Teaching Multiplication through the school

Memorising Vs. Understanding

You have 5 seconds to memorise the following words…

house	smart	his	a	
brown	inside	bear	red	the
large	hat	wore		

Write down as many words as you can remember on your own… No talking!

Memorising Vs. Understanding

You have another 5 seconds to memorise these words…

The large brown bear wore a smart red hat inside his house.

How many can you remember this time?

How children learn fluency is the same …

house	smart	his	a
brown	inside	bear	red
the	large	hat	wore

The large brown bear wore a smart red hat inside his house.

memorisation

understanding

Efficiency, Flexibility, Accuracy

MATHSHUBS
NORTH-EAST HANTS AND SURREY

Working with NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

EYFS and Year 1

Early Multiplication (EYFS and Year 1)

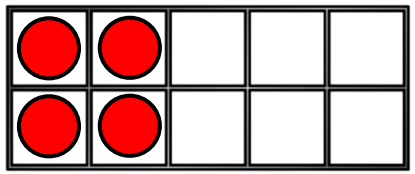
- Doubling
- Counting in steps of 2, 5 and 10.
  (forwards and backwards!)
- Equal groups

- No symbol (X)

How many counters?

0

2



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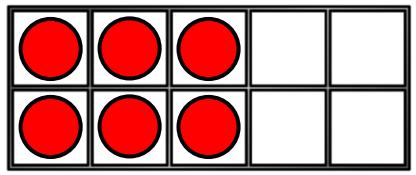

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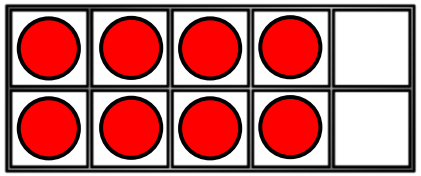

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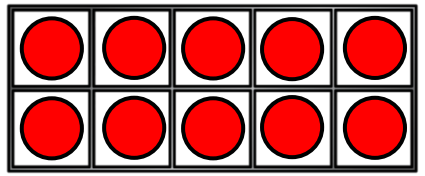


10

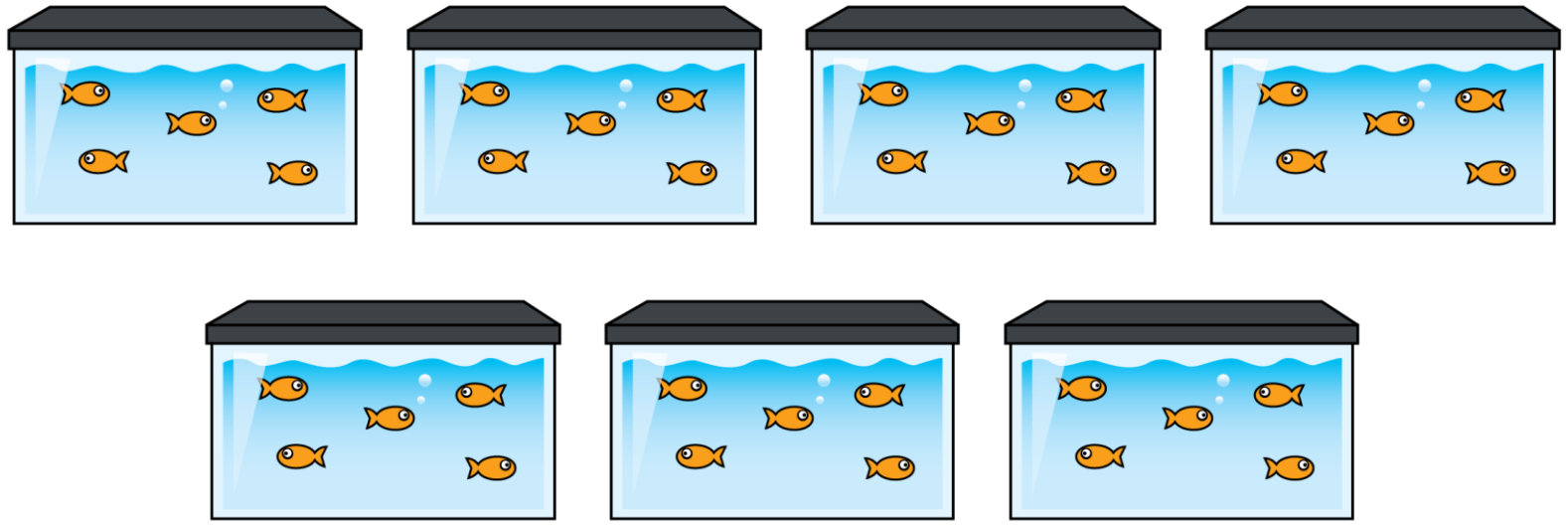
How many socks?

