

Power Maths calculation policy, LOWER KS2

KEY STAGE 2

In Years 3 and 4, children develop the basis of written methods by building their skills alongside a deep understanding of place value. They should use known addition/subtraction and multiplication/division facts to calculate efficiently and accurately, rather than relying on counting. Children use place value equipment to support their understanding, but not as a substitute for thinking.

Key language: partition, place value, tens, hundreds, thousands, column method, whole, part, equal groups, sharing, grouping, bar model

Addition and subtraction: In Year 3 especially, the Multiplication and division: Children build a solid Fractions: Children develop the key concept of grounding in times-tables, understanding the equivalent fractions, and link this with multiplying and column methods are built up gradually. Children will develop their understanding of how each stage of the multiplication and division facts in tandem. As such. dividing the numerators and denominators, as well as calculation, including any exchanges, relates to place they should be as confident knowing that 35 divided by exploring the visual concept through fractions of value. The example calculations chosen to introduce 7 is 5 as knowing that 5 times 7 is 35. shapes. Children learn how to find a fraction of an the stages of each method may often be more suited to Children develop key skills to support multiplication amount, and develop this with the aid of a bar model a mental method. However, the examples and the methods: unitising, commutativity, and how to use and other representations alongside. progression of the steps have been chosen to help in Year 3, children develop an understanding of how to partitioning effectively. children develop their fluency in the process, alongside Unitising allows children to use known facts to multiply add and subtract fractions with the same denominator and divide multiples of 10 and 100 efficiently. a deep understanding of the concepts and the numbers and find complements to the whole. This is developed Commutativity gives children flexibility in applying involved, so that they can apply these skills accurately alongside an understanding of fractions as numbers, and efficiently to later calculations. The class should be known facts to calculations and problem solving. An including fractions greater than 1. In Year 4, children encouraged to compare mental and written methods understanding of partitioning allows children to extend begin to work with fractions greater than 1. for specific calculations, and children should be their skills to multiplying and dividing 2- and 3-digit Decimals are introduced, as tenths in Year 3 and then as hundredths in Year 4. Children develop an encouraged at every stage to make choices about numbers by a single digit. which methods to apply. Children develop column methods to support understanding of decimals in terms of the relationship In Year 4, the steps are shown without such fine detail. multiplications in these cases. with fractions, with dividing by 10 and 100, and also although children should continue to build their For successful division, children will need to make with place value. understanding with a secure basis in place value. In choices about how to partition. For example, to divide subtraction, children will need to develop their 423 by 3, it is effective to partition 423 into 300, 120 understanding of exchange as they may need to and 3, as these can be divided by 3 using known facts. exchange across one or two columns. Children will also need to understand the concept of By the end of Year 4, children should have developed remainder, in terms of a given calculation and in terms fluency in column methods alongside a deep of the context of the problem. understanding, which will allow them to progress confidently in upper Key Stage 2.



	Year 3		
	Concrete	Pictorial	Abstract
Year 3 Addition			
Understanding 100s	Understand the cardinality of 100, and the link with 10 tens. Use cubes to place into groups of 10 tens.	Unitise 100 and count in steps of 100.	Represent steps of 100 on a number line and a number track and count up to 1,000 and back to 0.
Understanding place value to 1,000	Unitise 100s, 10s and 1s to build 3-digit numbers.	Use equipment to represent numbers to 1,000. 200 240 241 Use a place value grid to support the structure of numbers to 1,000. Place value counters are used alongside other equipment. Children should understand how each counter represents a different unitised amount.	Represent the parts of numbers to 1,000 using a part-whole model. 215 200 10 $5215 = 200 + 10 + 5Recognise numbers to 1,000 representedon a number line, including those betweenintervals.$



Adding 100s	Use known facts and unitising to add multiples of 100.	Use known facts and unitising to add multiples of 100.	Use known facts and unitising to add multiples of 100.
	100 bricks 100 bricks 100 bricks 100 bricks 100 bricks $3 + 2 = 5$ $3 hundreds + 2 hundreds = 5 hundreds$ $300 + 200 = 500$	3 + 4 = 7 3 hundreds + 4 hundreds = 7 hundreds 300 + 400 = 700	Represent the addition on a number line. Use a part-whole model to support unitising. 3 + 2 = 5 $300 + 200 = 500$
3-digit number + 1s, no exchange or bridging	Use number bonds to add the 1s. Use number bonds to add the 1s. 1000000000000000000000000000000000000	Use number bonds to add the 1s. $ \begin{array}{c c} H & T & O \\ \hline $	Understand the link with counting on. 245 + 4 45 + 4 245 + 4 245 + 46 + 47 + 48 + 48 + 48 + 48 + 48 + 48 + 48



