="text-align: center;">2</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">7</td><td style="text-align: center;">9</td><td style="text-align: center;">9</td><td style="text-align: center;">7</td></tr> </table>	TTh	Th	H	T	O	1	7	8	7	7	+	4	0	1	2	5	7	9	9	7	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">TTh</td><td style="text-align: center;">Th</td><td style="text-align: center;">H</td><td style="text-align: center;">T</td><td style="text-align: center;">O</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td style="text-align: center;">7</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">+</td><td style="text-align: center;">4</td><td style="text-align: center;">0</td><td style="text-align: center;">1</td><td style="text-align: center;">2</td></tr> <tr><td style="text-align: center;">2</td><td style="text-align: center;">1</td><td style="text-align: center;">8</td><td style="text-align: center;">8</td><td style="text-align: center;">9</td></tr> </table>	TTh	Th	H	T	O	1	7	8	7	7	+	4	0	1	2	2	1	8	8	9																																																																																																																									
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<p>Choosing efficient methods</p>			<p>To subtract two large numbers that are close, children find the difference by counting on.</p> $2,002 - 1,995 = ?$ <p>Use addition to check subtractions. <i>I calculated $7,546 - 2,355 = 5,191$.</i> <i>I will check using the inverse.</i></p>																																																					
<p>Subtracting decimals</p>	<p>Explore complements to a whole number by working in the context of length.</p> <p>1 m - <input type="text"/> m = <input type="text"/> m</p> $1 - 0.49 = ?$	<p>Use a place value grid to represent the stages of column subtraction, including exchanges where required.</p> $5.74 - 2.25 = ?$ <table border="1" style="margin-bottom: 10px;"> <tr><td>O</td><td>•</td><td>Tth</td><td>Hth</td></tr> <tr><td>●●●●</td><td>•</td><td>●●●●●●</td><td>●●●●</td></tr> </table> <p>Exchange 1 tenth for 10 hundredths.</p> <table border="1" style="margin-bottom: 10px;"> <tr><td>O</td><td>•</td><td>Tth</td><td>Hth</td></tr> <tr><td>●●●●</td><td>•</td><td>●●●●●●</td><td>●●●●●●</td></tr> </table> <p>Now subtract the 5 hundredths.</p> <table border="1" style="margin-bottom: 10px;"> <tr><td>O</td><td>•</td><td>Tth</td><td>Hth</td></tr> <tr><td>●●●●</td><td>•</td><td>●●●●●●</td><td>●●●●●●</td></tr> </table> <p>Now subtract the 2 tenths, then the 2 ones.</p> <table border="1"> <tr><td>O</td><td>•</td><td>Tth</td><td>Hth</td></tr> <tr><td>●●●●</td><td>•</td><td>●●●●●●</td><td>●●●●●●</td></tr> </table>	O	•	Tth	Hth	●●●●	•	●●●●●●	●●●●	O	•	Tth	Hth	●●●●	•	●●●●●●	●●●●●●	O	•	Tth	Hth	●●●●	•	●●●●●●	●●●●●●	O	•	Tth	Hth	●●●●	•	●●●●●●	●●●●●●	<p>Use column subtraction, with an understanding of place value, including subtracting numbers with different numbers of decimal places.</p> $3.921 - 3.75 = ?$ <table style="margin-left: auto; margin-right: auto;"> <tr><td>O</td><td>•</td><td>Tth</td><td>Hth</td><td>Thth</td></tr> <tr><td>3</td><td>•</td><td>9</td><td>2</td><td>1</td></tr> <tr><td>-</td><td></td><td>3</td><td>7</td><td>5</td><td>0</td></tr> <tr><td colspan="5" style="text-align: center;">.</td></tr> </table>	O	•	Tth	Hth	Thth	3	•	9	2	1	-		3	7	5	0	.				
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Year 5 Multiplication															
<p>Understanding factors</p>	<p>Use cubes or counters to explore the meaning of 'square numbers'.</p> <p><i>25 is a square number because it is made from 5 rows of 5.</i></p> <p>Use cubes to explore cube numbers.</p>  <p><i>8 is a cube number.</i></p>	<p>Use images to explore examples and non-examples of square numbers.</p>  <p>$8 \times 8 = 64$ $8^2 = 64$</p>  <p><i>12 is not a square number, because you cannot multiply a whole number by itself to make 12.</i></p>	<p>Understand the pattern of square numbers in the multiplication tables.</p> <p>Use a multiplication grid to circle each square number. Can children spot a pattern?</p>												
<p>Multiplying by 10, 100 and 1,000</p>	<p>Use place value equipment to multiply by 10, 100 and 1,000 by unitising.</p> <table border="1" data-bbox="358 1013 929 1189"> <tr> <td>$4 \times 1 = 4 \text{ ones} = 4$</td> <td></td> </tr> <tr> <td>$4 \times 10 = 4 \text{ tens} = 40$</td> <td></td> </tr> <tr> <td>$4 \times 100 = 4 \text{ hundreds} = 400$</td> <td></td> </tr> </table>	$4 \times 1 = 4 \text{ ones} = 4$		$4 \times 10 = 4 \text{ tens} = 40$		$4 \times 100 = 4 \text{ hundreds} = 400$		<p>Understand the effect of repeated multiplication by 10.</p> 	<p>Understand how exchange relates to the digits when multiplying by 10, 100 and 1,000.</p> <table border="1" data-bbox="1653 1061 2027 1189"> <tr> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td>1</td> <td>7</td> </tr> </table> <p>$17 \times 10 = 170$ $17 \times 100 = 17 \times 10 \times 10 = 1,700$ $17 \times 1,000 = 17 \times 10 \times 10 \times 10 = 17,000$</p>	H	T	O		1	7
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H	T	O													
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<p>Multiplying by multiples of 10, 100 and 1,000</p>	<p>Use place value equipment to explore multiplying by unitising.</p>  <p><i>5 groups of 3 ones is 15 ones. 5 groups of 3 tens is 15 tens.</i></p> <p><i>So, I know that 5 groups of 3 thousands would be 15 thousands.</i></p>	<p>Use place value equipment to represent how to multiply by multiples of 10, 100 and 1,000.</p>  <p>$4 \times 3 = 12$ $4 \times 300 = 1,200$ $2,400$</p> <p>$6 \times 4 = 24$ $6 \times 400 =$</p>	<p>Use known facts and unitising to multiply.</p> <p>$5 \times 4 = 20$ $5 \times 40 = 200$ $5 \times 400 = 2,000$ $5 \times 4,000 = 20,000$</p> <p>$5,000 \times 4 = 20,000$</p>																												
<p>Multiplying up to 4-digit numbers by a single digit</p>	<p>Explore how to use partitioning to multiply efficiently.</p> <p>$8 \times 17 = ?$</p>  <p>$8 \times 10 = 80$ $8 \times 7 = 56$ $80 + 56 = 136$</p> <p><i>So, $8 \times 17 = 136$</i></p>	<p>Represent multiplications using place value equipment and add the 1s, then 10s, then 100s, then 1,000s.</p> <table border="1" data-bbox="1019 798 1467 1212"> <thead> <tr> <th></th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>1000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>100</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		H	T	O	1000				100				10				1				<p>Use an area model and then add the parts.</p> <table border="1" data-bbox="1579 758 2116 837"> <tr> <td></td> <td>100</td> <td>60</td> <td>3</td> </tr> <tr> <td>5</td> <td>$100 \times 5 = 500$</td> <td>$60 \times 5 = 300$</td> <td>$3 \times 5 = 15$</td> </tr> </table> <p>Use a column multiplication, including any required exchanges.</p> $\begin{array}{r} 136 \\ \times 6 \\ \hline 816 \\ \hline 23 \end{array}$		100	60	3	5	$100 \times 5 = 500$	$60 \times 5 = 300$	$3 \times 5 = 15$
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Multiplying 2-digit numbers by 2-digit numbers

