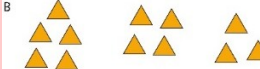
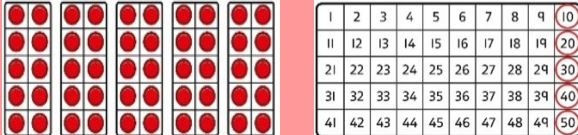
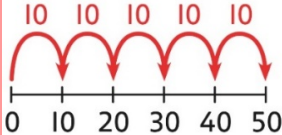
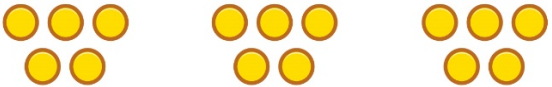
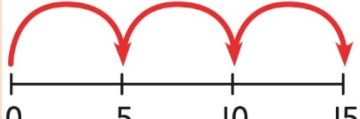
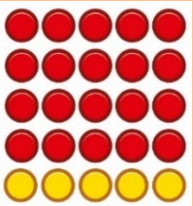
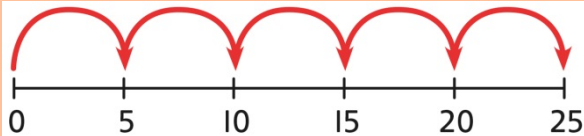
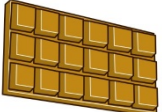
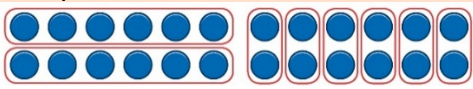
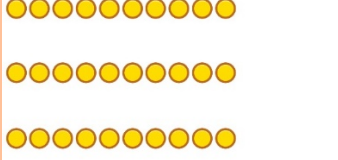
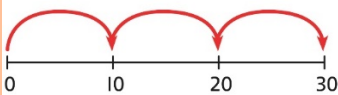
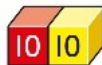


Year 1

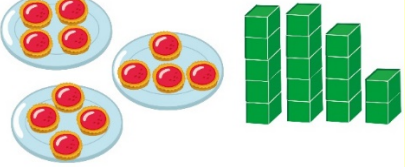
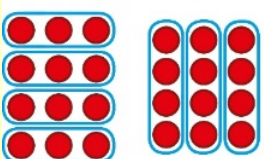
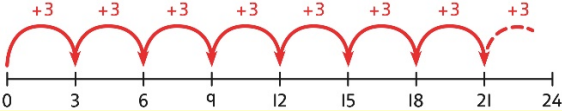
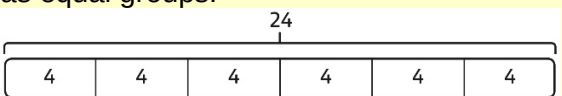
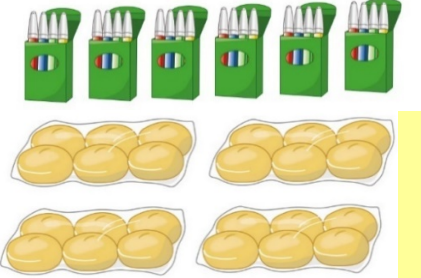
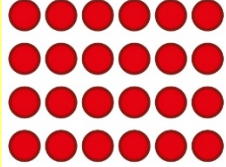
	Concrete	Pictorial	Abstract
Recognising and making equal groups	Children arrange objects in equal and unequal groups and understand how to recognise whether they are equal. A  B  C 	Children draw and represent equal and unequal groups. A  B 	Describe equal groups using words <i>Three equal groups of 4. Four equal groups of 3.</i>
Finding the total of equal groups by counting in 2s, 5s and 10s	 <i>There are 5 pens in each pack ... 5...10...15...20...25...30...35...40...</i>	100 squares and ten frames support counting in 2s, 5s and 10s. 	Use a number line to support repeated addition through counting in 2s, 5s and 10s. 

Year 2

	Concrete	Pictorial	Abstract
Equal groups and repeated addition	Recognise equal groups and write as repeated addition and as multiplication.  <i>5 chairs + 5 chairs + 5 chairs 3 groups of 5 chairs 3 x 5 chairs</i>	Recognise equal groups using standard objects such as counters and write as repeated addition and multiplication.  <i>5 + 5 + 5 3 groups of 5 3 x 5</i>	Use a number line and write as repeated addition and as multiplication.  <i>5 + 5 + 5 = 15 3 x 5 = 15</i>
Using arrays to represent multiplication and support understanding	Understand the relationship between arrays, multiplication and repeated addition.  <i>4 groups of 5 5 + 5 + 5 + 5 4 x 5</i>	Understand the relationship between arrays, multiplication and repeated addition.  <i>4 groups of 5 ... 5 groups of 5 20 + 5 = 25 5 x 5 = 25</i>	Understand the relationship between arrays, multiplication and repeated addition.  <i>5 + 5 + 5 + 5 + 5 5 x 5 = 25</i>
Understanding commutativity	Use arrays to visualise commutativity.  <i>I can see 3 groups of 6. I can see 6 groups of 3.</i>	Form arrays using counters to visualise commutativity. Rotate the array to show that orientation does not change the multiplication.  <i>This is 2 groups of 6 and also 6 groups of 2.</i>	Use arrays to visualise commutativity.  <i>4 + 4 + 4 + 4 + 4 = 20 5 + 5 + 5 + 5 = 20</i>