3-digit number Understand that when the 1s sum to 10 or more, this requires an exchange of 10 ones for 1 ten. Exchange Children should explore this using unitised objects or physical apparatus.	Exchange 10 ones for 1 ten where needed. Use a place value grid to support the understanding. $\begin{array}{c c} \hline H & T & O \\ \hline \hline H & T & O \\ \hline \hline H & T & O \\ \hline \hline$	Understand how to bridge by partitioning to the 1s to make the next 10. 7 5 2 $135 + 7 = ?$ $135 + 5 + 2 = 142Ensure that children understand how to add1s bridging a 100.198 + 5 = ?198 + 2 + 3 = 203$
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3-digit number + 10s, no exchange	Calculate mentally by forming the number bond for the 10s.	Calculate mentally by forming the number bond for the 10s.	Calculate mentally by forming the number bond for the 10s.
on on one of the second s		351 + 30 = ?	753 + 40 I know that 5 + 4 = 9 So, 50 + 40 = 90 753 + 40 = 793
	234 + 50 There are 3 tens and 5 tens altogether. 3 + 5 = 8 In total there are 8 tens. 234 + 50 = 284	5 tens + 3 tens = 8 tens 351 + 30 = 381	
3-digit number + 10s, with exchange	Understand the exchange of 10 tens for 1 hundred.	Add by exchanging 10 tens for 1 hundred. 184 + 20 = ? H T O B T O	Understand how the addition relates to counting on in 10s across 100. 184 + 20 = ? 184 + 20 = ? 1 can count in 10s 194 204 184 + 20 = 204 Use number bonds within 20 to support efficient mental calculations. 385 + 50 There are 8 tens and 5 tens. That is 13 tens. 385 + 50 = 300 + 130 + 5 385 + 50 = 435



3-digit number + 2-digit number	Use place value equipment to make and combine groups to model addition.	Use a place value grid to organise thinking and adding of 1s, then 10s.	Use the vertical column method to represent the addition. Children must understand how this relates to place value at each stage of the calculation.
3-digit number + 2-digit number, exchange required	Use place value equipment to model addition and understand where exchange is required. Use place value counters to represent 154 + 72. Use this to decide if any exchange is required. There are 5 tens and 7 tens. That is 12 tens so I will exchange.	Represent the required exchange on a place value grid using equipment. 275 + 16 = ? \overrightarrow{H} \overrightarrow{I} I	Use a column method with exchange. Children must understand how the method relates to place value at each stage of the calculation. $\frac{H T O}{2 7 5} + \frac{1 6}{1 6}$ $\frac{H T O}{2 7 5} + \frac{1 6}{1 6}$ $\frac{H T O}{2 7 5} + \frac{1 6}{2 9 1}$ $275 + 16 = 291$



		Children should be encouraged at every stage to select methods that are accurate and efficient.	
3-digit number + 3-digit number, no exchange	Use place value equipment to make a representation of a calculation. This may or may not be structured in a place value grid. 326 + 541 is represented as: H T O 326 5 4 1	Represent the place value grid with equipment to model the stages of column addition.	Use a column method to solve efficiently, using known bonds. Children must understand how this relates to place value at every stage of the calculation.
3-digit number + 3-digit number, exchange required	Use place value equipment to enact the exchange required.	Model the stages of column addition using place value equipment on a place value grid.	Use column addition, ensuring understanding of place value at every stage of the calculation.