Have a think

There are 12 equal groups of 2

There are 24 socks altogether.

How many fish?



There are 5 fish in each tank.

There are 7 tanks.

There are 35 fish altogether.

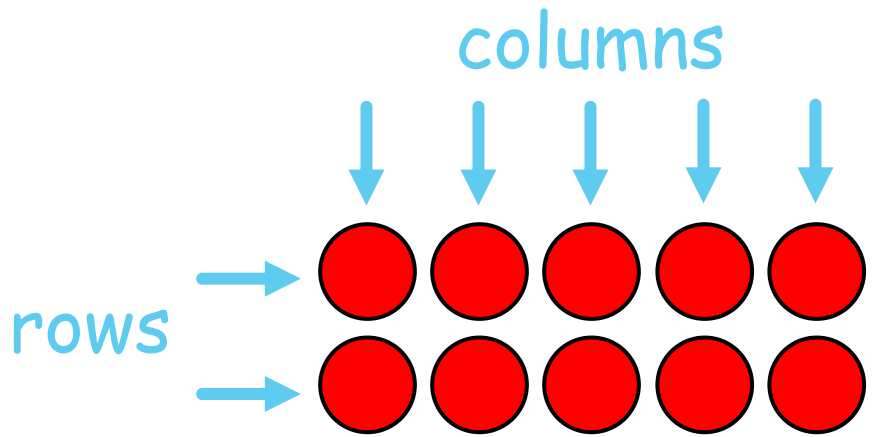
Line up the bikes or scooters outside.

Write a number sentence to match the bikes.

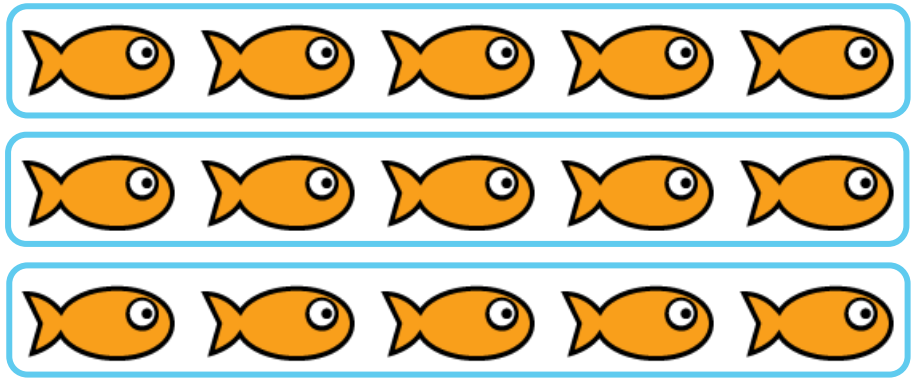
How many bikes altogether?

$2 + 2 + 2 + 2 + 2 = 10$

Introduced Summer Year 1
An array



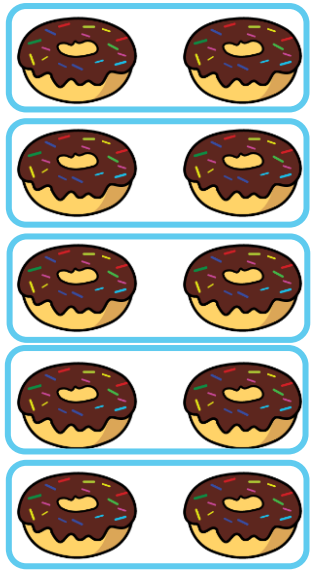
Circle the rows and complete the stem sentences.



There are 3 rows of 5

There are 15 altogether.

Circle the rows and complete the stem sentences.