Learning $\times 2$, $\times 5$ and $\times 10$ table facts	Develop an understanding of how to unitise groups of 2, 5 and 10 and learn corresponding times-table facts.    3 groups of 10 ... 10, 20, 30 $3 \times 10 = 30$	Understand how to relate counting in unitised groups and repeated addition with knowing key times-table facts.   $10 + 10 + 10 = 30$ $3 \times 10 = 30$	$4 \times 5 = 20$ and $5 \times 4 = 20$ Understand how the times-tables increase and contain patterns.  $1 \times 10 = 10$  $2 \times 10 = 20$  $3 \times 10 = 30$  $4 \times 10 = 40$
---	--	--	--

Year 3

	Concrete	Pictorial	Abstract
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.  <i>This is 4 groups of 3.</i> <i>This is 3 groups of 4.</i>	Children understand the link between repeated addition and multiplication.  $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 24$ $8 \times 3 = 24$ A bar model may represent multiplications as equal groups.  $6 \times 4 = 24$
Using commutativity to support understanding of the times-tables	Understand how to use times-tables facts flexibly.  <i>There are 6 groups of 4 pens.</i> <i>There are 4 groups of 6 bread rolls.</i> <i>I can use $6 \times 4 = 24$ to work out both totals.</i>	Understand how times-table facts relate to commutativity.  $6 \times 4 = 24$ $4 \times 6 = 24$	Understand how times-table facts relate to commutativity. <i>I need to work out 4 groups of 7.</i> <i>I know that $7 \times 4 = 28$, so, I know that $4 \times 7 = 28$</i>

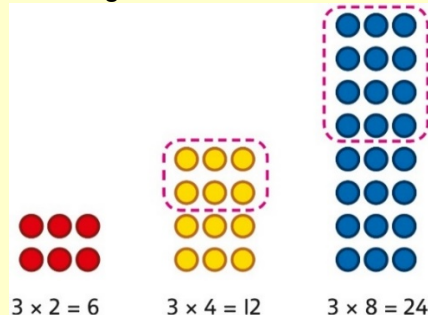
Understanding and using $\times 3$, $\times 2$, $\times 4$ and $\times 8$ tables.

Children learn the times-tables as 'groups of' but apply their knowledge of commutativity.

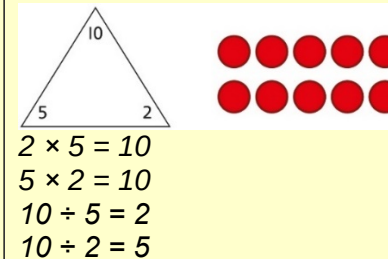


I can use the $\times 3$ table to work out how many keys. I can also use the $\times 3$ table to work out how many batteries.

Children understand how the $\times 2$, $\times 4$ and $\times 8$ tables are related through repeated doubling.



Children understand the relationship between related multiplication and division facts in known times-tables.



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.

Make 4 groups of 3 ones.

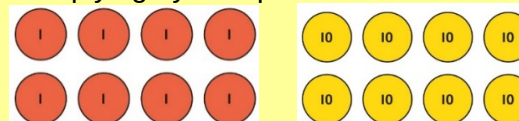


Make 4 groups of 3 tens.



What is the same? What is different?

Understand how unitising 10s supports multiplying by multiples of 10.



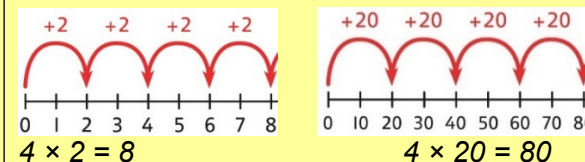
4 groups of 2 ones is 8 ones.

4 groups of 2 tens is 8 tens.

$$4 \times 2 = 8$$

$$4 \times 20 = 80$$

Understand how to use known times-tables to multiply multiples of 10.



Multiplying a 2-digit number by a 1-digit number

Understand how to link partitioning a 2-digit number with multiplying.