			$ \begin{array}{c} H T O \\ 1 2 6 \\ + 2 1 7 \\ \hline 3 \\ 1 \end{array} $
			$ \begin{array}{r} H & T & O \\ I & 2 & 6 \\ + & 2 & 1 & 7 \\ \hline I & 4 & 3 \\ \hline I & I \\ I & I \\ $
			$ \begin{array}{c} H & T & O \\ 1 & 2 & 6 \\ + & 2 & 1 & 7 \\ \hline 3 & 4 & 3 \\ \hline \end{array} $
			126 + 217 = 343 Note: Children should also study examples where exchange is required in more than one column, for example $185 + 318 = ?$
Representing addition problems, and	Encourage children to use their own drawings and choices of place value equipment to represent problems with one	Children understand and create bar models to represent addition problems.	Use representations to support choices of appropriate methods.
selecting appropriate methods	or more steps.	275 + 99 = ? ³⁷⁴	?
methous	These representations will help them to select appropriate methods.	275 99	I will add 100, then subtract 1 to find the solution.
		275 + 99 = 374	128 + 105 + 83 = ? I need to add three numbers.



Year 3 Subtraction			128 + 105 = 233 233 128 129 128 129 129 129 129 129 129 129 129 129 129 129 129 129 129 129 129 129
Subtracting 100s	Use known facts and unitising to subtract multiples of 100. 100 bricks bricks bricks bricks bricks $5-2=3$ 500-200=300	Use known facts and unitising to subtract multiples of 100. 4 - 2 = 2 $400 - 200 = 200$	Understand the link with counting back in 100s. $100 ext{ solution}$ $100 ext{ 200 ext{ 300 ext{ 400 ext{ 500 ext{ 500 ext{ 500 ext{ 500 ext{ 500$
3-digit number − 1s, no exchange	Use number bonds to subtract the 1s. Use number bonds to subtract the 1s. Use number bonds to subtract the 1s. 214 - 3 = ?	Use number bonds to subtract the 1s.	Understand the link with counting back using a number line. Use known number bonds to calculate mentally. 476 - 4 = ?



	4 - 3 = 1 $214 - 3 = 211$	319 - 4 = ? $H T O$ $319 - 4 = ?$ $9 - 4 = 5$ $319 - 4 = 315$	$ \begin{array}{r} 476 \\ 400 \\ 70 \\ 6 \\ 6 \\ 476 \\ 476 \\ 476 \\ 476 \\ 472 \\ 476 \\ 472 \\ 476 \\ 472 \\ 476 \\ 472 \\ 476 \\ 472 \\ 476 \\ 472$
3-digit number − 1s, exchange or bridging required	Understand why an exchange is necessary by exploring why 1 ten must be exchanged. Use place value equipment.	Represent the required exchange on a place value grid. 151 - 6 = ? H T O H T O H T O H T O N N N N N N N N N N	Calculate mentally by using known bonds. 151 - 6 = ? 151 - 1 - 5 = 145
3-digit number − 10s, no exchange	Subtract the 10s using known bonds.	Subtract the 10s using known bonds.	Use known bonds to subtract the 10s mentally. 372 - 50 = ?



	381 - 10 = ? 8 tens with 1 removed is 7 tens. 381 - 10 = 371	H T O \blacksquare \blacksquare \blacksquare $\$$ tens - 1 ten = 7 tens $381 - 10 = 371$	70 - 50 = 20 So, 372 - 50 = 322
3-digit number − 10s, exchange or bridging required	Use equipment to understand the exchange of 1 hundred for 10 tens.	Represent the exchange on a place value grid using equipment. 210 - 20 = ?	Understand the link with counting back on a number line. Use flexible partitioning to support the calculation. 235 - 60 = ? 235 - 60 = ? 235 = 100 + 130 + 5 235 - 60 = 100 + 70 + 5 = 175



3-digit number − up to 3-digit number	Use place value equipment to explore the effect of splitting a whole into two parts, and understand the link with taking away.	Represent the calculation on a place value grid.	Use column subtraction to calculate accurately and efficiently. $\begin{array}{r} \frac{H T O}{q q q} \\ -3 5 2 \\ \hline 7 \\ \hline 7 \\ \hline \\ \frac{H T O}{q q q} \\ -3 5 2 \\ \hline 4 7 \\ \hline \\ \frac{H T O}{q q q} \\ -3 5 2 \\ \hline \\ \hline 6 4 7 \end{array}$
3-digit number – up to 3-digit number, exchange required	Use equipment to enact the exchange of 1 hundred for 10 tens, and 1 ten for 10 ones.	Model the required exchange on a place value grid. 175 - 38 = ? I need to subtract 8 ones, so I will exchange a ten for 10 ones.	Use column subtraction to work accurately and efficiently. $\frac{H T O}{1 \frac{6}{1} \frac{5}{5}}$ $-\frac{3 8}{3 7}$ $\frac{1}{175 - 38 = 137}$ If the subtraction is a 3-digit number subtract a 2-digit number, children should understand how the recording relates to the place value, and so how to line up the digits correctly. Children should also understand how to exchange in calculations where there is a zero in the 10s column.



