



Greenpark Academy

*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 column methods are built up gradually. Children will develop their understanding of how each stage of the calculation, including any exchanges, relates to place value. The example calculations chosen to introduce the stages of each method may often be more suited to a mental method. However, the examples and the progression of the steps have been chosen to help children develop their fluency in the process, alongside a deep understanding of the concepts and the numbers involved, so that they can apply these skills accurately and efficiently to later calculations. The class should be encouraged to compare mental and written methods for specific calculations, and children should be encouraged at every stage to make choices about which methods to apply. In Year 4, the steps are shown without such fine detail, although children should continue to build their understanding with a secure basis in place value. In subtraction, children will need to develop their understanding of exchange as they may need to exchange across one or two columns. By the end of Year 4, children should have

developed fluency in column methods alongside a deep understanding, which will allow them to progress confidently in upper Key Stage 2.

Multiplication and division: Children build a solid grounding in times-tables, understanding the multiplication and division facts in tandem. As such, they should be as confident knowing that 35 divided by 7 is 5 as knowing that 5 times 7 is 35. Children develop key skills to support multiplication methods: unitising, commutativity, and how to use partitioning effectively. Unitising allows children to use known facts to multiply and divide multiples of 10 and 100 efficiently. Commutativity gives children flexibility in applying known facts to calculations and problem solving. An understanding of partitioning allows children to extend their skills to multiplying and dividing 2- and 3-digit numbers by a single diait.

Children develop column methods to support multiplications in these cases.

For successful division, children will need to make choices about how to partition. For example, to divide 423 by 3, it is effective to partition 423 into 300, 120 and 3, as these can be divided by 3 using known facts.

Children will also need to understand the concept of remainder, in terms of a given calculation and in terms of the context of the problem. **Fractions:** Children develop the key concept of equivalent fractions, and link this with multiplying and dividing the numerators and denominators, as well as exploring the visual concept through fractions of shapes. Children learn how to find a fraction of an amount, and develop this with the aid of a bar model and other representations alongside.

in Year 3, children develop an understanding of how to add and subtract fractions with the same denominator and find complements to the whole. This is developed alongside an understanding of fractions as numbers, including fractions greater than 1. In Year 4, children begin to work with fractions greater than 1.

Decimals are introduced, as tenths in Year 3 and then as hundredths in Year 4. Children develop an understanding of decimals in terms of the relationship with fractions, with dividing by 10 and 100, and also with place value.



	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.	
	• • • • • • • • • • • • • • • • • • •		0         100         200         300         600         700           500         400         200         0         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.	Represent the parts of numbers to 1,000 using a part-whole model.	
1,000		200 240 240 241 241 241 241 241 241 241 241 241 241	215 $215 = 200 + 10 + 5$ Recognise numbers to 1,000 represented on a number line, including those between intervals.	







3-digit numberUnder+ 1s withmoreexchangefor 1	erstand that when the 1s sum to 10 or e, this requires an exchange of 10 ones ten.	Exchange 10 ones for 1 ten where needed. Use a place value grid to support the understanding.	Understand how to bridge by partitioning to the 1s to make the next 10.
Child object	dren should explore this using unitised cts or physical apparatus.	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{r} 7\\ 5\\ 2\\ 135\\ 140\\ 142\\ 135+7=?\\ 135+5+2=142\\ \end{array} $ Ensure that children understand how to add 1s bridging a 100. 198+5=? 198+2+3=203



3-digit number + 10s, no	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.
exchange	234 + 50 There are 3 tens and 5 tens altogether. $3 + 5 = 8$ In total there are 8 tens. $234 + 50 = 284$	351 + 30 = ? $1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +$	753 + 40 I know that 5 + 4 = 9 So, 50 + 40 = 90 753 + 40 = 793
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 = ? <i>I can count in 10s 194 204</i> 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