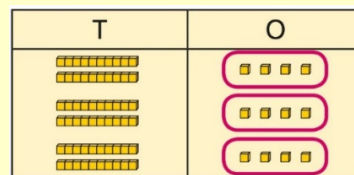
Each person has 23 flowers.

Each person has 2 tens and 3 ones.

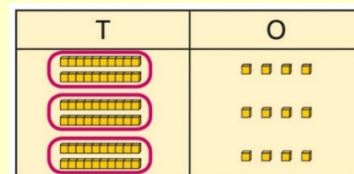


Use place value equipment to model the multiplication context.

Use place value to support how partitioning is linked with multiplying by a 2-digit number.



$$3 \times 4 = 12$$



$$3 \times 20 = 60$$

$$60 + 12 = 72$$

$$3 \times 24 = 72$$

Use addition to complete multiplications of 2-digit numbers by a 1-digit number.

$$4 \times 13 = ?$$

$$4 \times 3 = 12$$

$$4 \times 10 = 40$$

$$12 + 40 = 52$$

	T O There are 3 groups of 3 ones. There are 3 groups of 2 tens. 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.
--	--

Year 4

	Concrete	Pictorial	Abstract
Multiplying by 10 and 100	Use unitising and place value equipment to understand how to multiply by multiples of 1, 10 and 100.	Understand how this exchange is represented on a place value chart.	Understand how this exchange is represented on a place value chart.

H	T	O
	10	1
	10	1
	10	1
	10	1
	10	1
	10	1
	10	1
	10	1
	10	1
	10	1

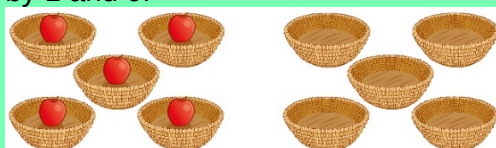
H	T	O

Th	H	T	O

Th	H	T	O
		2	5
	2	5	0

Understanding times-tables up to 12×12

Understand the special cases of multiplying by 1 and 0.

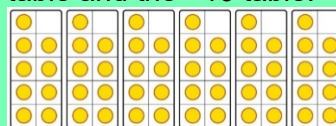


$$5 \times 1 = 5$$



$$5 \times 0 = 0$$

Represent the relationship between the $\times 9$ table and the $\times 10$ table.



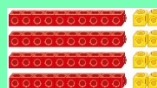
Represent the $\times 11$ table and $\times 12$ tables in relation to the $\times 10$ table.



$$2 \times 11 = 20 + 2$$

$$3 \times 11 = 30 + 3$$

$$4 \times 11 = 40 + 4$$



$$4 \times 12 = 40 + 8$$

Understand how times-tables relate to counting patterns. Understand links between:

$\times 3$ table, $\times 6$ table and $\times 9$ table
 5×6 is double 5×3

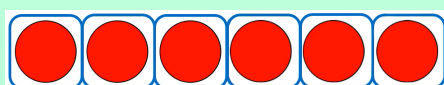
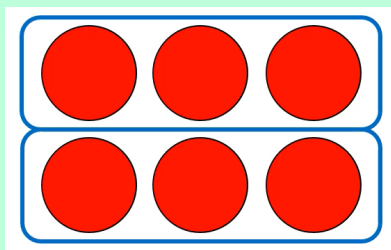
$\times 5$ table and $\times 6$ table
*I know that $7 \times 5 = 35$
 so I know that $7 \times 6 = 35 + 7$.*

$\times 5$ table and $\times 7$ table
 $3 \times 7 = (3 \times 5) + (3 \times 2)$

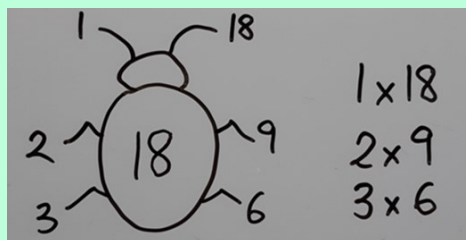
$\times 9$ table and $\times 10$ table
 $6 \times 10 = 60$
 $6 \times 9 = 60 - 6$

Understanding factors

Use counters to make different factor pairs.