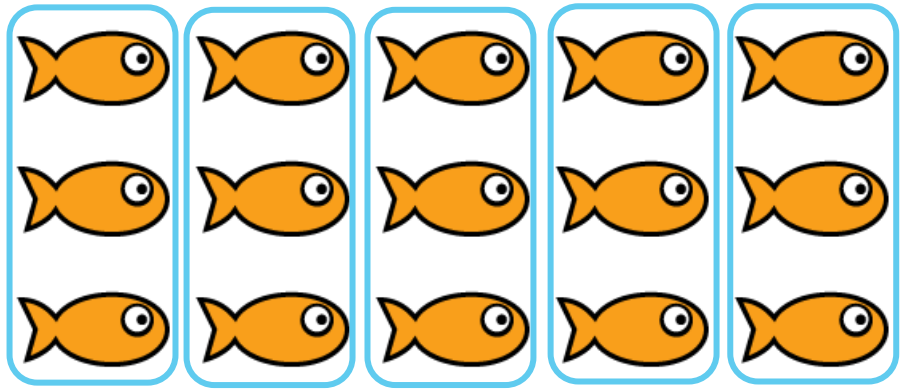


Have a think

There are 5 rows of 2

There are 10 altogether.

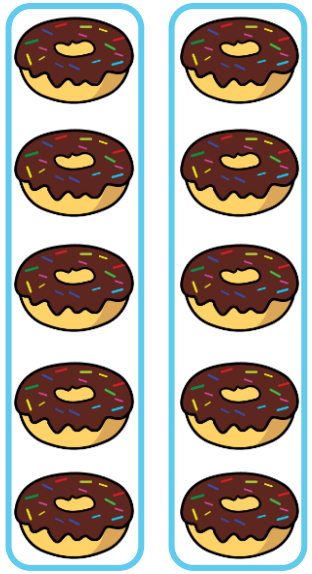
Circle the columns and complete the stem sentences.



There are 5 columns of 3

There are 15 altogether.

Circle the columns and complete the stem sentences.



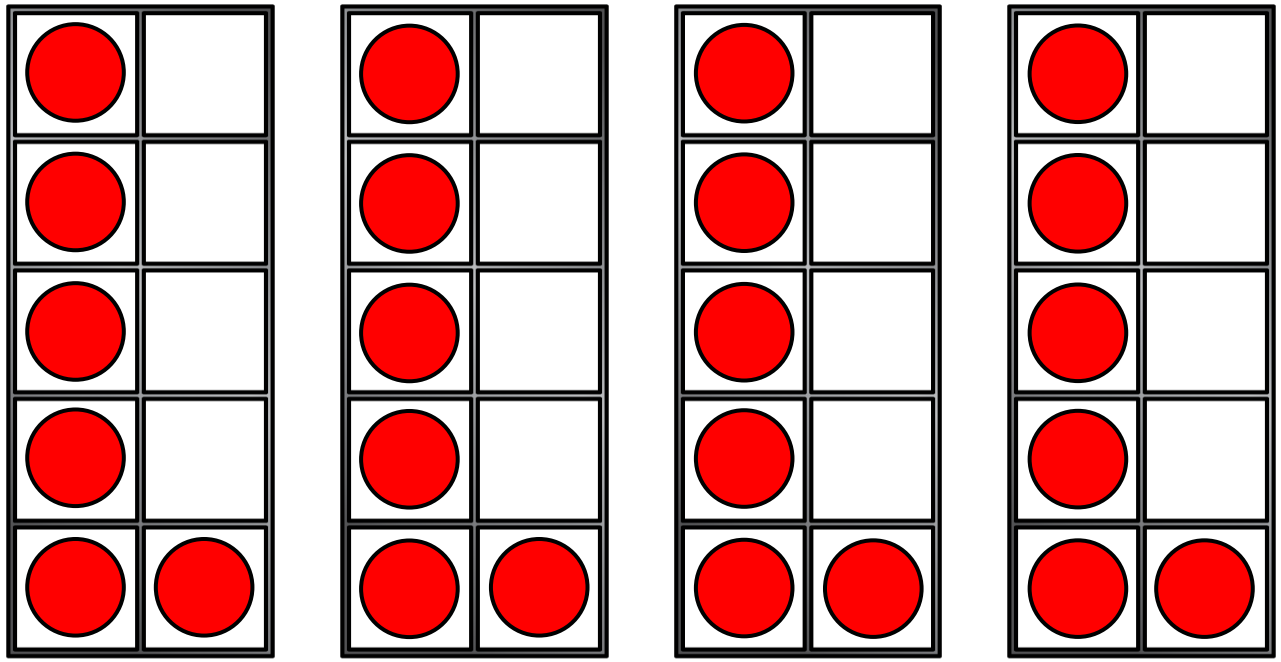
Have a think

There are 2 columns of 5

There are 10 altogether.