	H T O Image: Description of the second seco	H T O 5 0 6 - <u>3 2 8</u>
Representing subtraction problems	Use bar models to represent subtractions. 'Find the difference' is represented as two bars for comparison. Team A 454 Team B 128 ? Bar models can also be used to show that a part must be taken away from the whole.	Children use alternative representations to check calculations and choose efficient methods. Children use inverse operations to check additions and subtractions. The part-whole model supports understanding. <i>I have completed this subtraction.</i> 525 - 270 = 255 <i>I will check using addition.</i> $\int_{270}^{525} \int_{255}^{1} \frac{1}{255}$



Year 3 Multiplication			
Understanding equal grouping and repeated addition	Children continue to build understanding of equal groups and the relationship with repeated addition. They recognise both examples and non- examples using objects.	Children recognise that arrays demonstrate commutativity.	Children understand the link between repeated addition and multiplication. 43 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 +
Using commutativity to support understanding	Understand how to use times-tables facts flexibly.	Understand how times-table facts relate to commutativity.	Understand how times-table facts relate to commutativity. <i>I need to work out 4 groups of 7.</i>



of the times- tables	For the reader of the formula of th	$6 \times 4 = 24$ $4 \times 6 = 24$	I know that $7 \times 4 = 28$ so, I know that 4 groups of $7 = 28$ and 7 groups of $4 = 28$.
Understanding and using ×3, ×2, ×4 and ×8 tables.	Children learn the times-tables as 'groups of', but apply their knowledge of commutativity.	Children understand how the x2, x4 and x8 tables are related through repeated doubling.	Children understand the relationship between related multiplication and division facts in known times-tables. $3 \times 5 = 10$ $5 \times 2 = 10$ $10 \div 5 = 2$ $10 \div 2 = 5$