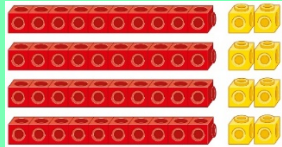
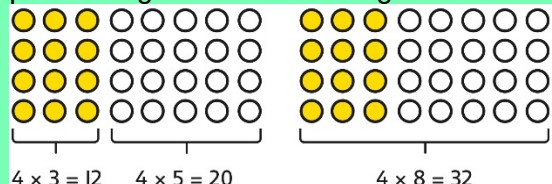
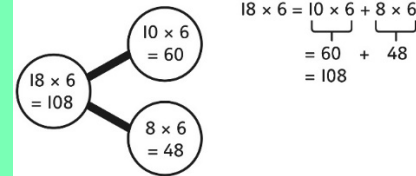
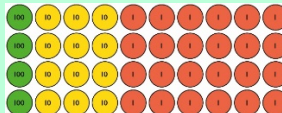
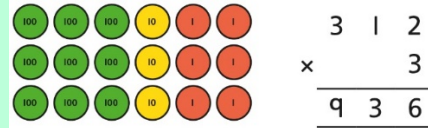
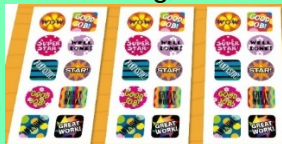
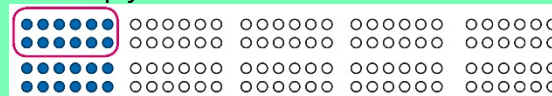


Represent factors using a 'Factor Bug'



List the factors in pairs and as a list:

1 & 18, 2 & 9, 3 & 6
 1, 2, 3, 6, 9, 18

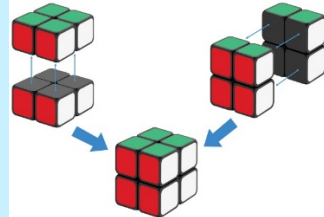
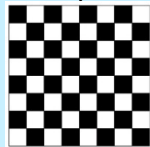
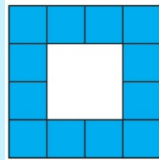
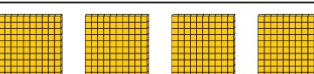
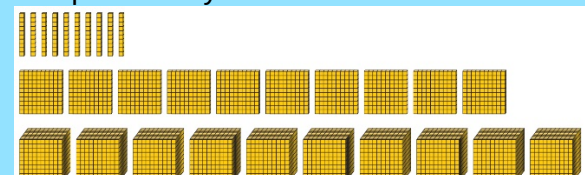
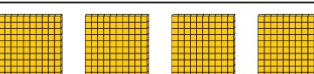
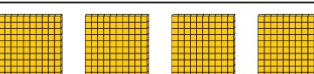
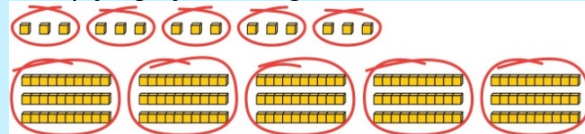
Understanding and using partitioning in multiplication	Make multiplications by partitioning. 4×12 is 4 groups of 10 and 4 groups of 2.  $4 \times 12 = 40 + 8$	Understand how multiplication and partitioning are related through addition.  $4 \times 3 = 12$ $4 \times 5 = 20$ $4 \times 8 = 32$ $4 \times 3 = 12$ $4 \times 5 = 20$ $12 + 20 = 32$ $4 \times 8 = 32$	Use partitioning to multiply 2-digit numbers by a single digit. $18 \times 6 = ?$  $18 \times 6 = (10 \times 6) + (8 \times 6)$ $= 60 + 48$ $= 108$
Column multiplication for 2- and 3-digit numbers multiplied by a single digit	Use place value equipment to make multiplications. Make 4×136 using equipment.  There are 4×6 ones... 24 ones There are 4×3 tens ... 12 tens There are 4×1 hundreds ... 4 hundreds $24 + 120 + 400 = 544$	Use place value equipment alongside a column method for multiplication of up to 3-digit numbers by a single digit.  $\begin{array}{r} 312 \\ \times 3 \\ \hline 936 \end{array}$	Use the formal column method for up to 3-digit numbers multiplied by a single digit. Understand how any exchanges are related to place value at each stage of the calculation.  $\begin{array}{r} 312 \\ \times 3 \\ \hline 936 \end{array}$ $\begin{array}{r} 23 \\ \times 5 \\ \hline 115 \end{array}$
Multiplying more than two numbers	Represent situations by multiplying three numbers together.  Each sheet has 2×5 stickers. There are 3 sheets. There are $5 \times 2 \times 3$ stickers in total. $5 \times 2 \times 3 = 30$ $10 \times 3 = 30$	Understand that commutativity can be used to multiply in different orders.  $2 \times 6 \times 10 = 120$ $12 \times 10 = 120$ $10 \times 6 \times 2 = 120$ $60 \times 2 = 120$	Use knowledge of factors to simplify some multiplications. $24 \times 5 = 12 \times 2 \times 5$