Partition one number into 10s and 1s, then add the parts.

$$23 \times 15 = ?$$



$$10 \times 15 = 150$$



$$10 \times 15 = 150$$



$$3 \times 15 = 45$$

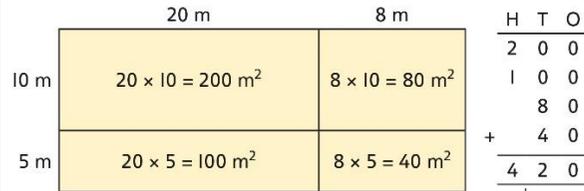
There are 345 bottles of milk in total.

H	T	O
1	5	0
1	5	0
+	4	5
3	4	5

$$23 \times 15 = 345$$

Use an area model and add the parts.

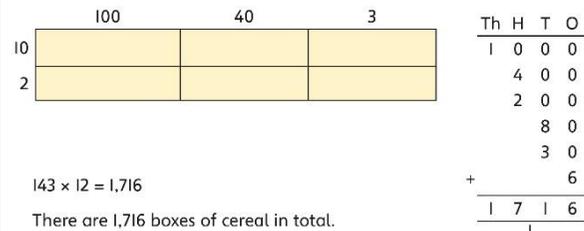
$$28 \times 15 = ?$$



$$28 \times 15 = 420$$

Multiplying up to 4-digits by 2-digits

Use the area model then add the parts.



$$143 \times 12 = 1,716$$

There are 1,716 boxes of cereal in total.

$$143 \times 12 = 1,716$$

Use column multiplication, ensuring understanding of place value at each stage.

$$\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \end{array} \quad 34 \times 7$$

$$\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \\ 680 \end{array} \quad \begin{array}{l} 34 \times 7 \\ 34 \times 20 \end{array}$$

$$\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \\ 680 \\ \hline 918 \end{array} \quad \begin{array}{l} 34 \times 7 \\ 34 \times 20 \\ 34 \times 27 \end{array}$$

Use column multiplication, ensuring understanding of place value at each stage.

$$\begin{array}{r} 143 \\ \times 12 \\ \hline 286 \\ 1430 \end{array} \quad \begin{array}{l} 143 \times 2 \\ 143 \times 10 \\ 143 \times 12 \end{array}$$

Progress to include examples that require multiple exchanges as understanding, confidence and fluency build.

$1,274 \times 32 = ?$
First multiply 1,274 by 2.

$$\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 2 \\ \hline 2\ 5\ 4\ 8 \end{array} \quad 1,274 \times 2$$

Then multiply 1,274 by 30.

$$\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 0 \\ \hline 2\ 5\ 4\ 8 \quad 1,274 \times 2 \\ 3\ 8\ 2\ 2\ 0 \quad 1,274 \times 30 \\ \hline \end{array}$$

Finally, find the total.

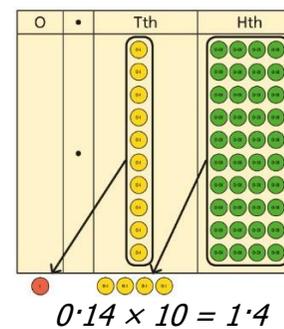
$$\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 2 \\ \hline 2\ 5\ 4\ 8 \quad 1,274 \times 2 \\ 3\ 8\ 2\ 2\ 0 \quad 1,274 \times 30 \\ \hline 4\ 0\ 7\ 6\ 8 \quad 1,274 \times 32 \\ \hline \end{array}$$

$1,274 \times 32 = 40,768$

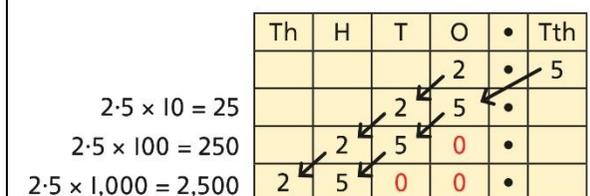
Multiplying decimals by 10, 100 and 1,000

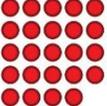
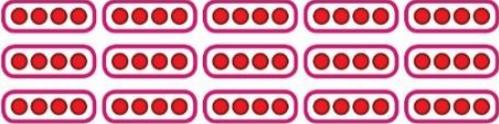
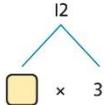
Use place value equipment to explore and understand the exchange of 10 tenths, 10 hundredths or 10 thousandths.