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3-digit numbe + 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	<ul> <li>If Use place value equipment to model addition and understand where exchange is required.</li> <li>Use place value counters to represent 154 + 72.</li> <li>Use this to decide if any exchange is required.</li> <li>There are 5 tens and 7 tens. That is 12 tens so I will exchange.</li> </ul>	Represent the required exchange on a place value grid using equipment. 275 + 16 = ? $\overrightarrow{H}$ $\overrightarrow{T}$ $\overrightarrow{O}$ $\overrightarrow{H}$ $\overrightarrow{T}$ $\overrightarrow{O}$ $\overrightarrow{T}$ $\overrightarrow{O}$ $\overrightarrow{T}$ $\overrightarrow{T}$ $\overrightarrow{O}$ $\overrightarrow{T}$ $\overrightarrow{T}$ $\overrightarrow{O}$ $\overrightarrow{T}$ $\overrightarrow{T}$ $\overrightarrow{T}$ $\overrightarrow{O}$ $\overrightarrow{T}$ $\overrightarrow{T}$	Use a column method with exchange. Children must understand how the method relates to place value at each stage of the calculation. $\frac{H T O}{2 7 5} + \frac{1 6}{1 6}$ $\frac{H T O}{2 7 5} + \frac{1 6}{1 6}$ $\frac{H T O}{2 7 5} + \frac{1 6}{2 9 1}$ $275 + 16 = 291$

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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 = 0 326 541	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. $\frac{\frac{H}{1} T 0}{\frac{1}{2} 6}$ $\frac{\frac{H}{2} \frac{1}{7}}{\frac{4}{3}}$ $\frac{\frac{H}{1} \frac{T}{2} 0}{\frac{1}{2} 6}$ $\frac{\frac{H}{2} \frac{T}{1} \frac{7}{3}}{\frac{3}{4} \frac{3}{3}}$ $\frac{126 + 217 = 343}{1}$ Note: Children should also study examples where exchange is required in more than one column, for example $185 + 318 = ?$



Representing addition problems, and selecting appropriate methods	Encourage children to use their own drawings and choices of place value equipment to represent problems with one or more steps. These representations will help them to select appropriate methods.	Children understand and create bar models to represent addition problems. 275 + 99 = ? 374 275 = 99 = 374 275 + 99 = 374	Use representations to support choices of appropriate methods. $\begin{array}{c c} \hline & & & \\ \hline \hline & & & \\ \hline \hline & & \hline \hline \\ \hline & & & \\ \hline \hline \\ \hline & & & \\ \hline \hline \\ \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \\ \hline \hline \hline \hline \hline \hline \\ \hline \hline$
Year 3 Subtraction			
Subtracting 100s	Use known facts and unitising to subtract multiples of 100. 100 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 $100$ $200$ $300$ $400$ $500400 - 200 = 200Use known facts and unitising as efficientand accurate methods.I know that 7 - 4 = 3. Therefore, I know that700 - 400 = 300$ .



3-digit number	Use number bonds to subtract the 1s.	Use number bonds to subtract the 1s.	Understand the link with counting back
exchange		H T O 3 I 9	Use known number bonds to calculate mentally. 476 - 4 = ?
	214 - 3 = ?	319 - 4 = ?	(476)
		H T O N N N N N N N N N N N N N	$\begin{array}{c} 400 & 70 & 6 \\ 6 - 4 = 2 \\ 476 - 4 = 472 \end{array}$
	4 - 3 = 1 214 - 3 = 211	9 - 4 = 5 319 - 4 = 315	
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 X X X X	Calculate mentally by using known bonds. 151 - 6 = ? 151 - 1 - 5 = 145

3-digit number	Subtract the 10s using known bonds.	Subtract the 10s using known bonds.	Use known bonds to subtract the 10s
exchange	381 - 10 = ?	HTOImage: Second stateImage: Second state8 tens - 1 ten = 7 tens $381 - 10 = 371$	372 - 50 = ? 70 - 50 = 20 So, $372 - 50 = 322$
	8 tens with 1 removed is 7 tens.		
	381 - 10 = 371		
3-digit number – 10s, exchange or	Use equipment to understand the exchange of 1 hundred for 10 tens.	Represent the exchange on a place value grid using equipment.	Understand the link with counting back on a number line.
exchange of bridging required		$210 - 20 = ?$ $\frac{H}{100} + \frac{T}{100} + \frac{1}{100}$ $I need to exchange 1 hundred for 10 tens, to help subtract 2 tens.$ $\frac{H}{100} + \frac{T}{100} + \frac{1}{100} + \frac{1}$	Use flexible partitioning to support the calculation. 235 - 60 = ? $235 = 100 + 130 + 5$ $235 = 100 + 70 + 5$ $= 175$