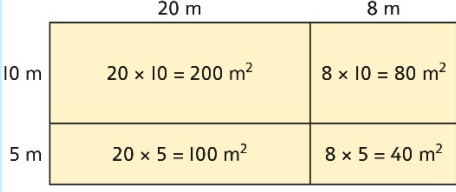
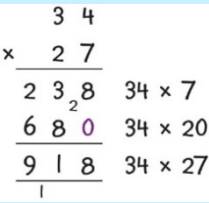
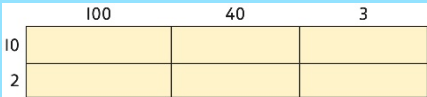
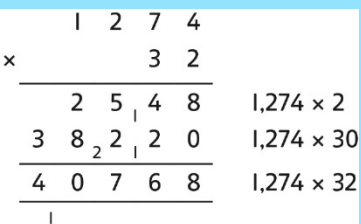
Year 5

Concrete

Pictorial

Abstract

Understanding factors	Use cubes or counters to explore the meaning of 'square numbers'. <i>25 is a square number because it is made from 5 rows of 5.</i> Use cubes to explore cube numbers.  <i>8 is a cube number.</i>	Use images to explore examples and non-examples of square numbers.  $8 \times 8 = 64$ $8^2 = 64$  <i>12 is not a square number, because you cannot multiply a whole number by itself to make 12.</i>	Understand the pattern of square numbers in the multiplication tables. <i>Use a multiplication grid to circle each square number. Can children spot a pattern?</i>																					
Multiplying by 10, 100 and 1,000	Use place value equipment to multiply by 10, 100 and 1,000 by unitising. <table><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> Understand the effect of repeated multiplication by 10. 	$4 \times 1 = 4 \text{ ones} = 4$		$4 \times 10 = 4 \text{ tens} = 40$		$4 \times 100 = 4 \text{ hundreds} = 400$		Understand how exchange relates to the digits when multiplying by 10, 100 and 1,000. <table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>1</td><td>7</td></tr></table> $17 \times 10 = 170$ $17 \times 100 = 17 \times 10 \times 10 = 1,700$ $17 \times 1,000 = 17 \times 10 \times 10 \times 10 = 17,000$	H	T	O		1	7	$17 \times 10 = 170$ $17 \times 100 = 17 \times 10 \times 10 = 1,700$ $17 \times 1,000 = 17 \times 10 \times 10 \times 10 = 17,000$									
$4 \times 1 = 4 \text{ ones} = 4$																								
$4 \times 10 = 4 \text{ tens} = 40$																								
$4 \times 100 = 4 \text{ hundreds} = 400$																								
H	T	O																						
	1	7																						
Multiplying by multiples of 10, 100 and 1,000	Use place value equipment to explore multiplying by unitising.  <i>5 groups of 3 ones is 15 ones.</i> <i>5 groups of 3 tens is 15 tens.</i> <i>So, I know that 5 groups of 3 thousands would be 15 thousands.</i>	<i>Understand how this exchange is represented on a place value chart.</i> Use <table><tr><th></th><th>Th</th><th>H</th><th>T</th><th>O</th><th>•</th><th>Tth</th></tr><tr><td>$2.5 \times 10 = 25$</td><td></td><td></td><td>2</td><td>5</td><td>•</td><td></td></tr><tr><td>$2.5 \times 100 = 250$</td><td></td><td>2</td><td>5</td><td>0</td><td>•</td><td></td></tr></table>		Th	H	T	O	•	Tth	$2.5 \times 10 = 25$			2	5	•		$2.5 \times 100 = 250$		2	5	0	•		Use known facts and unitising to multiply. $5 \times 4 = 20$ $5 \times 40 = 200$ $5 \times 400 = 2,000$ $5 \times 4,000 = 20,000$ $5,000 \times 4 = 20,000$
	Th	H	T	O	•	Tth																		
$2.5 \times 10 = 25$			2	5	•																			
$2.5 \times 100 = 250$		2	5	0	•																			
Multiplying up to 4-digit numbers by a single digit		Use column multiplication, not including any required exchanges.	Use column multiplication, including any required exchanges.																					

		Use counters to represent e.g. 2 lots of 3 = 6	$\begin{array}{r} 136 \\ \times \quad 6 \\ \hline 816 \\ \hline 23 \end{array}$
Multiplying 2-digit numbers by 2-digit numbers	Partition one number into 10s and 1s, then add the parts.  $\begin{array}{r} 10 \times 15 = 150 \\ 3 \times 15 = 45 \\ \hline 150 \\ 45 \\ \hline 1545 \end{array}$ There are 345 bottles of milk in total. $23 \times 15 = 345$	Use an area model and add the parts.  $28 \times 15 = 420$	Initially, do 2-digit by 1 digit (partitioned) as two separate calculations. Then add answers together. Possible next step: 
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.	Initially, do 2-digit by 1 digit (partitioned) as two separate calculations. Then add answers together. Use column multiplication, ensuring understanding of place value at each stage. Progress to include examples that require multiple exchanges as understanding, confidence and fluency build. Possible move onto:  First multiply 1,274 by 2. Then multiply 1,274 by 30. Finally, find the total. $1,274 \times 32 = 40,768$
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. Using counters.	Understand how this exchange is represented on a place value chart.