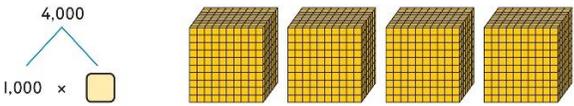
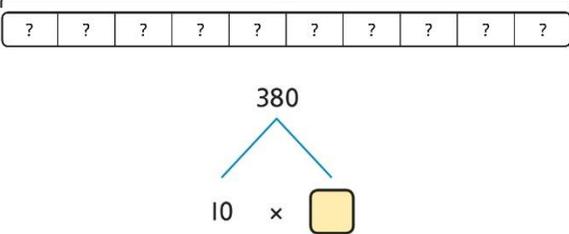
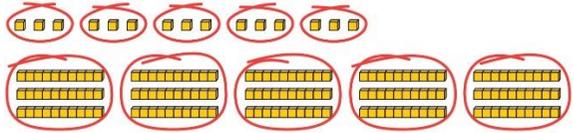
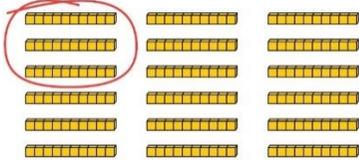
Represent multiplication by 10 as exchange on a place value grid.

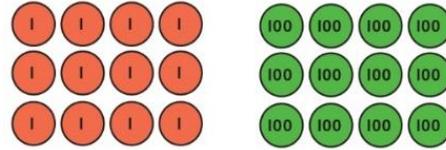


Understand how this exchange is represented on a place value chart.



Year 5 Division			
<p>Understanding factors and prime numbers</p>	<p>Use equipment to explore the factors of a given number.</p>  <p>$24 \div 3 = 8$ $24 \div 8 = 3$</p> <p><i>8 and 3 are factors of 24 because they divide 24 exactly.</i></p> <p>$24 \div 5 = 4$ remainder 4.</p>  <p><i>5 is not a factor of 24 because there is a remainder.</i></p>	<p>Understand that prime numbers are numbers with exactly two factors.</p> <p>$13 \div 1 = 13$ $13 \div 2 = 6 \text{ r } 1$ $13 \div 4 = 4 \text{ r } 1$</p> <p><i>1 and 13 are the only factors of 13. 13 is a prime number.</i></p>	<p>Understand how to recognise prime and composite numbers.</p> <p><i>I know that 31 is a prime number because it can be divided by only 1 and itself without leaving a remainder.</i></p> <p><i>I know that 33 is not a prime number as it can be divided by 1, 3, 11 and 33.</i></p> <p><i>I know that 1 is not a prime number, as it has only 1 factor.</i></p>
<p>Understanding inverse operations and the link with multiplication, grouping and sharing</p>	<p>Use equipment to group and share and to explore the calculations that are present.</p> <p><i>I have 28 counters.</i></p> <p><i>I made 7 groups of 4. There are 28 in total.</i></p> <p><i>I have 28 in total. I shared them equally into 7 groups. There are 4 in each group.</i></p> <p><i>I have 28 in total. I made groups of 4. There are 7 equal groups.</i></p>	<p>Represent multiplicative relationships and explore the families of division facts.</p>  <p>$60 \div 4 = 15$ $60 \div 15 = 4$</p>	<p>Represent the different multiplicative relationships to solve problems requiring inverse operations.</p> <p>$12 \div 3 = \square$ $12 \div \square = 3$ $\square \times 3 = 12$ $\square \div 3 = 12$</p>  <p>Understand missing number problems for division calculations and know how to solve them using inverse operations.</p> <p>$22 \div ? = 2$ $22 \div 2 = ?$ $? \div 2 = 22$ $? \div 22 = 2$</p>

<p>Dividing whole numbers by 10, 100 and 1,000</p>	<p>Use place value equipment to support unitising for division.</p> <p>$4,000 \div 1,000$</p>  <p>$4,000$ is 4 thousands.</p> <p>$4 \times 1,000 = 4,000$</p> <p>So, $4,000 \div 1,000 = 4$</p>	<p>Use a bar model to support dividing by unitising.</p> <p>$380 \div 10 = 38$</p>  <p>380 is 38 tens.</p> <p>$38 \times 10 = 380$</p> <p>$10 \times 38 = 380$</p> <p>So, $380 \div 10 = 38$</p>	<p>Understand how and why the digits change on a place value grid when dividing by 10, 100 or 1,000.</p> <table border="1" data-bbox="1630 288 2056 373"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>2</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>$3,200 \div 100 = ?$</p> <p>$3,200$ is 3 thousands and 2 hundreds.</p> <p>$200 \div 100 = 2$</p> <p>$3,000 \div 100 = 30$</p> <p>$3,200 \div 100 = 32$</p> <p>So, the digits will move two places to the right.</p>	Th	H	T	O	3	2	0	0
Th	H	T	O								
3	2	0	0								
<p>Dividing by multiples of 10, 100 and 1,000</p>	<p>Use place value equipment to represent known facts and unitising.</p>  <p>15 ones put into groups of 3 ones. There are 5 groups.</p> <p>$15 \div 3 = 5$</p> <p>15 tens put into groups of 3 tens. There are 5 groups.</p> <p>$150 \div 30 = 5$</p>	<p>Represent related facts with place value equipment when dividing by unitising.</p>  <p>180 is 18 tens.</p> <p>18 tens divided into groups of 3 tens. There are 6 groups.</p> <p>$180 \div 30 = 6$</p>	<p>Reason from known facts, based on understanding of unitising. Use knowledge of the inverse relationship to check.</p> <p>$3,000 \div 5 = 600$</p> <p>$3,000 \div 50 = 60$</p> <p>$3,000 \div 500 = 6$</p> <p>$5 \times 600 = 3,000$</p> <p>$50 \times 60 = 3,000$</p> <p>$500 \times 6 = 3,000$</p>								



12 ones divided into groups of 4. There are 3 groups.