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> 525 - 270 = 255 <i>I will check using addition.</i>
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.
		This is 3 groups of 4. This is 4 groups of 3.	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$



	Children recognise that arrays can be used to model commutative multiplications.		A bar model may represent multiplications as equal groups.
	本部部部部部部部部部部部部部部部部部部部部部部部部部部部部部部部部部部部部		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
Using commutativity to support understanding of the times- tables	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> <i>I know that 7 × 4 = 28</i> <i>so, I know that</i>
	There are 6 groups of 4 pens. There are 4 groups of 6 bread rolls. I can use $6 \times 4 = 24$ to work out both totals.	$6 \times 4 = 24$ $4 \times 6 = 24$	4 groups of 7 = 28 and 7 groups of 4 = 28.



Understanding and using x3, x2, x4 and x8 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.
	Image: Constrained state of the second state of the sec	3 × 2 = 6 3 × 4 = 12 3 × 8 = 24	$ \begin{array}{c} 10 \\ 5 \\ 2 \\ x \\ 5 \\ 2 \\ 2 \\ x \\ 5 \\ 2 \\ 10 \\ 5 \\ 2 \\ 10 \\ 5 \\ 2 \\ 10 \\ 5 \\ 2 \\ 10 \\ 2 \\ 5 \\ 10 \\ 2 \\ 5 \\ 10 \\ 2 \\ 5 \\ 10 \\ 2 \\ 5 \\ 10 \\ 2 \\ 5 \\ 10 \\ 2 \\ 5 \\ 10 \\ 10 \\ 2 \\ 5 \\ 10 \\ 10 \\ 2 \\ 5 \\ 10 \\ 10 \\ 2 \\ 5 \\ 10 \\ 10 \\ 2 \\ 5 \\ 10 \\ 10 \\ 2 \\ 5 \\ 10 \\ 10 \\ 10 \\ 2 \\ 10 \\ 10 \\ 2 \\ 10 \\ 10 \\ 10 \\ 2 \\ 10 \\ 10 \\ 10 \\ 2 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10$
Using known facts to multiply 10s.	Explore the relationship between known times-tables and multiples of 10 using place value equipment.	Understand how unitising 10s supports multiplying by multiples of 10.	Understand how to use known times-tables to multiply multiples of 10.
for example 3 × 40	Make 4 groups of 3 ones.		+2 +2 +2 +2
			I I I I I I I I 0 I 2 3 4 5 6 7 8
	Make 4 groups of 3 tens.	10 10 10 10	+20 +20 +20 +20
			Image: 1     Image
	What is the same? What is different?	4 groups of 2 ones is 8 ones. 4 groups of 2 tens is 8 tens.	$4 \times 2 = 8$ $4 \times 20 = 80$
		$4 \times 2 = 8$ $4 \times 20 = 80$	

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Year 3 Division			
Using times- tables knowledge to divide	Use knowledge of known times-tables to calculate divisions. 24 divided into groups of 8. There are 3 groups of 8.	Use knowledge of known times-tables to calculate divisions. Use knowledge of known times-tables to calculate divisions. $48 \div 4 = 12$ 48  divided into groups of 4. There are 12 groups. $4 \times 12 = 48$ $48 \div 4 = 12$	Use knowledge of known times-tables to calculate divisions. I need to work out 30 shared between 5. I know that $6 \times 5 = 30$ so I know that $30 \div 5 = 6$ . A bar model may represent the relationship between sharing and grouping. 24 4 4 4 4 4 4 4 4 4



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. $60 \div 2 = 30$ $8 \div 2 = 4$ $30 + 4 = 34$ $68 \div 2 = 34$