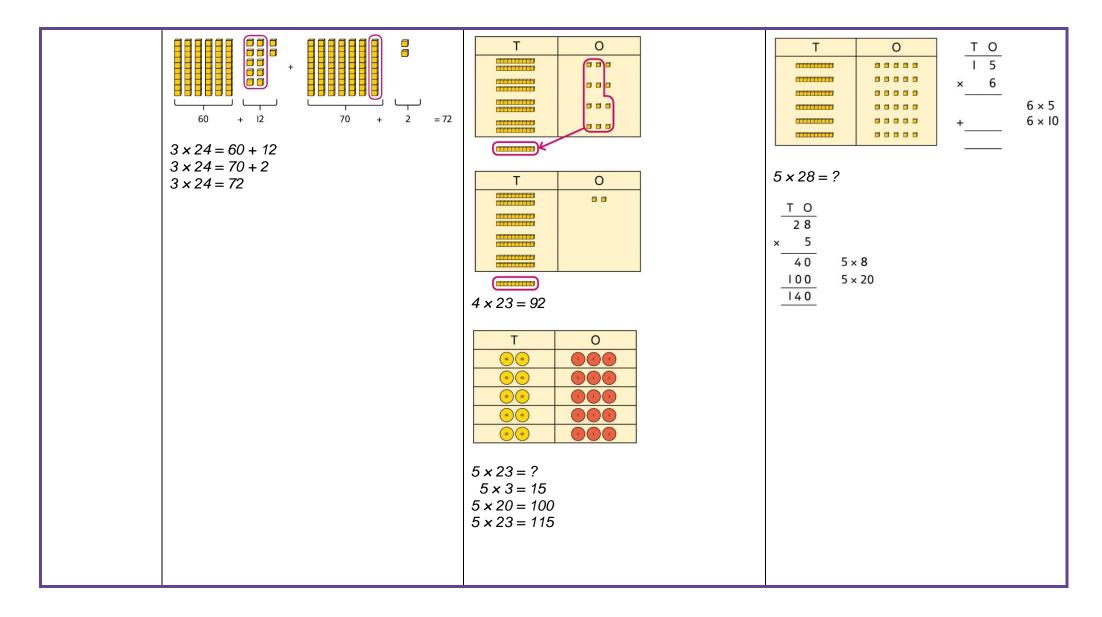


Using known facts to multiply 10s, for example 3 × 40	Explore the relationship between known times-tables and multiples of 10 using place value equipment. <i>Make 4 groups of 3 ones.</i>	Understand how unitising 10s supports multiplying by multiples of 10.	Understand how to use known times-tables to multiply multiples of 10. +2 +2 +2 +2 +2
	Make 4 groups of 3 tens.What is the same? What is different?	1 1 1 10 10 10 10 10 10 10 10 10 10 10 10 4 groups of 2 ones is 8 ones. 4 groups of 2 tens is 8 tens.	$\begin{array}{c} + & + & + & + & + & + & + & + & + \\ 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\ \end{array}$ $\begin{array}{c} + & 20 & + & 20 & + & 20 \\ \hline 0 & 10 & 20 & 30 & 40 & 50 & 60 & 70 & 80 \\ \hline 0 & 10 & 20 & 30 & 40 & 50 & 60 & 70 & 80 \\ \end{array}$ $\begin{array}{c} 4 & \times & 2 & = & 8 \\ 4 & \times & 20 & = & 80 \end{array}$
Multiplying a 2-digit number by a 1-digit number	Understand how to link partitioning a 2-digit number with multiplying. Each person has 23 flowers. Each person has 2 tens and 3 ones.	$4 \times 2 = 8$ $4 \times 20 = 80$ Use place value to support how partitioning is linked with multiplying by a 2-digit number. $3 \times 24 = ?$ $T \qquad 0$	Use addition to complete multiplications of 2-digit numbers by a 1-digit number. $4 \times 13 = ?$ $4 \times 3 = 12$ $4 \times 10 = 40$ 12 + 40 = 52 $4 \times 13 = 52$



	There are 3 groups of 2 tens. There are 3 groups of 3 ones. Use place value equipment to model the multiplication context. Image: Context of the state of the	$3 \times 4 = 12$ T O O O O O O O O O O O O O O O O O O	
Multiplying a 2-digit number by a 1-digit number, expanded column method	Use place value equipment to model how 10 ones are exchanged for a 10 in some multiplications. $3 \times 24 = ?$ $3 \times 20 = 60$ $3 \times 4 = 12$	Understand that multiplications may require an exchange of 1s for 10s, and also 10s for 100s. $4 \times 23 = ?$	Children may write calculations in expanded column form, but must understand the link with place value and exchange. Children are encouraged to write the expanded parts of the calculation separately.







Year 3 Division			
Using times- tables knowledge to	Use knowledge of known times-tables to calculate divisions.	Use knowledge of known times-tables to calculate divisions.	Use knowledge of known times-tables to calculate divisions.
divide			I need to work out 30 shared between 5. I know that $6 \times 5 = 30$ so I know that $30 \div 5 = 6$.
	24 divided into groups of 8. There are 3 groups of 8.		A bar model may represent the relationship between sharing and grouping.
			$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
		$48 \div 4 = 12$	$24 \div 6 = 4$ Children understand how division is related to both repeated subtraction and repeated addition.
		48 divided into groups of 4. There are 12 groups. $4 \times 12 = 48$ $48 \div 4 = 12$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
			$ \begin{array}{c} 1 \\ +8 \\ +8 \\ +8 \\ +8 \\ +8 \\ +8 \\ +8 \\ +8$



Understanding remainders	Use equipment to understand that a remainder occurs when a set of objects cannot be divided equally any further.	Use images to explain remainders.	Understand that the remainder is what cannot be shared equally from a set. $22 \div 5 = ?$ $3 \times 5 = 15$ $4 \times 5 = 20$ $5 \times 5 = 25 \dots$ this is larger than 22 So, $22 \div 5 = 4$ remainder 2
Using known facts to divide multiples of 10	Use place value equipment to understand how to divide by unitising. <i>Make 6 ones divided by 3.</i> Now make 6 tens divided by 3. What is the same? What is different?	Divide multiples of 10 by unitising.	Divide multiples of 10 by a single digit using known times-tables. $180 \div 3 = ?$ 180 is 18 tens. 18 divided by 3 is 6. 18 tens divided by 3 is 6 tens. $18 \div 3 = 6$ $180 \div 3 = 60$
2-digit number divided by 1-digit number, no remainders	Children explore dividing 2-digit numbers by using place value equipment.	Children explore which partitions support particular divisions.	Children partition a number into 10s and 1s to divide where appropriate. 68 $60 \div 2 = 30$