12 hundreds divided into groups of 4 hundreds. There are 3 groups.

$$1200 \div 400 = 3$$

Dividing up to four digits by a single digit using short division

Explore grouping using place value equipment.

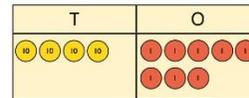
$$268 \div 2 = ?$$

There is 1 group of 2 hundreds.
There are 3 groups of 2 tens.
There are 4 groups of 2 ones.

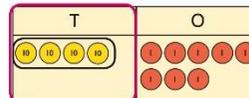
$$264 \div 2 = 134$$

Use place value equipment on a place value grid alongside short division.

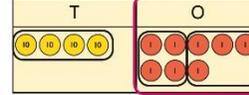
$$4 \overline{) 48}$$



$$4 \overline{) 48}$$



$$4 \overline{) 48}$$



Lay out the problem as a short division.

There is 1 group of 4 in 4 tens.
There are 2 groups of 4 in 8 ones.

Work with divisions that require exchange.

Use short division for up to 4-digit numbers divided by a single digit.

$$7 \overline{) 3892}$$

$$3,892 \div 7 = 556$$

Use multiplication to check.

$$556 \times 7 = ?$$

$$6 \times 7 = 42$$

$$50 \times 7 = 350$$

$$500 \times 7 = 3500$$

$$3,500 + 350 + 42 = 3,892$$

$$4 \overline{) 92}$$

$$4 \overline{) 92}$$

$$4 \overline{) 92}$$

$$4 \overline{) 92}$$

First, lay out the problem.
 How many groups of 4 go into 9 tens?
 2 groups of 4 tens with 1 ten left over.
 Exchange the 1 ten left over for 10 ones.
 We now have 12 ones.
 How many groups of 4 go into 12 ones?
 3 groups of 4 ones.

Understanding remainders

Understand remainders using concrete versions of a problem.

80 cakes divided into trays of 6.



80 cakes in total. They make 13 groups of 6, with 2 remaining.

Use short division and understand remainders as the last remaining 1s.

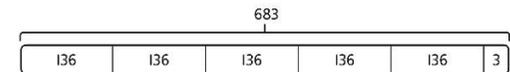
$$6 \overline{) 80}$$

$$6 \overline{) 80}$$

$$6 \overline{) 80}$$

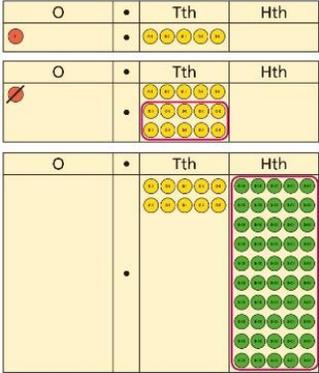
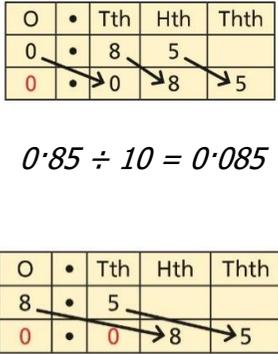
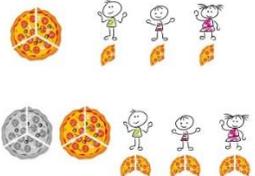
Lay out the problem as short division.
 How many groups of 6 go into 8 tens?
 There is 1 group of 6 tens.
 There are 2 tens remaining.
 How many groups of 6 go into 20 ones?
 There are 3 groups of 6 ones.
 There are 2 ones remaining.

In problem solving contexts, represent divisions including remainders with a bar model.



$$683 = 136 \times 5 + 3$$

$$683 \div 5 = 136 \text{ r } 3$$

<p>Dividing decimals by 10, 100 and 1,000</p>	<p>Understand division by 10 using exchange.</p> <p><i>2 ones are 20 tenths.</i></p> <p><i>20 tenths divided by 10 is 2 tenths.</i></p>	<p>Represent division using exchange on a place value grid.</p>  <p><i>1.5 is 1 one and 5 tenths.</i></p> <p><i>This is equivalent to 10 tenths and 50 hundredths.</i></p> <p><i>10 tenths divided by 10 is 1 tenth.</i></p> <p><i>50 hundredths divided by 10 is 5 hundredths.</i></p> <p><i>1.5 divided by 10 is 1 tenth and 5 hundredths.</i></p> <p><i>$1.5 \div 10 = 0.15$</i></p>	<p>Understand the movement of digits on a place value grid.</p>  <p><i>$0.85 \div 10 = 0.085$</i></p> <p><i>$8.5 \div 100 = 0.085$</i></p>
<p>Understanding the relationship between fractions and division</p>	<p>Use sharing to explore the link between fractions and division.</p> <p><i>1 whole shared between 3 people.</i></p> <p><i>Each person receives one-third.</i></p> 	<p>Use a bar model and other fraction representations to show the link between fractions and division.</p>  <p>$1 \div 3 = \frac{1}{3}$</p>	<p>Use the link between division and fractions to calculate divisions.</p> <p>$5 \div 4 = \frac{5}{4} = 1\frac{1}{4}$</p> <p>$11 \div 4 = \frac{11}{4} = 2\frac{3}{4}$</p>