Year 2

Complete the sentences.

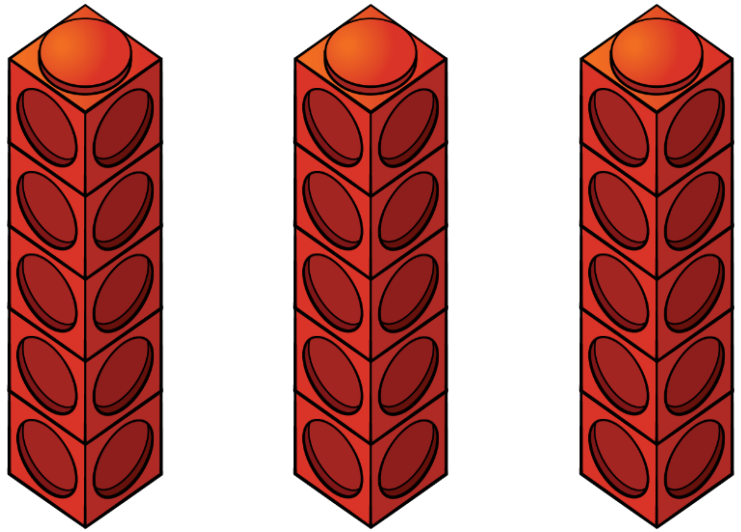


There are 4 equal groups with 6 in each group.

$6 + 6 + 6 + 6 = 24$

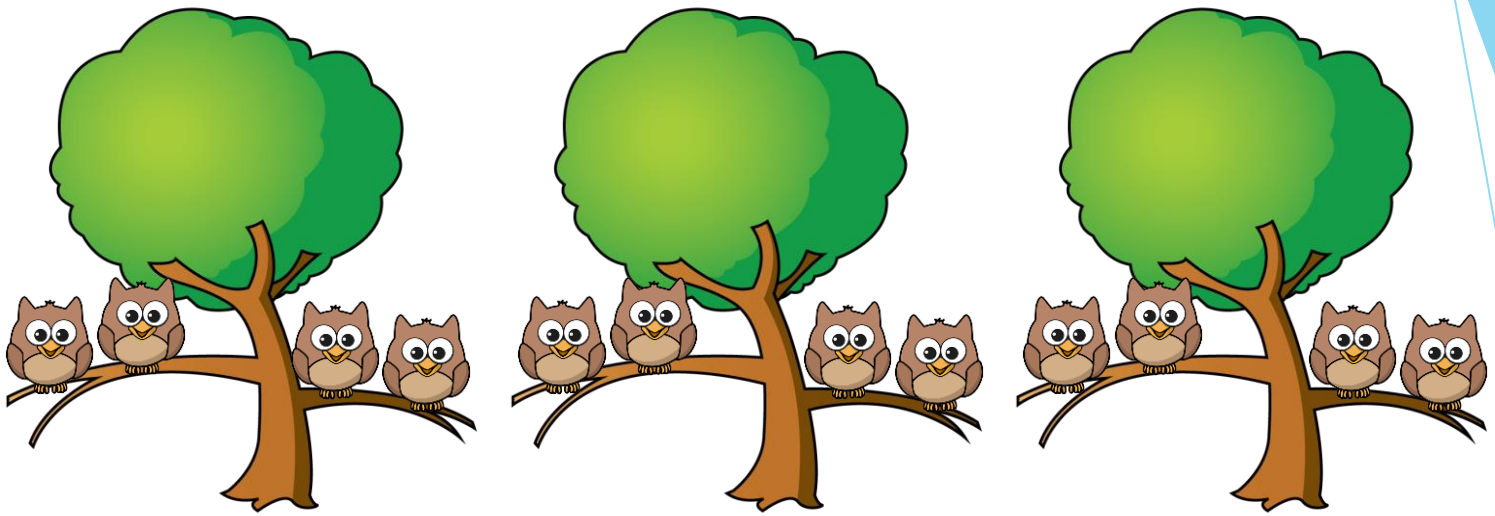
Complete the sentences.

Have a think



There are 3 equal groups with
5 in each group.

