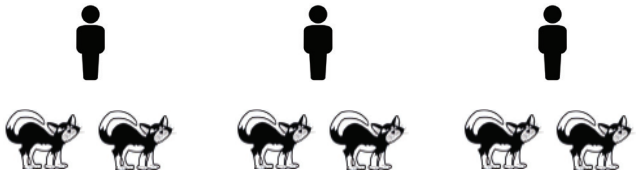
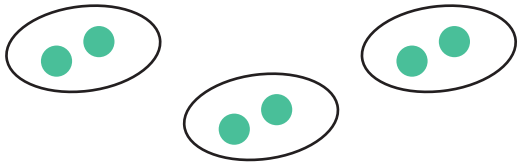
Multiplication
EYFS

There are 3 people.
They have 2 cats each

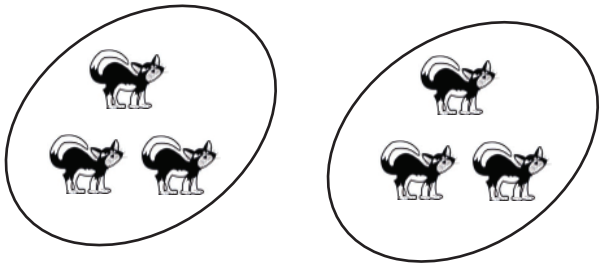
Equal groups

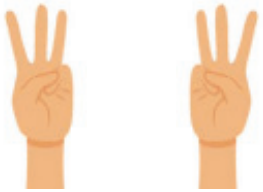


Represent the problem



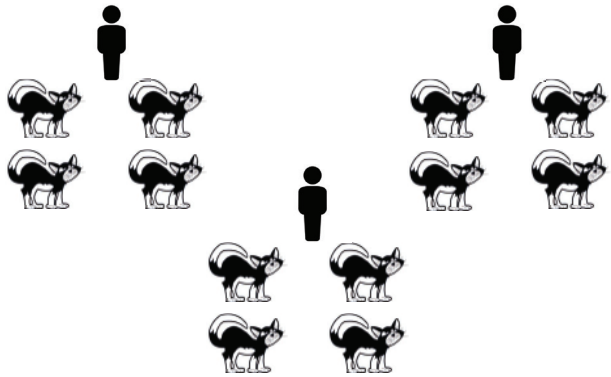
2 equal groups
Double





Multiplication
YEAR 1

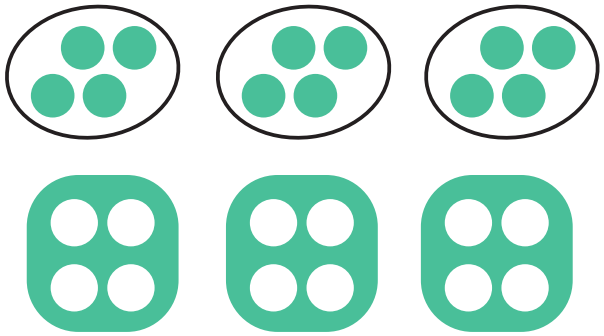
Equal groups



There are 3 groups
with 4 cats in each group

Count in ones

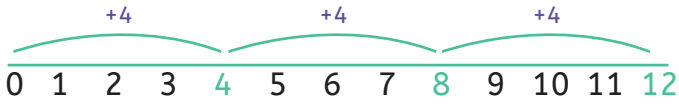
1,2,3,4,5,6,7,8,9,10,11,12



3 people each have 4 cats.

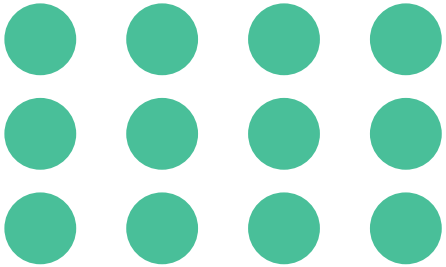
How many cats are there in total?

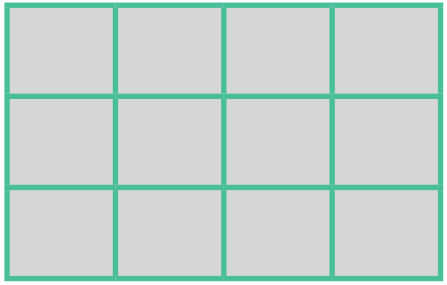
Repeated addition



4 + 4 + 4 = 12

Arrays





Multiplication
YEAR 2

3 people each have 4 cats.
How many cats are there in total?