	$0.14 \times 10 = 1.4$
--	------------------------

Th	H	T	O	•	Tth
			2	•	5
		2	5	•	
	2	5	0	•	
2	5	0	0	•	

$2.5 \times 10 = 25$
 $2.5 \times 100 = 250$
 $2.5 \times 1,000 = 2,500$

Th	H	T	O	•	Tth
			2	•	5
		2	5	•	
	2	5	0	•	
2	5	0	0	•	

Year 6

Multiplying up to a 4-digit number by a single digit number

Concrete

Pictorial	

Abstract

Use column multiplication, including any required exchanges.

$$\begin{array}{r} 136 \\ \times 6 \\ \hline 816 \\ \hline 23 \end{array}$$

Use column multiplication, including any required exchanges.

$$\begin{array}{r}
 136 \\
 \times \quad 6 \\
 \hline
 816 \\
 \hline
 23
 \end{array}$$

Multiplying up to a 4-digit number by a 2-digit number

Date	Time	Location	Weather	Wind	Temp	Humidity	Pressure	Remarks

Use compact column multiplication with understanding of place value at all stages.

	1	2	3	5		
×			2	1		
	1	2	3	5	$1 \times 1,235$	
	2	4	7	0	0	$20 \times 1,235$
	2	5	9	3	5	$21 \times 1,235$

Possibly, do 2-digit by 1 digit (partitioned) as two separate calculations if chn are not prepared for the previous step. Then add answers together.

Use compact column multiplication with understanding of place value at all stages.

	1	2	3	5		
×			2	1		
	1	2	3	5	$1 \times 1,235$	
	2	4	7	0	0	$20 \times 1,235$
	2	5	9	3	5	$21 \times 1,235$

Possibly, do 2-digit by 1 digit (partitioned) as two separate calculations if chn are not prepared for the previous step. Then add answers together.

Use compact column multiplication with understanding of place value at all stages.

	1	2	3	5	
x			2	1	
	1	2	3	5	$1 \times 1,235$
	2	4	7	0	$20 \times 1,235$
	2	5	9	3	$21 \times 1,235$

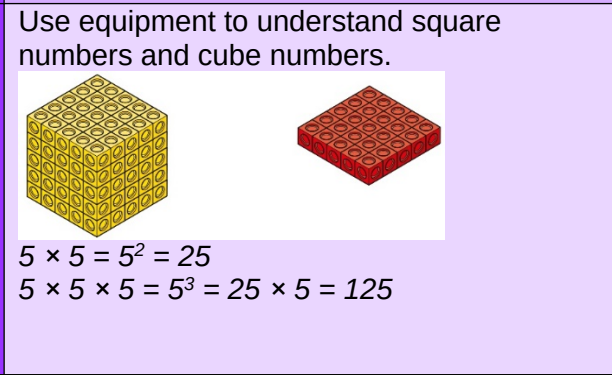
Possibly, do 2-digit by 1 digit (partitioned) as two separate calculations if chn are not prepared for the previous step. Then add answers together.

Using knowledge of factors and partitions to compare methods for multiplications

Use equipment to understand square numbers and cube numbers.



$5 \times 5 = 5^2 = 25$
 $5 \times 5 \times 5 = 5^3 = 25 \times 5 = 125$



Use equipment to understand square numbers and cube numbers.



$5 \times 5 = 5^2 = 25$
 $5 \times 5 \times 5 = 5^3 = 25 \times 5 = 125$

Diagram illustrating the relationship between the division equation $1,870 \div 11 = 170$ and its related multiplication equations:

- 170×11
- 171×11
- 170×12
- 17×110

Use a known fact to generate families of related facts.

Use factors to calculate efficiently.

$$\begin{aligned} &15 \times 16 \\ &= 3 \times 5 \times 2 \times 8 \\ &= 3 \times 8 \times 2 \times 5 \\ &= 24 \times 10 \\ &= 240 \end{aligned}$$

Use a known fact to generate families of related facts.

Use factors to calculate efficiently.

$$\begin{aligned} &15 \times 16 \\ &= 3 \times 5 \times 2 \times 8 \\ &= 3 \times 8 \times 2 \times 5 \\ &= 24 \times 10 \\ &= 240 \end{aligned}$$

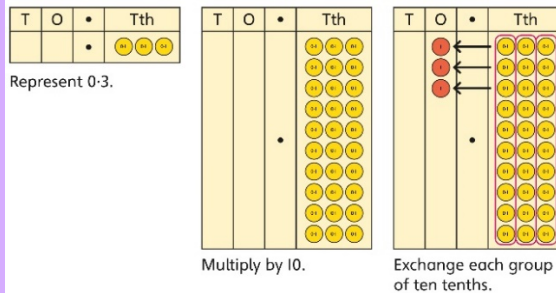
Use a known fact to generate families of related facts.