Year 6

Year 6																																																																																																															
	Concrete	Pictorial	Abstract																																																																																																												
Year 6 Addition																																																																																																															
Comparing and selecting efficient methods	<p>Represent 7-digit numbers on a place value grid, and use this to support thinking and mental methods.</p> <table border="1" style="margin-left: auto; margin-right: auto; text-align: center;"> <tr> <td>M</td><td>HTh</td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td> </tr> <tr> <td>●●</td><td>●●●●</td><td>●</td><td>●</td><td>●●●</td><td></td><td>●</td> </tr> </table>	M	HTh	TTh	Th	H	T	O	●●	●●●●	●	●	●●●		●	<p>Discuss similarities and differences between methods, and choose efficient methods based on the specific calculation. Compare written and mental methods alongside place value representations.</p> <div style="text-align: center;"> </div> <table border="1" style="margin-left: auto; margin-right: auto; text-align: center;"> <tr> <td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td> <td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td> </tr> <tr> <td>●●●●</td><td></td><td>●●</td><td>●●●●●</td><td>●●●●●</td> <td>4</td><td>0</td><td>2</td><td>6</td><td>5</td> </tr> <tr> <td></td><td>●●●</td><td>●●●●●</td><td>●●</td><td>●●</td> <td>+</td><td>3</td><td>5</td><td>2</td><td>2</td> </tr> </table>	TTh	Th	H	T	O	TTh	Th	H	T	O	●●●●		●●	●●●●●	●●●●●	4	0	2	6	5		●●●	●●●●●	●●	●●	+	3	5	2	2	<p>Use column addition where mental methods are not efficient. Recognise common errors with column addition.</p> <p style="text-align: center;"><i>32,145 + 4,302 = ?</i></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td> <td style="margin-left: 20px; text-align: right;">TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td> </tr> <tr> <td style="text-align: right;">3</td><td>2</td><td>1</td><td>4</td><td>5</td> <td style="margin-left: 20px; text-align: right;">3</td><td>2</td><td>1</td><td>4</td><td>5</td> </tr> <tr> <td style="text-align: right;">+</td><td>4</td><td>3</td><td>0</td><td>2</td> <td style="margin-left: 20px; text-align: right;">+</td><td>4</td><td>3</td><td>0</td><td>2</td> </tr> <tr> <td style="text-align: right;">3</td><td>6</td><td>4</td><td>4</td><td>7</td> <td style="margin-left: 20px; text-align: right;">7</td><td>5</td><td>1</td><td>6</td><td>5</td> </tr> </table> <p style="text-align: center;"><i>Which method has been completed accurately?</i></p> <p style="text-align: center;"><i>What mistake has been made?</i></p> <p>Column methods are also used for decimal additions where mental methods are not efficient.</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">H</td><td>T</td><td>O</td><td>·</td><td>Tth</td><td>Hth</td> </tr> <tr> <td style="text-align: right;">1</td><td>4</td><td>0</td><td>·</td><td>0</td><td>9</td> </tr> <tr> <td style="text-align: right;">+</td><td>4</td><td>9</td><td>·</td><td>8</td><td>9</td> </tr> <tr> <td style="text-align: right;">1</td><td>8</td><td>9</td><td>·</td><td>9</td><td>8</td> </tr> </table>	TTh	Th	H	T	O	TTh	Th	H	T	O	3	2	1	4	5	3	2	1	4	5	+	4	3	0	2	+	4	3	0	2	3	6	4	4	7	7	5	1	6	5	H	T	O	·	Tth	Hth	1	4	0	·	0	9	+	4	9	·	8	9	1	8	9	·	9	8
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		<p>Use bar model and number line representations to model addition in problem-solving and measure contexts.</p> <div style="text-align: center;"> </div>																																																																																																													

<p>Selecting mental methods for larger numbers where appropriate</p>	<p>Represent 7-digit numbers on a place value grid, and use this to support thinking and mental methods.</p> <p>$2,411,301 + 500,000 = ?$</p> <p><i>This would be 5 more counters in the HTh place.</i></p> <p><i>So, the total is 2,911,301.</i></p> <p>$2,411,301 + 500,000 = 2,911,301$</p>	<p>Use a bar model to support thinking in addition problems.</p> <p>$257,000 + 99,000 = ?$</p> <p><i>I added 100 thousands then subtracted 1 thousand.</i></p> <p>$257 \text{ thousands} + 100 \text{ thousands} = 357 \text{ thousands}$</p> <p>$257,000 + 100,000 = 357,000$ $357,000 - 1,000 = 356,000$</p> <p><i>So, $257,000 + 99,000 = 356,000$</i></p>	<p>Use place value and unitising to support mental calculations with larger numbers.</p> <p>$195,000 + 6,000 = ?$</p> <p>$195 + 5 + 1 = 201$</p> <p><i>195 thousands + 6 thousands = 201 thousands</i></p> <p><i>So, $195,000 + 6,000 = 201,000$</i></p>
<p>Understanding order of operations in calculations</p>	<p>Use equipment to model different interpretations of a calculation with more than one operation. Explore different results.</p> <p>$3 \times 5 - 2 = ?$</p> <p> $\begin{array}{r} 3 \times 5 - 2 \\ \downarrow \quad \downarrow \\ 3 \times 3 = 9 \end{array}$ </p> <p> $\begin{array}{r} 3 \times 5 - 2 \\ \downarrow \quad \downarrow \\ 15 - 2 = 13 \end{array}$ </p>	<p>Model calculations using a bar model to demonstrate the correct order of operations in multi-step calculations.</p> <p>This can be written as: $16 \times 4 + 16 \times 6$</p> <p>$64 + 96 = 160$</p>	<p>Understand the correct order of operations in calculations without brackets.</p> <p>Understand how brackets affect the order of operations in a calculation.</p> <p>$4 + 6 \times 16$ $4 + 96 = 100$</p> <p>$(4 + 6) \times 16$ $10 \times 16 = 160$</p>

Year 6 Subtraction

Comparing and selecting efficient methods

Use counters on a place value grid to represent subtractions of larger numbers.