	48 ÷ 2 = ? First divide the 10s.	I need to partition 42 differently to divide by 3. $42 = 30 + 12$ $42 \div 3 = 14$	$8 \div 2 = 4$ 30 + 4 = 34 $68 \div 2 = 34$ Children partition flexibly to divide where appropriate. $42 \div 3 = ?$ 42 = 40 + 2 I need to partition 42 differently to divide by 3. 42 = 30 + 12 $30 \div 3 = 10$ $12 \div 3 = 4$ 10 + 4 = 14 $42 \div 3 = 14$
2-digit number divided by 1-digit number, with remainders	Use place value equipment to understand the concept of remainder. Make 29 from place value equipment. Share it into 2 equal groups.	Use place value equipment to understand the concept of remainder in division. $29 \div 2 = ?$	Partition to divide, understanding the remainder in context. 67 children try to make 5 equal lines. 67 = 50 + 17 $50 \div 5 = 10$ $17 \div 5 = 3$ remainder 2 $67 \div 5 = 13$ remainder 2 There are 13 children in each line and 2 children left out.



	Year 4				
	Concrete	Pictorial	Abstract		
Year 4 Addition					
Understanding numbers to 10,000	Use place value equipment to understand the place value of 4-digit numbers.	Represent numbers using place value counters once children understand the relationship between 1,000s and 100s. (100 (100 (100 (10 (10 (10 (10 (10 (10 (Understand partitioning of 4-digit numbers, including numbers with digits of 0. $ \begin{array}{r} $		
Choosing mental methods where appropriate	Use unitising and known facts to support mental calculations. <i>Make 1,405 from place value equipment.</i> <i>Add 2,000.</i> <i>Now add the 1,000s.</i> <i>1 thousand + 2 thousands = 3 thousands</i> <i>1,405 + 2,000 = 3,405</i>	Use unitising and known facts to support mental calculations. Th H T O O O O O O O O O O O O O O O O O O O	Use unitising and known facts to support mental calculations. 4,256 + 300 = ? 2 + 3 = 5 $200 + 300 = 5004,256 + 300 = 4,556$		



Column addition with exchange	Use place value equipment on a place value grid to organise thinking.	Use place value equipment to model required exchanges.	Use a column method to add, including exchanges.
	Ensure that children understand how the columns relate to place value and what to do if the numbers are not all 4-digit numbers.	Th H T O Image: State St	Th H T O I 5 5 4 + 4 2 3 7
	Use equipment.to show 1,905 + 775.		
	Th H T O Image: Constraint of the state of the stat		Th H T O I 5 5 4 + 4 2 3 7
	Why have only three columns been used for the second row? Why is the Thousands box		q I
	empty? Which columns will total 10 or more?	Th H T O	Th H T O I 5 5 4 + 4 2 3 7
		Include examples that exchange in more than one column.	Th H T O I 5 5 4 + 4 2 3 7 5 7 9 I
			Include examples that exchange in more than one column.



Representing additions and checking strategies		Bar models may be used to represent additions in problem contexts, and to justify mental methods where appropriate. $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Use rounding and estimating on a number line to check the reasonableness of an addition. $1 \rightarrow 1 \rightarrow$
		This is equivalent to 3,000 + 3,000.	
Year 4 Subtraction			
Choosing mental methods where appropriate	Use place value equipment to justify mental methods.	Use place value grids to support mental methods where appropriate. Th H T O Th H T O Th H T O Th O Th H T O Th O	Use knowledge of place value and unitising to subtract mentally where appropriate. 3,501 - 2,000 3 thousands - 2 thousands = 1 thousand 3,501 - 2,000 = 1,501



Column subtraction with exchange	Understand why exchange of a 1,000 for 100s, a 100 for 10s, or a 10 for 1s may be necessary.	Represent place value equipment on a place value grid to subtract, including exchanges where needed.	Use column subtraction, with understanding of the place value of any exchange required.
		$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
Column subtraction with exchange across more than one column	Understand why two exchanges may be necessary. 2,502 - 243 = ?	Make exchanges across more than one column where there is a zero as a place holder. 2,502 - 243 = ?	Make exchanges across more than one column where there is a zero as a place holder. 2,502 - 243 = ?