Recall of 2x, 5x and 10x tables

Count in ones

1,2,3,4,5,6,7,8,9,10,11,12

Count in twos

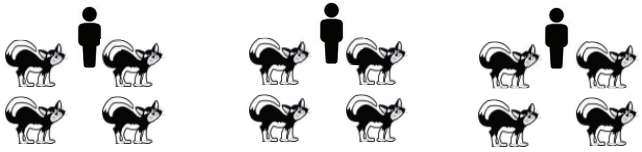
2,4,6,8,10,12

Use a known fact

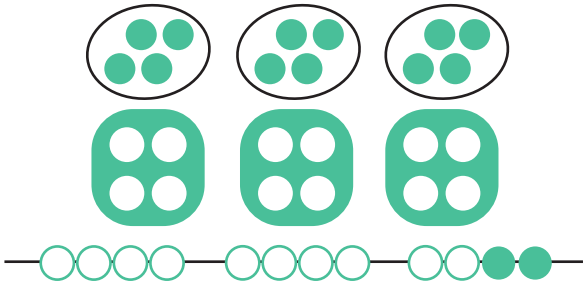
If 2 x 3 is 6, then 4 x 3 is double 6

Equal groups

There are 3 groups
with 4 cats in each group

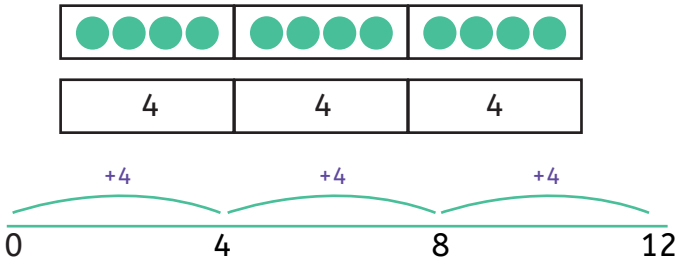


Four cats multiplied by 3
4 x 3 = 12



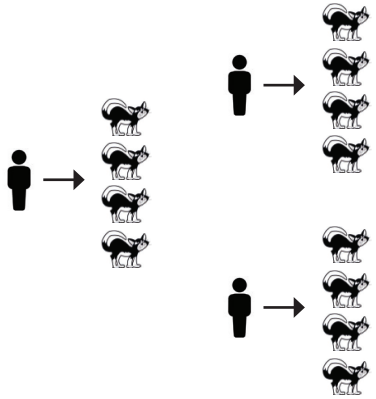
Repeated addition

4 + 4 + 4 = 12



One to many correspondence

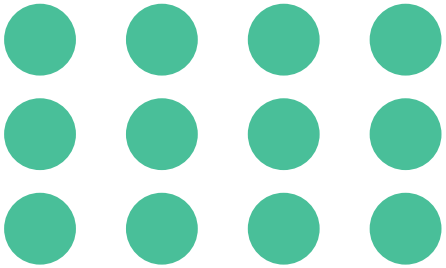
People	Cats
1	4
2	8
3	12

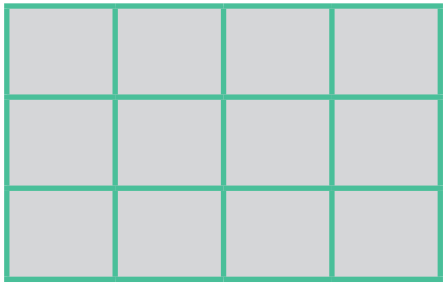


Arrays

4 x 3 = 12

3 x 4 = 4 x 3



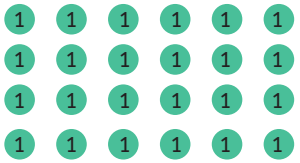


Multiplication
YEAR 3

Rapid recall of
2x, 5x and 10x (Year 2)
3x, 4x, 8x (Year 3)
multiplication tables