Th	H	T	O
●●	●●●●●	●●●●	●●●●
	●	●●●	●●●●

Compare subtraction methods alongside place value representations.

Th	H	T	O
●●	●●●●●	●●●●	●●●●
	●	●●●	●●●●

$$\begin{array}{r}
 \text{Th H T O} \\
 2 \ 6 \ 7 \ 9 \\
 - \ 5 \ 3 \ 4 \\
 \hline
 2 \ 1 \ 4 \ 5
 \end{array}$$

Use a bar model to represent calculations, including 'find the difference' with two bars as comparison.

computer game

puzzle book

\longleftarrow £12.50 \longrightarrow

Compare and select methods. Use column subtraction when mental methods are not efficient. Use two different methods for one calculation as a checking strategy.

Th	H	T	O
1	8	1	2
-	1	5	5
	3	9	4

Use column subtraction for decimal problems, including in the context of measure.

H	T	O	Tth	Hth
3	0	9	·	6
-	2	0	·	4
	1	0	·	2

Subtracting mentally with larger numbers

Use a bar model to show how unitising can support mental calculations.

$$950,000 - 150,000$$

That is 950 thousands - 150 thousands

950

150

\longleftarrow 800 \longrightarrow

So, the difference is 800 thousands.
 $950,000 - 150,000 = 800,000$

Use a bar model to show how unitising can support mental calculations.

$$950,000 - 150,000$$

That is 950 thousands - 150 thousands

950

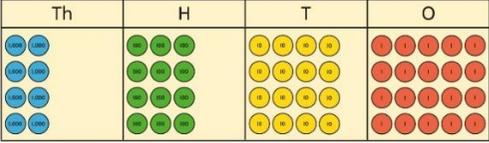
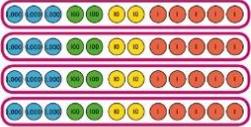
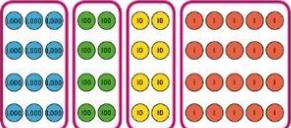
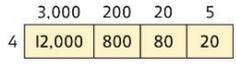
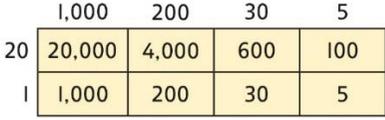
150

\longleftarrow 800 \longrightarrow

So, the difference is 800 thousands.
 $950,000 - 150,000 = 800,000$

Subtract efficiently from powers of 10.

$$10,000 - 500 = ?$$

Year 6 Multiplication			
<p>Multiplying up to a 4-digit number by a single digit number</p>	<p>Use equipment to explore multiplications.</p>  <p><i>4 groups of 2,345</i></p> <p><i>This is a multiplication:</i></p> $4 \times 2,345$ $2,345 \times 4$	<p>Use place value equipment to compare methods.</p> <p>Method 1</p>  $\begin{array}{r} 3\ 2\ 2\ 5 \\ 3\ 2\ 2\ 5 \\ 3\ 2\ 2\ 5 \\ 3\ 2\ 2\ 5 \\ \hline 1\ 2\ 9\ 0\ 0 \\ \ 1\ 2 \end{array}$ <p>Method 2</p>  $4 \times 3,000 + 4 \times 200 + 4 \times 20 + 4 \times 5$ $12,000 + 800 + 80 + 20 = 12,900$	<p>Understand area model and short multiplication.</p> <p>Compare and select appropriate methods for specific multiplications.</p> <p>Method 3</p>  $12,000 + 800 + 80 + 20 = 12,900$ <p>Method 4</p> $\begin{array}{r} 3\ 2\ 2\ 5 \\ \times \ 4 \\ \hline 1\ 2\ 9\ 0\ 0 \\ \ 1\ 2 \end{array}$
<p>Multiplying up to a 4-digit number by a 2-digit number</p>		<p>Use an area model alongside written multiplication.</p> <p>Method 1</p>  $\begin{array}{r} 1\ 2\ 3\ 5 \\ \times \ 2\ 1 \\ \hline 5\ 1 \times 5 \\ 3\ 0\ 1 \times 30 \\ 2\ 0\ 0\ 1 \times 200 \\ 1\ 0\ 0\ 0\ 1 \times 1,000 \\ 1\ 0\ 0\ 20 \times 5 \\ 6\ 0\ 0\ 20 \times 30 \\ 4\ 0\ 0\ 0\ 20 \times 200 \\ 2\ 0\ 0\ 0\ 0\ 20 \times 1,000 \\ \hline 2\ 5\ 9\ 3\ 5\ 21 \times 1,235 \end{array}$	<p>Use compact column multiplication with understanding of place value at all stages.</p> $\begin{array}{r} 1\ 2\ 3\ 5 \\ \times \ 2\ 1 \\ \hline 1\ 2\ 3\ 5\ 1 \times 1,235 \\ 2\ 4\ 7\ 0\ 0\ 20 \times 1,235 \\ \hline 2\ 5\ 9\ 3\ 5\ 21 \times 1,235 \end{array}$

Using knowledge of factors and partitions to compare methods for multiplications

Use equipment to understand square numbers and cube numbers.

$$5 \times 5 = 5^2 = 25$$

$$5 \times 5 \times 5 = 5^3 = 25 \times 5 = 125$$

Compare methods visually using an area model. Understand that multiple approaches will produce the same answer if completed accurately.

Represent and compare methods using a bar model.

Use a known fact to generate families of related facts.

Use factors to calculate efficiently.

$$15 \times 16$$

$$= 3 \times 5 \times 2 \times 8$$

$$= 3 \times 8 \times 2 \times 5$$

$$= 24 \times 10$$

$$= 240$$

Multiplying by 10, 100 and 1,000

Use place value equipment to explore exchange in decimal multiplication.

Represent 0.3.

Multiply by 10.

Exchange each group of ten tenths.

$$0.3 \times 10 = ?$$

0.3 is 3 tenths.