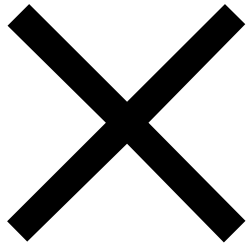
5 + 5 + 5 = 15



There are 3 equal groups with
4 in each group.

$$4 + 4 + 4 = 12$$

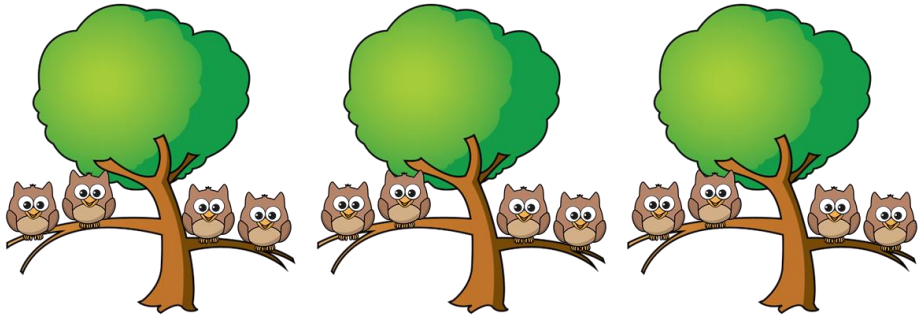
$$3 \times 4 = 12$$



"lots of"

"groups of"

"times"



$$3 \times 4 = 12$$

"3 lots of 4 is equal to 12"

"3 groups of 4 is equal to 12"

"3 times 4 is equal to 12"

Write the multiplication to match the repeated addition.

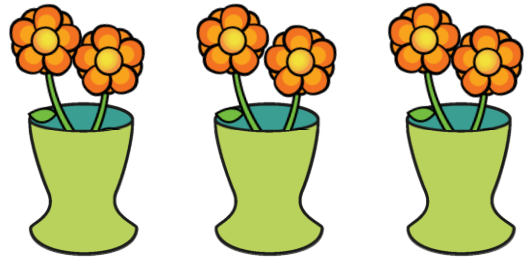
$$5 + 5 + 5 = 15$$

$$3 \times 5 = 15$$

How many groups are there?

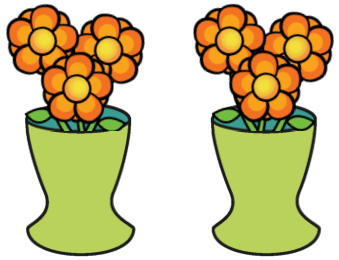
How many are in each group?

Complete the multiplication to match the picture.



$3 \times 2 = 6$

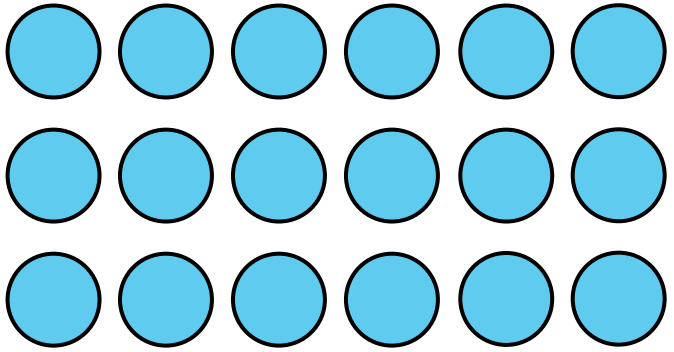
Draw a picture to show $2 \times 3 = 6$



What's the same? What's different?

Have a think.

Complete the number sentences to match the array.

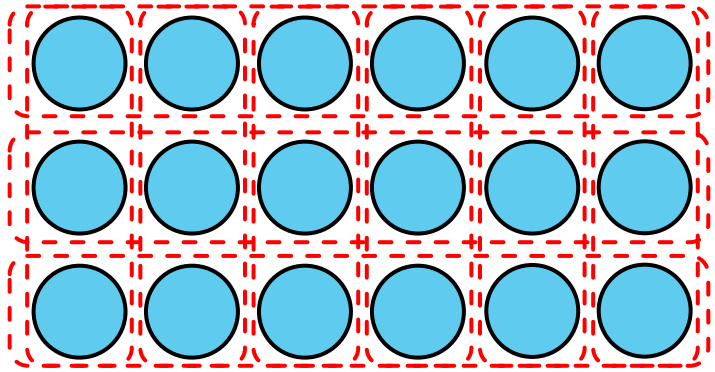


6 + 6 + 6 = 18

3 × 6 = 18

Have a think

How can you write the number sentences another way?