Use factors to calculate efficiently.

$$\begin{aligned} &15 \times 16 \\ &= 3 \times 5 \times 2 \times 8 \\ &= 3 \times 8 \times 2 \times 5 \\ &= 24 \times 10 \\ &= 240 \end{aligned}$$

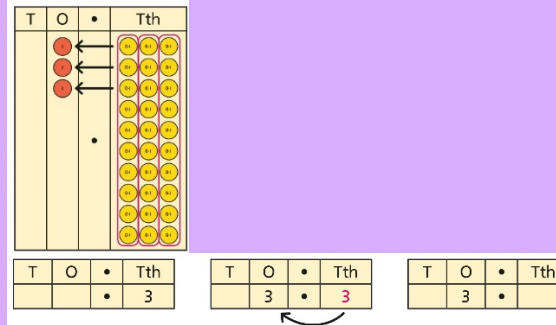
Multiplying by 10, 100 and 1,000

Use place value equipment to explore exchange in decimal multiplication.



$0.3 \times 10 = ?$
 0.3 is 3 tenths.
 10×3 tenths are 30 tenths.
 30 tenths are equivalent to 3 ones.

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



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

$$8 \times 100 = 800$$

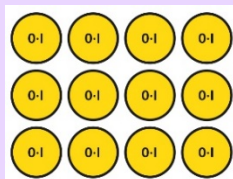
$$8 \times 300 = 800 \times 3 = 2,400$$

$$2.5 \times 10 = 25$$

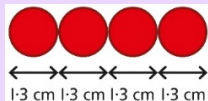
$$2.5 \times 20 = 2.5 \times 10 \times 2 = 50$$

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.

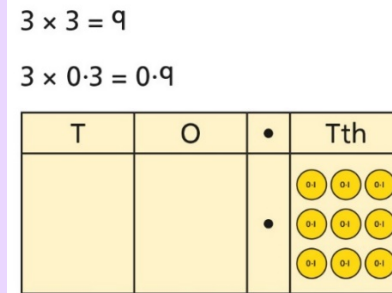


$$4 \times 1 \text{ cm} = 4 \text{ cm}$$

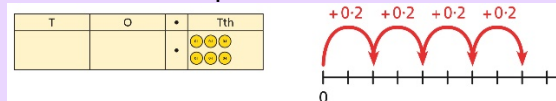
$$4 \times 0.3 \text{ cm} = 1.2 \text{ cm}$$

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

Represent calculations on a place value grid.



Understand the link between multiplying decimals and repeated addition.



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:

$$1.8 \times 4 = ?$$

$$18 \times 0.4 = ?$$

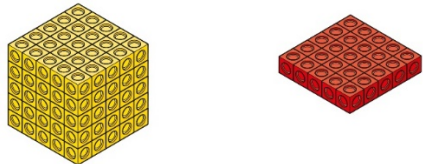
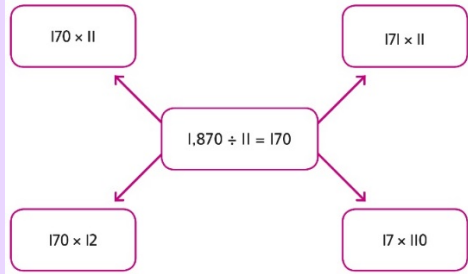
$$180 \times 0.4 = ?$$

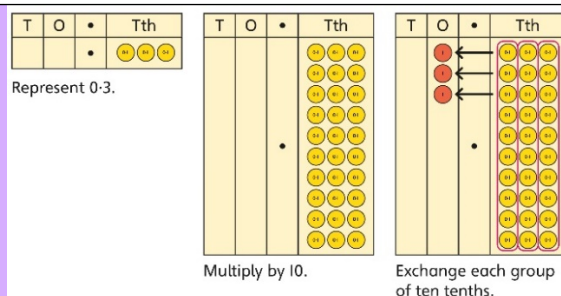
$$18 \times 0.04 = ?$$

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

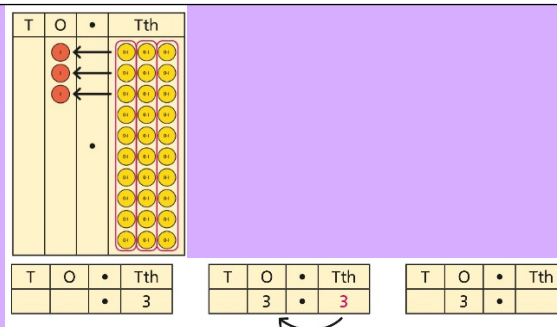
	H	T	O	•	Tth	Hth
2×3			6	•		
0.2×3			0	•	6	
0.02×3				•		