	$ \begin{array}{c} \hline \\ \hline $	Th H T O	$ \frac{\text{Th}}{2} \frac{\text{H}}{43} \frac{\text{T}}{0} \frac{2}{2} \frac{2}{4} \frac{3}{3} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{4}{3} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{4}{3} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{1}{3} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{1}{3} \frac{1}{3} \frac{1}{3} \frac{1}{2} \frac{1}{2} \frac{1}{3} $
Representing subtractions and checking strategies		Use bar models to represent subtractions where a part needs to be calculated. Total 5,762 $\overline{2,899}$ Yes votes No votes <i>I can work out the total number of Yes votes</i> <i>using 5,762 – 2,899.</i> Bar models can also represent 'find the difference' as a subtraction problem.	Use inverse operations to check subtractions. <i>I calculated 1,225 – 799 = 574.</i> <i>I will check by adding the parts.</i> $ \underbrace{\begin{array}{r} 1,225 \\ \hline 799 \\ \hline 799$



		Danny 899 ? Luis I,005	
Year 4 Multiplication			
Multiplying by multiples of 10 and 100	Use unitising and place value equipment to understand how to multiply by multiples of 1, 10 and 100.	Use unitising and place value equipment to understand how to multiply by multiples of 1, 10 and 100.	Use known facts and understanding of place value and commutativity to multiply mentally.
	3 groups of 4 ones is 12 ones. 3 groups of 4 tens is 12 tens. 3 groups of 4 hundreds is 12 hundreds.	$3 \times 4 = 12$ $3 \times 40 = 120$ $3 \times 400 = 1,200$	$4 \times 7 = 28$ $4 \times 70 = 280$ $40 \times 7 = 280$ $4 \times 700 = 2,800$ $400 \times 7 = 2,800$
Understanding times-tables up to 12 × 12	Understand the special cases of multiplying by 1 and 0. $5 \times 1 = 5$ $5 \times 0 = 0$	Represent the relationship between the ×9 table and the ×10 table.	Understand how times-tables relate to counting patterns. Understand links between the $\times 3$ table, $\times 6$ table and $\times 9$ table 5×6 is double 5×3 $\times 5$ table and $\times 6$ table <i>I know that</i> $7 \times 5 = 35$
		relation to the ×10 table.	so I know that $7 \times 6 = 35 + 7$. ×5 table and ×7 table $3 \times 7 = 3 \times 5 + 3 \times 2$



		$2 \times 11 = 20 + 2$ $3 \times 11 = 30 + 3$ $4 \times 11 = 40 + 4$	$3 \times 5 \qquad 3 \times 2$ $3 \times 5 \qquad 3 \times 2$ 3×7 $x9 \text{ table and } \times 10 \text{ table}$ $6 \times 10 = 60$ $6 \times 9 = 60 - 6$
Understanding and using partitioning in multiplication	Make multiplications by partitioning. 4×12 is 4 groups of 10 and 4 groups of 2.	Understand how multiplication and partitioning are related through addition. Understand how multiplication and partitioning are related through addition. Understand how multiplication and $0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$	Use partitioning to multiply 2-digit numbers by a single digit. $18 \times 6 = ?$ $18 \times 6 = ?$ $18 \times 6 = 10 \times 6 + 8 \times 6$ $= 60 + 48$ $= 108$ $18 \times 6 = 10 \times 6 + 8 \times 6$ $= 60 + 48$ $= 108$
Column multiplication for 2- and 3-digit numbers multiplied by a single digit	Use place value equipment to make multiplications. <i>Make 4 × 136 using equipment.</i>	Use place value equipment alongside a column method for multiplication of up to 3-digit numbers by a single digit.	Use the formal column method for up to 3-digit numbers multiplied by a single digit. $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$