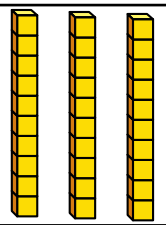
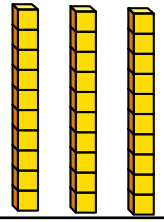
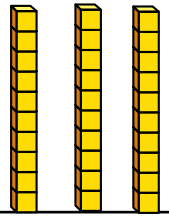
$6 + 6 + 6 = 18$

$3 \times 6 = 18$

$3 + 3 + 3 + 3 + 3 + 3 = 18$

$6 \times 3 = 18$

Year 3

T	O
	
	
	

Have a think

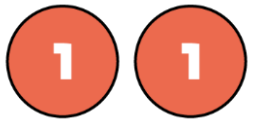
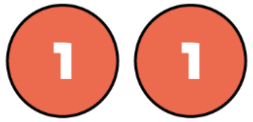
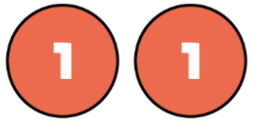
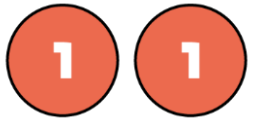
$31 \times 3 = 93$

3 tens multiplied by 3 is equal to 90

1 one multiplied by 3 is equal to 3

31 multiplied by 3 is equal to 93

Have a think

T	O
	
	
	
	

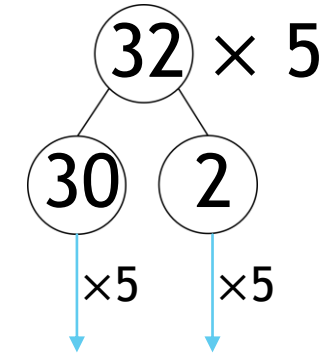
$$\underline{22} \times \underline{4} = \underline{88}$$

What calculation is shown?

Have a think

What multiplication is shown by the counters?