10 x 3 tenths are 30 tenths.

30 tenths are equivalent to 3 ones.

Understand how the exchange affects decimal numbers on a place value grid.

$$0.3 \times 10 = 3$$

Use knowledge of multiplying by 10, 100 and 1,000 to multiply by multiples of 10, 100 and 1,000.

$$8 \times 100 = 800$$

$$8 \times 300 = 800 \times 3$$

$$= 2,400$$

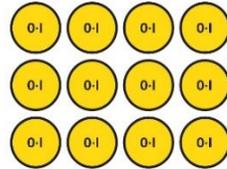
$$2.5 \times 10 = 25$$

$$2.5 \times 20 = 2.5 \times 10 \times 2$$

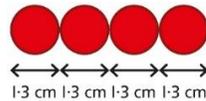
$$= 50$$

Multiplying decimals

Explore decimal multiplications using place value equipment and in the context of measures.



*3 groups of 4 tenths is 12 tenths.
4 groups of 3 tenths is 12 tenths.*



$$4 \times 1 \text{ cm} = 4 \text{ cm}$$

$$4 \times 0.3 \text{ cm} = 1.2 \text{ cm}$$

$$4 \times 1.3 = 4 + 1.2 = 5.2 \text{ cm}$$

Represent calculations on a place value grid.

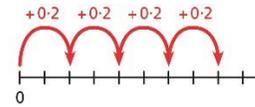
$$3 \times 3 = 9$$

$$3 \times 0.3 = 0.9$$

T	O	•	Tth

Understand the link between multiplying decimals and repeated addition.

T	O	•	Tth



Use known facts to multiply decimals.

$$4 \times 3 = 12$$

$$4 \times 0.3 = 1.2$$

$$4 \times 0.03 = 0.12$$

$$20 \times 5 = 100$$

$$20 \times 0.5 = 10$$

$$20 \times 0.05 = 1$$

Find families of facts from a known multiplication.

I know that $18 \times 4 = 72$.

This can help me work out:

$$1.8 \times 4 = ?$$

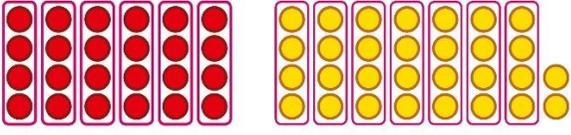
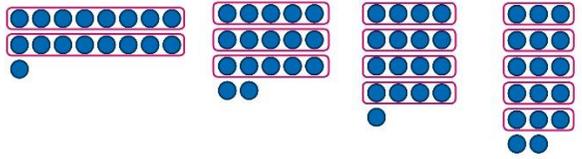
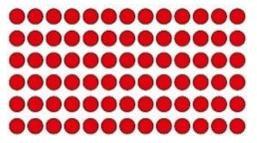
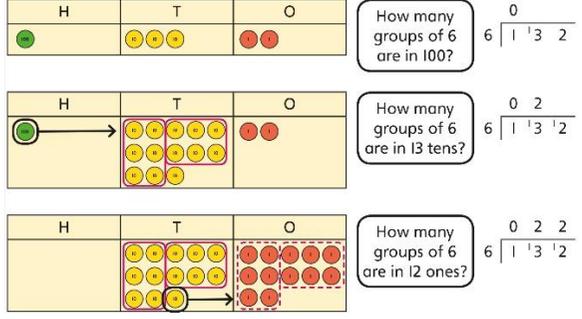
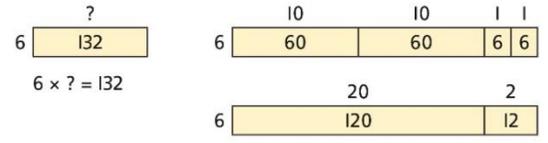
$$18 \times 0.4 = ?$$

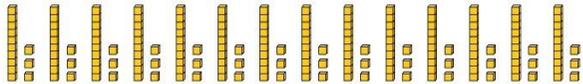
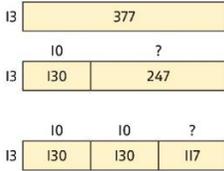
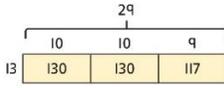
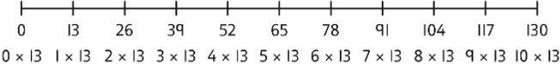
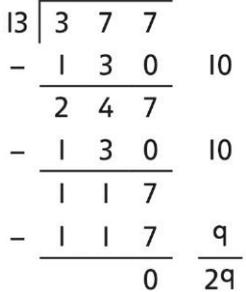
$$180 \times 0.4 = ?$$

$$18 \times 0.04 = ?$$

Use a place value grid to understand the effects of multiplying decimals.