Year 6

	Concrete	Pictorial	Abstract																																								
Multiplying up to a 4-digit number by a single digit number			Initially, calculations without exchanging. Method 4 Method 3 <table><tr><td></td><td>3,000</td><td>200</td><td>20</td><td>5</td></tr><tr><td>4</td><td>12,000</td><td>800</td><td>80</td><td>20</td></tr></table> 12,000 + 800 + 80 + 20 = 12,900 Method 4 <table><tr><td></td><td>3</td><td>2</td><td>2</td><td>5</td></tr><tr><td>x</td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td>1</td><td>2</td><td>9</td><td>0</td></tr><tr><td></td><td></td><td>1</td><td>2</td><td></td></tr></table>		3,000	200	20	5	4	12,000	800	80	20		3	2	2	5	x				4		1	2	9	0			1	2											
	3,000	200	20	5																																							
4	12,000	800	80	20																																							
	3	2	2	5																																							
x				4																																							
	1	2	9	0																																							
		1	2																																								
Multiplying up to a 4-digit number by a 2-digit number		Use an area model alongside written multiplication. Method 1 <table><tr><td></td><td>1,000</td><td>200</td><td>30</td><td>5</td></tr><tr><td>20</td><td>20,000</td><td>4,000</td><td>600</td><td>100</td></tr><tr><td>1</td><td>1,000</td><td>200</td><td>30</td><td>5</td></tr></table>		1,000	200	30	5	20	20,000	4,000	600	100	1	1,000	200	30	5	Initially, partition two digit number as two separate calculations then add together. Use compact column multiplication with understanding of place value at all stages. <table><tr><td></td><td>1</td><td>2</td><td>3</td><td>5</td></tr><tr><td>x</td><td></td><td></td><td>2</td><td>1</td></tr><tr><td></td><td>1</td><td>2</td><td>3</td><td>5</td></tr><tr><td></td><td>2</td><td>4</td><td>7</td><td>0</td></tr><tr><td></td><td>2</td><td>5</td><td>9</td><td>3</td></tr></table> 1 x 1,235 20 x 1,235 21 x 1,235		1	2	3	5	x			2	1		1	2	3	5		2	4	7	0		2	5	9	3
	1,000	200	30	5																																							
20	20,000	4,000	600	100																																							
1	1,000	200	30	5																																							
	1	2	3	5																																							
x			2	1																																							
	1	2	3	5																																							
	2	4	7	0																																							
	2	5	9	3																																							
Using knowledge of factors and partitions to compare methods for multiplications	Use equipment to understand square numbers and cube numbers.  $5 \times 5 = 5^2 = 25$ $5 \times 5 \times 5 = 5^3 = 25 \times 5 = 125$		Use a known fact to generate families of related facts. Use factors to calculate efficiently. 15×16 $= 3 \times 5 \times 2 \times 8$ $= 3 \times 8 \times 2 \times 5$ $= 24 \times 10$ $= 240$																																								
Multiplying by 10, 100 and 1,000	Use place value equipment to explore exchange in decimal multiplication.	Understand how the exchange affects decimal numbers on a place value grid.	Use knowledge of multiplying by 10, 100 and 1,000 to multiply by multiples of 10, 100 and 1,000. $8 \times 100 = 800$ $8 \times 300 = 800 \times 3$																																								



$0.3 \times 10 = ?$
 0.3 is 3 tenths.
 10×3 tenths are 30 tenths.
 30 tenths are equivalent to 3 ones.



$$= 2,400$$

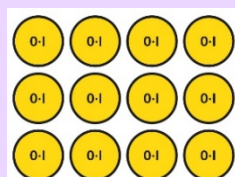
$$2.5 \times 10 = 25$$

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

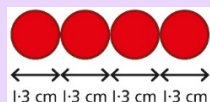
$$= 50$$

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.



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

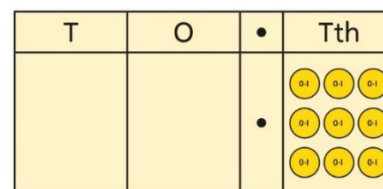
$$4 \times 0.3 \text{ cm} = 1.2 \text{ cm}$$

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

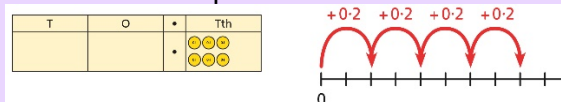
Represent calculations on a place value grid.

$$3 \times 3 = 9$$

$$3 \times 0.3 = 0.9$$



Understand the link between multiplying decimals and repeated addition.



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				•		