Tens	Ones
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1
10 10 10	1 1



150 + 10 = 160

32 × 5 = 160

Year 4

$$21 \times 4 = 84$$

Tens	Ones
10 10	1
10 10	1
10 10	1
10 10	1

	T	O	
	2	1	
×		4	
		4	
	8	0	
	8	4	

$(1 \times 4 = 4)$

$(20 \times 4 = 80)$

$$32 \times 4 = 128$$

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

100

	H	T	O	
		3	2	
×			4	
			8	
	1	2	0	
	1	2	8	

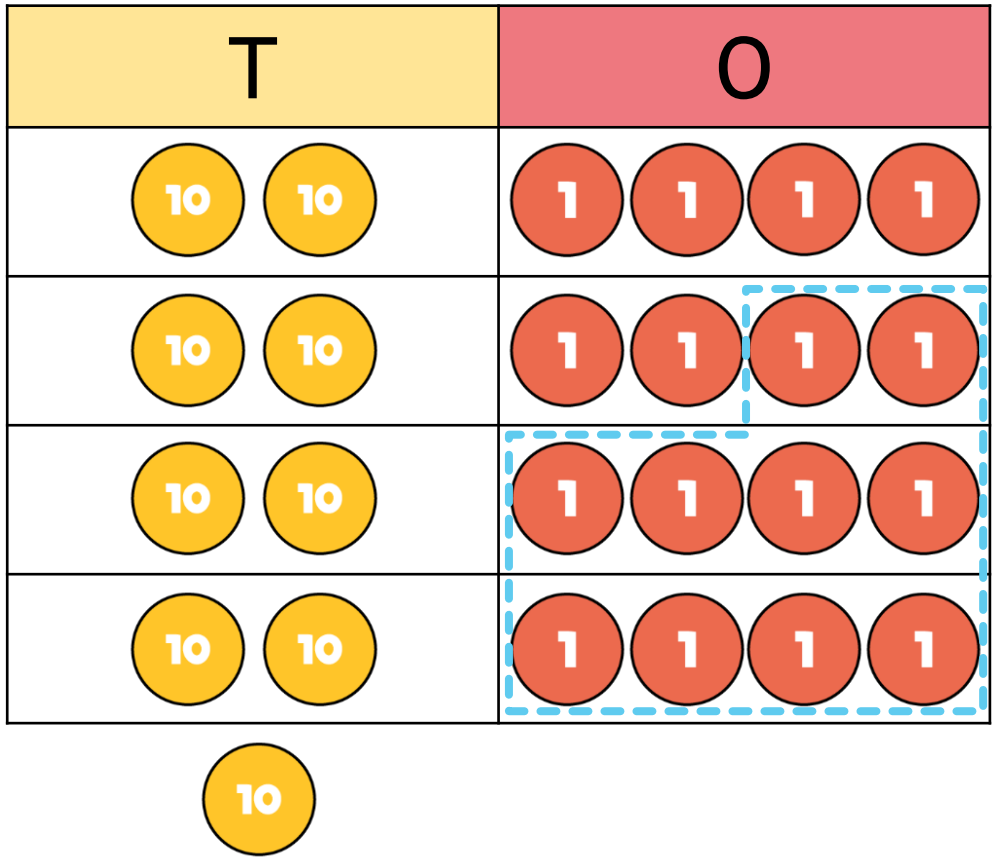
$4 \times 24 = 96$

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

10

	T	O		
	2	4		
×		4		
	1	6	(4 × 4)	
	8	0	(4 × 20)	
	9	6		

$4 \times 24 = 96$



	T	O	
	2	4	
×		4	
	9	6	
	1		

	T	O		
	2	4		
×		4		
	1	6	(4 × 4)	
	8	0	(4 × 20)	
	9	6		

	T	O	
	2	4	
×		4	
	9	6	
	1		

Have a think

What is the same about each method?

What is different about each method?

Which method do you prefer? Why?

$3 \times 72 = 216$

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

100 100

	H	T	O	
		7	2	
×			3	
	2	1	6	
	2			

Have a think

$$251 \times 3 = 753$$

H	T	O
100 100	10 10 10 10 10	1
100 100	10 10 10 10 10	1
100 100	10 10 10 10 10	1

100

	H	T	O	
	2	5	1	
×			3	
	7	5	3	
	1			

Year 5

Th	H	T	O
		7	8

Have a think

Th	H	T	O
	7	8	0

$78 \times 10 = 780$

Th	H	T	O
7	8	0	0

$78 \times 100 = 7{,}800$

TTh	Th	H	T	O
7	8	0	0	0

$78 \times 1{,}000 = 78{,}000$

What stays the same? What changes?

Complete the sentences to describe the multiplication.

Thousands	Hundreds	Tens	Ones
1000 1000 1000 1000	100 100	10 10 10	1 1
1000 1000 1000 1000	100 100	10 10 10	1 1

There are 4 or

There

There

There are 8 thousands altogether.

4,232 × 2 = 8,464

How does multiplication link to addition?

Have a think

Calculate 3,223 × 3

Thousands	Hundreds	Tens	Ones
1000 1000 1000	100 100	10 10	1 1 1
1000 1000 1000	100 100	10 10	1 1 1
1000 1000 1000	100 100	10 10	1 1 1

	3	2	2	3	
×				3	
	9	6	6	9	

Do you need to make an exchange?

Have a think

There are 2,114 seats in a theatre. The theatre is fully booked for 3 shows. How many people attend overall?

$2{,}114 \times 3$

Thousands	Hundreds	Tens	Ones
1000 1000	100	10	1 1 1 1
1000 1000	100	10	1 1 1 1
1000 1000	100	10	1 1 1 1