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	First divide the 10s.	<i>I need to partition 42 differently to divide by 3.</i>	Children partition flexibly to divide where appropriate.
	Then divide the 1s.	42 = 30 + 12 42 = 30 + 12 42 = 3 = 14	$42 \div 3 = ?$ 42 = 40 + 2 <i>I need to partition 42 differently to divide</i> <i>by 3.</i> 42 = 30 + 12 $30 \div 3 = 10$ $12 \div 3 = 4$ 10 + 4 = 14
			42 ÷ 3 = 14
2-digit number divided by 1-digit number, with remainders	Use place value equipment to understand the concept of remainder. <i>Make 29 from place value equipment.</i> <i>Share it into 2 equal groups.</i> There are two groups of 14 and 1 remainder.	Use place value equipment to understand the concept of remainder in division. $29 \div 2 = ?$ $29 \div 2 = 14$ remainder 1	Partition to divide, understanding the remainder in context. 67  children try to make 5 equal lines. 67 = 50 + 17 $50 \div 5 = 10$ $17 \div 5 = 3 \text{ remainder 2}$ $67 \div 5 = 13 \text{ remainder 2}$ 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. 2,000 + 500 + 40 + 2 = 2,542	Understand partitioning of 4-digit numbers, including numbers with digits of 0. 5,000 + 60 + 8 = 5,068 Understand and read 4-digit numbers on a number line.			
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	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 required e	value equ exchanges.	ipment to mo	odel	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 m m m m m				Th H T O I 5 5 4 + 4 2 3 7
	Use equipment.to show 1,905 + 775.					
		Th			0	Th H T O
		(000) (000) (000)	60 00	000		I         5         4           +         4         2         3         7
		Th	r u		0	9 1
	Why have only three columns been used for the second row? Why is the Thousands box	1.000			0	
	empty?	1000 1.000 1.000 1.000	800 (80)			Th H T O
	Which columns will total 10 or more?					1 5 5 4
		Th	H		0	+ 4 2 3 7 7 9 1
		1.000 1.000 1.000	NO 10	0000		
		Include ex than one o	camples th column.	• at exchange	in more	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. $\frac{Th \ H \ T \ O}{7 \ q \ q} + \frac{5 \ 7 \ 4}{1 \ 3 \ 7 \ 3} + \frac{5 \ 7 \ 4}{1 \ 1 \ 3 \ 7 \ 3} + \frac{1 \ 3 \ 7 \ 3}{1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \$	Use rounding and estimating on a number line to check the reasonableness of an addition. $1 \rightarrow 1,000\ 2,000\ 3,000\ 4,000\ 5,000\ 6,000\ 7,000\ 8,000\ 9,000\ 10,000$ 912 + 6,149 = ? I used rounding to work out that the answer should be approximately 1,000 + 6,000 = 7,000.
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 T,646 - 40 = 7,606	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









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 x9 table and the x10 table. Represent the x11 table and x12 tables in relation to the x10 table. $2 \times 11 = 20 + 2$ $3 \times 11 = 30 + 3$ $4 \times 12 = 40 + 8$	Understand how times-tables relate to counting patterns. Understand links between the x3 table, x6 table and x9 table $5 \times 6$ is double $5 \times 3$ x5 table and x6 table <i>I know that</i> $7 \times 5 = 35$ so <i>I know that</i> $7 \times 6 = 35 + 7$ . x5 table and x7 table $3 \times 7 = 3 \times 5 + 3 \times 2$ $3 \times 5$ $3 \times 7$ x9 table and x10 table $6 \times 10 = 60$ $6 \times 9 = 60 - 6$



Understanding and using partitioning in multiplication	Make multiplications by partitioning. $4 \times 12$ is 4 groups of 10 and 4 groups of 2. 6000000000000000000000000000000000000	Understand how multiplication and partitioning are related through addition. Understand how multiplication and partitioning are related through addition. Understand how multiplication and $4 \times 3 = 12$ $4 \times 3 = 12$ $4 \times 3 = 12$ $4 \times 5 = 20$ 12 + 20 = 32 $4 \times 8 = 32$	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> <i>Make 4 × 136 using equipment.</i> <i>I can work out how many 1s, 10s and 100s.</i> <i>I can work out how many 1s, 10s and 100s.</i> <i>There are 4 × 6 ones</i> 24 ones <i>There are 4 × 3 tens</i> 12 tens <i>There are 4 × 1 hundreds 4 hundreds</i> 24 + 120 + 400 = 544	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. $3     2$ $\times  3$ $\frac{3     2}{4  3  6}$ Understand how the expanded column method is related to the formal column method and understand how any exchanges are related to place value at each stage of the calculation. $2  3$ $\frac{\times  5}{1  5}$ $\frac{2  3}{1  1  5}$ $\frac{\times  5}{1  1  5}$