	I can work out how many 1s, 10s and 100s. There are 4×6 ones 24 ones There are 4×3 tens 12 tens There are 4×1 hundreds 4 hundreds 24 + 120 + 400 = 544		method and understand how any exchanges are related to place value at each stage of the calculation. $ \begin{array}{r} 2 & 3 \\ $
Multiplying more than two numbers	Represent situations by multiplying three numbers together.	Understand that commutativity can be used to multiply in different orders. 000000000000000000000000000000000000	Use knowledge of factors to simplify some multiplications. $24 \times 5 = 12 \times 2 \times 5$ $12 \times 2 \times 5 =$ $12 \times 10 = 120$ So, $24 \times 5 = 120$



Year 4 Division			
Understanding the relationship between multiplication and division, including times-tables	Use objects to explore families of multiplication and division facts.	Represent divisions using an array.	Understand families of related multiplication and division facts. <i>I know that</i> $5 \times 7 = 35$ so <i>I know all these facts:</i> $5 \times 7 = 35$ $7 \times 5 = 35$ $35 = 5 \times 7$ $35 = 7 \times 5$ $35 \div 5 = 7$ $35 \div 7 = 5$ $7 = 35 \div 5$
Dividing multiples of 10 and 100 by a single digit	Use place value equipment to understand how to use unitising to divide.	Represent divisions using place value equipment. $q \div 3 =$ 1 1 1 1 1 1 1 1	$5 = 35 \div 7$ Use known facts to divide 10s and 100s by a single digit. $15 \div 3 = 5$ $150 \div 3 = 50$ $1500 \div 3 = 500$



	<i>4 tens in each group 8 hundreds divided into 2 equal groups 4 hundreds in each group</i>	9 tens divided by 3 is 3 tens. 9 hundreds divided by 3 is 3 hundreds.	
Dividing 2-digit and 3-digit numbers by a single digit by partitioning	Partition into 10s and 1s to divide where appropriate. $39 \div 3 = ?$	Partition into 100s, 10s and 1s using Base 10 equipment to divide where appropriate. $39 \div 3 = ?$	Partition into 100s, 10s and 1s using a part- whole model to divide where appropriate. $142 \div 2 = ?$
into 100s, 10s and 1s	$3 \times 10 = 30$ $3 \times 3 = 9$	3 groups of I ten 3 groups of 3 ones	$ \begin{array}{c} $
	39 = 30 + 9 $30 \div 3 = 10$	39 = 30 + 9 $30 \div 3 = 10$	$100 \div 2 = 50$ $40 \div 2 = 20$ $6 \div 2 = 3$
	$9 \div 3 = 3$ $39 \div 3 = 13$	$9 \div 3 = 3$ $39 \div 3 = 13$	50 + 20 + 3 = 73 $142 \div 2 = 73$
Dividing 2-digit and 3-digit numbers by a	Use place value equipment to explore why different partitions are needed.	Represent how to partition flexibly where needed.	Make decisions about appropriate partitioning based on the division required.
single digit, using flexible partitioning	42 ÷ 3 = ?	84 ÷ 7 = ?	
	I will split it into 30 and 12, so that I can divide by 3 more easily.	<i>I will partition into 70 and 14 because I am dividing by 7.</i>	$ \begin{array}{c} 60 \\ 72 \\ \div 2 \\ = 36 \end{array} \begin{array}{c} 12 \\ 72 \\ \div 3 \\ = 24 \end{array} \begin{array}{c} 60 \\ 12 \\ 72 \\ \div 4 \\ = 18 \end{array} \begin{array}{c} 60 \\ 32 \\ 72 \\ \div 6 \\ = 12 \end{array} \begin{array}{c} 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 $
			Understand that different partitions can be used to complete the same division.



		84 70 ÷ 7 = 10 84 ÷ 7 = 12	$ \begin{array}{c} $
Understanding remainders	Use place value equipment to find remainders. 85 shared into 4 equal groups	Represent the remainder as the part that cannot be shared equally.	Understand how partitioning can reveal remainders of divisions. (95)
	There are 24, and 1 that cannot be shared.		80 15
		72 ÷ 5 = 14 remainder 2	80 ÷ 4 = 20 12 ÷ 4 = 3 95 ÷ 4 = 23 remainder 3