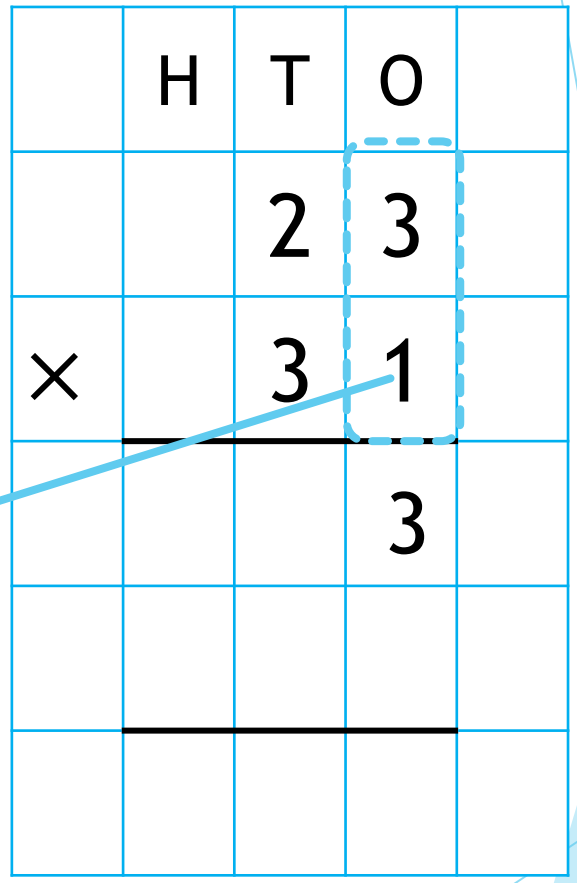
	2	1	1	4	
×				3	
	6	3	4	2	
			1		

Do you need to make an exchange?

6,342 people attend.

23×31

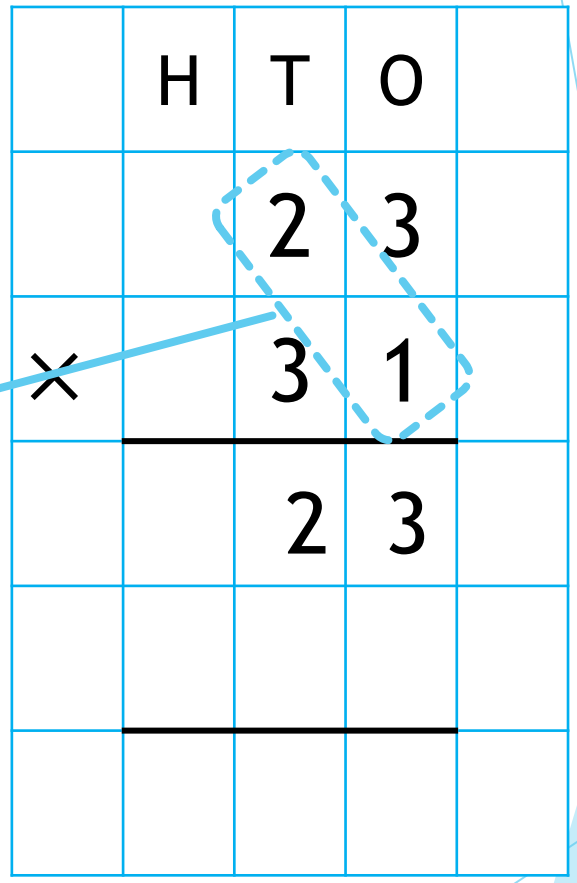
×	20	3
30	600	90
1	20	3



$600 + 90 + 20 + 3 = 713$

23×31

×	20	3
30	600	90
1	20	3



$600 + 90 + 20 + 3 = 713$

23×31

×	20	3
30	600	90
1	20	3

$600 + 90 + 20 + 3 = 713$

	H	T	O	
		2	3	
×		3	1	
		2	3	
		9	0	

23×31

×	20	3
30	600	90
1	20	3

$600 + 90 + 20 + 3 = 713$

	H	T	O	
		2	3	
×		3	1	
		2	3	
	6	9	0	

23×31

×	20	3
30	600	90
1	20	3

$600 + 90 + 20 + 3 = 713$

	H	T	O	
		2	3	
×		3	1	
		2	3	
+	6	9	0	
	7	1	3	

23×31

	H	T	O	
		2	3	
×		3	1	
		2	3	
+	6	9	0	
	7	1	3	
	1			

(23×1)

(23×30)

$23 \times 31 = (23 \times 1) + (23 \times 30)$

$2{,}313 \times 32 = 74{,}016$

	TTh	Th	H	T	O	
		2	3	1	3	
×				3	2	
		4	6	2	6	$(2{,}313 \times 2)$
+	6	9	3	9	0	$(2{,}313 \times 30)$
	7	4	0	1	6	
	1	1	1			

Year 6

$3.12 \times 10 \div 100 \div 1000$

Th	H	T	O	Tth	Hth

$4.3 \times 4 = 17.2$

Have a think

Tens	Ones •	Tenths
	1 1 1 1	0.1 0.1 0.1
	1 1 1 1	0.1 0.1 0.1
	1 1 1 1	0.1 0.1 0.1
	1 1 1 1	0.1 0.1 0.1

10 1