Multiplying more than two	Represent situations by multiplying three numbers together.	Understand that commutativity can be used to multiply in different orders.	Use knowledge of factors to simplify some multiplications.
I UI IIDEI S	Each sheet has $2 \times 5$ stickers. There are $5 \times 2 \times 3$ stickers in total. $5 \times 2 \times 3 = 30$	$2 \times 6 \times 10 = 120$ $10 \times 6 \times 2 = 120$ $60 \times 2 = 120$ $10 \times 6 \times 2 = 120$	$24 \times 5 = 12 \times 2 \times 5$ $12 \times 2 \times 5 =$ $12 \times 10 = 120$ 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> $5 \times 7 = 35$ $7 \times 5 = 35$ $35 = 5 \times 7$ $35 = 7 \times 5$ $35 \div 5 = 7$ $35 \div 7 = 5$ $7 = 35 \div 5$ $5 = 35 \div 7$



Dividing multiples of 10 and 100 by a	Use place value equipment to understand how to use unitising to divide.	Represent divisions using place value equipment.	Use known facts to divide 10s and 100s by a single digit.
single digit		q ÷ 3 =	15 ÷ 3 = 5
			$150 \div 3 = 50$
			1500 ÷ 3 = 500
	8 ones divided into 2 equal groups 4 ones in each group		
	8 tens divided into 2 equal groups 4 tens in each group	$9 \div 3 = 3$ 9 tens divided by 3 is 3 tens	
	8 hundreds divided into 2 equal groups 4 hundreds in each group	9 hundreds divided by 3 is 3 hundreds.	
Dividing 2-digit and 3-digit	Partition into 10s and 1s to divide where appropriate.	Partition into 100s, 10s and 1s using Base 10 equipment to divide where appropriate.	Partition into 100s, 10s and 1s using a part- whole model to divide where appropriate.
single digit by	39 ÷ 3 = ?	39 ÷ 3 = ?	142 ÷ 2 = ?
into 100s, 10s and 1s			
	$3 \times 10 = 30$ $3 \times 3 = 9$	3 groups of 3 groups of 3 ones	$100 \div 2 = 40 \div 2 = 6 \div 2 = 6$
	39 = 30 + 9	39 = 30 + 9	$40 \div 2 = 50$ $40 \div 2 = 20$
	$30 \div 3 = 10$	$30 \div 3 = 10$	$6 \div 2 = 3$
	$9 \div 3 = 3$	$9 \div 3 = 3$	50 + 20 + 3 = 73
	$39 \div 3 = 13$	$39 \div 3 = 13$	142 <i>÷</i> 2 = 73



Dividing 2-digit	Use place value equipment to explore why different partitions are needed	Represent how to partition flexibly where	Make decisions about appropriate
numbers by a single digit, using flexible	$42 \div 3 = ?$	84 ÷ 7 = ?	$\begin{array}{c c} 72 \\ \hline 72 \hline 72$
partitioning	I will split it into 30 and 12, so that I can divide by 3 more easily.	I will partition into 70 and 14 because I am dividing by 7.	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
		84         70 ÷ 7 = 10       14 ÷ 7 = 2         84 ÷ 7 = 12	Understand that different partitions can be used to complete the same division. $ \begin{array}{c}  & & & \\ & & & & \\ & & & \\ & & & \\ & & & & \\ & & & \\ & $
Understanding	Use place value equipment to find	Represent the remainder as the part that	30+3=10         30+3=10         30+3=10         30+3=10         12+3=4           Understand how partitioning can reveal
remainders	remainders.	cannot be shared equally.	remainders of divisions. $(q_5)$
	There are 24 and 1 that connet he shared		
		72 ÷ 5 = 14 remainder 2	$80 \div 4 = 20$ $12 \div 4 = 3$ $95 \div 4 = 22$ remainder 3