	H	T	O	•	Tth	Hth
2×3			6	•		
0.2×3			0	•	6	
0.02×3				•		

Year 6 Division																																																					
<p>Understanding factors</p>	<p>Use equipment to explore different factors of a number.</p>  <p>$24 \div 4 = 6$ $30 \div 4 = 7 \text{ remainder } 2$</p> <p><i>4 is a factor of 24 but is not a factor of 30.</i></p>	<p>Recognise prime numbers as numbers having exactly two factors. Understand the link with division and remainders.</p>  <p>$17 \div 2 = 8 \text{ r } 1$ $17 \div 3 = 5 \text{ r } 2$ $17 \div 4 = 4 \text{ r } 1$ $17 \div 5 = 3 \text{ r } 2$</p>	<p>Recognise and know primes up to 100. Understand that 2 is the only even prime, and that 1 is not a prime number.</p> <table border="1" data-bbox="1624 383 2060 598"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	2	3	4	5	6	7	8	9	10																																												
11	12	13	14	15	16	17	18	19	20																																												
21	22	23	24	25	26	27	28	29	30																																												
31	32	33	34	35	36	37	38	39	40																																												
41	42	43	44	45	46	47	48	49	50																																												
<p>Dividing by a single digit</p>	<p>Use equipment to make groups from a total.</p>  <p><i>There are 78 in total. There are 6 groups of 13. There are 13 groups of 6.</i></p>	 <p>How many groups of 6 are in 100? $6 \overline{) 100}$</p> <p>How many groups of 6 are in 13 tens? $6 \overline{) 130}$</p> <p>How many groups of 6 are in 12 ones? $6 \overline{) 132}$</p>	<p>Use short division to divide by a single digit.</p> $\begin{array}{r} 0 \\ 6 \overline{) 132} \end{array}$ $\begin{array}{r} 0 \quad 2 \\ 6 \overline{) 132} \end{array}$ $\begin{array}{r} 0 \quad 2 \quad 2 \\ 6 \overline{) 132} \end{array}$ $\begin{array}{r} 0 \quad 2 \quad 2 \\ 6 \overline{) 132} \end{array}$ <p>Use an area model to link multiplication and division.</p>  <p>$6 \times ? = 132$</p> <p>$132 = 120 + 12$</p> <p>$132 \div 6 = 20 + 2 = 22$</p>																																																		

<p>Dividing by a 2-digit number using factors</p>	<p>Understand that division by factors can be used when dividing by a number that is not prime.</p>	<p>Use factors and repeated division.</p> $1,260 \div 14 = ?$  $1,260 \div 2 = 630$ $630 \div 7 = 90$ $1,260 \div 14 = 90$	<p>Use factors and repeated division where appropriate.</p> $2,100 \div 12 = ?$ $2,100 \rightarrow \boxed{\div 2} \rightarrow \boxed{\div 6} \rightarrow$ $2,100 \rightarrow \boxed{\div 6} \rightarrow \boxed{\div 2} \rightarrow$ $2,100 \rightarrow \boxed{\div 3} \rightarrow \boxed{\div 4} \rightarrow$ $2,100 \rightarrow \boxed{\div 4} \rightarrow \boxed{\div 3} \rightarrow$ $2,100 \rightarrow \boxed{\div 3} \rightarrow \boxed{\div 2} \rightarrow \boxed{\div 2} \rightarrow$
<p>Dividing by a 2-digit number using long division</p>	<p>Use equipment to build numbers from groups.</p>  <p><i>182 divided into groups of 13. There are 14 groups.</i></p>	<p>Use an area model alongside written division to model the process.</p> $377 \div 13 = ?$   $377 \div 13 = 29$	<p>Use long division where factors are not useful (for example, when dividing by a 2-digit prime number). Write the required multiples to support the division process.</p> $377 \div 13 = ?$   $377 \div 13 = 29$ <p>A slightly different layout may be used, with the division completed above rather than at the side.</p>

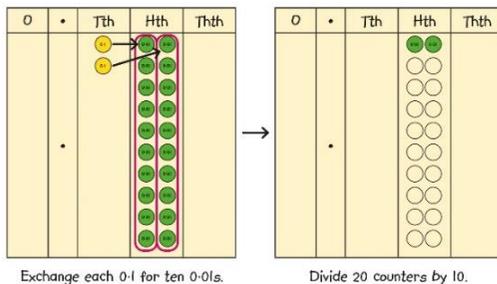
$$\begin{array}{r} 3 \\ 21 \overline{) 798} \\ - 630 \\ \hline 168 \end{array}$$

$$\begin{array}{r} 38 \\ 21 \overline{) 798} \\ - 630 \\ \hline 168 \\ - 168 \\ \hline 0 \end{array}$$

Divisions with a remainder explored in problem-solving contexts.

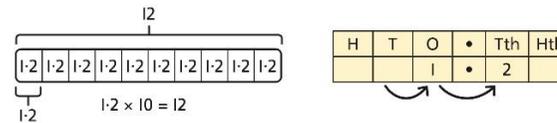
Dividing by 10, 100 and 1,000

Use place value equipment to explore division as exchange.

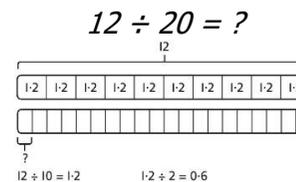


*0.2 is 2 tenths.
2 tenths is equivalent to 20 hundredths.
20 hundredths divided by 10 is 2 hundredths.*

Represent division to show the relationship with multiplication. Understand the effect of dividing by 10, 100 and 1,000 on the digits on a place value grid.



Understand how to divide using division by 10, 100 and 1,000.



Use knowledge of factors to divide by multiples of 10, 100 and 1,000.

$40 \div 50 = \square$

$40 \rightarrow \div 10 \rightarrow \div 5 \rightarrow ?$

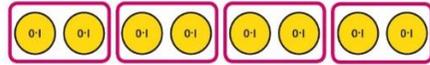
$40 \rightarrow \div 5 \rightarrow \div 10 \rightarrow ?$

$40 \div 5 = 8$
 $8 \div 10 = 0.8$

So, $40 \div 50 = 0.8$

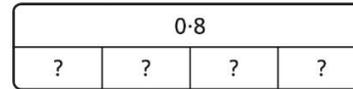
Dividing decimals

Use place value equipment to explore division of decimals.



8 tenths divided into 4 groups. 2 tenths in each group.

Use a bar model to represent divisions.



$$4 \times 2 = 8$$

$$8 \div 4 = 2$$

$$\text{So, } 4 \times 0.2 = 0.8$$

$$0.8 \div 4 = 0.2$$

Use short division to divide decimals with up to 2 decimal places.

$$8 \overline{) 4 \cdot 2 \ 4}$$

$$0 \cdot$$

$$8 \overline{) 4 \cdot 2 \ 4}$$

$$0 \cdot 5$$

$$8 \overline{) 4 \cdot 2 \ 2 \ 4}$$

$$0 \cdot 5 \ 3$$

$$8 \overline{) 4 \cdot 2 \ 2 \ 4}$$