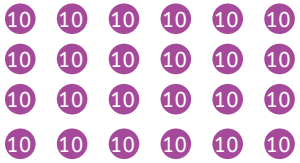
6 x 4
Use known facts and place value

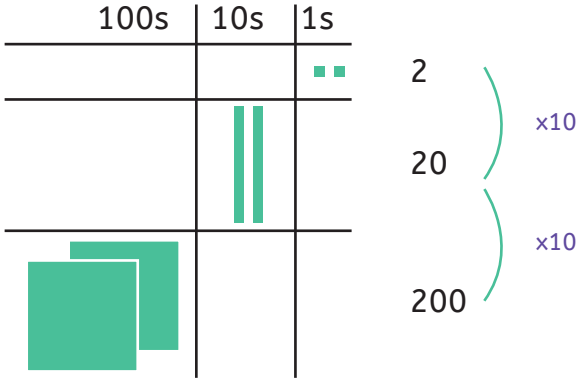
40 is ten times greater than 4



6 x 4 = 24
60 x 4 = 240
6 x 40 = 240

6 x 10 x 4
= 24 x 10

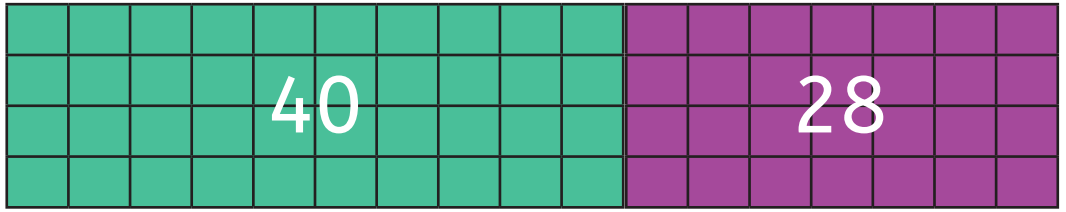




17 x 4
Partition and recombine

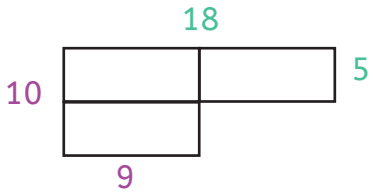
10 x 4 + 7 x 4
40 + 28 = 68

17 x 4
10 7

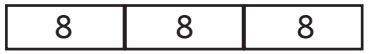


5 x 18
= 5 x 2 x 18 ÷ 2
= 10 x 9
= 90

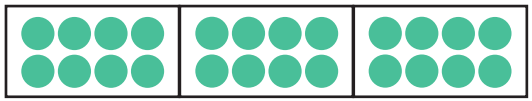
5 x 18
Double and halve

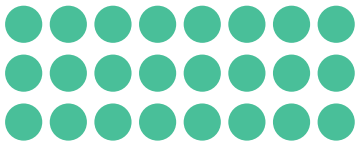


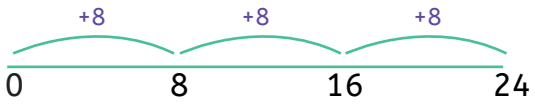
8 x 3
Repeated addition



8+8+8 = 3+3+3+3+3+3+3+3

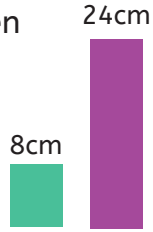






Scaling

The purple tower is 3 times taller than the green tower



17 x 4
Formal written method

17
x 4
68
2

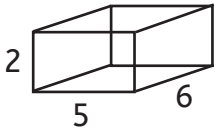
	10	7
4	40	28

Multiplication
YEAR 4

Known facts:
Rapid recall of all multiplication tables up to 12 x 12

Write as factors then re-order

$2 \times (5 \times 6) = (2 \times 5) \times 6$
$2 \times 30 = 10 \times 6$



45 x 6
Use factors and commutativity

45 x 6
= 5 x 9 x 6
= 5 x 6 x 9
= 30 x 9
= 270

---

36 x 7
Formal written method

36
x 7
252
4

	30	6
7	210	42

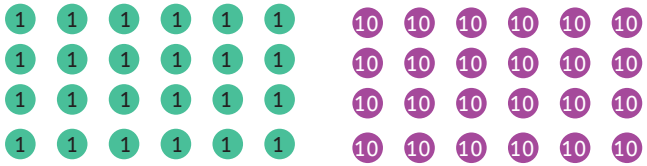
---

6 x 4
Use known facts and place value

6 x 4 = 24
60 x 4 = 240
60 x 40 = 2400

40 is ten times greater than 4

6 x 10 x 4 x 10
= 24 x 100



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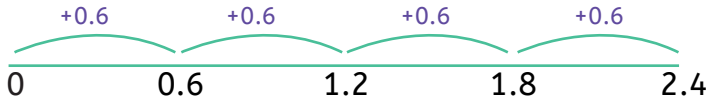
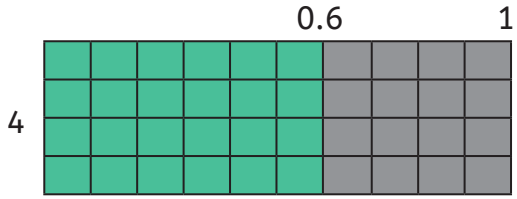
6 x 4
Use known facts and place value

0.6 is ten times smaller than 6

0.6 x 4 = 2.4
4 jumps of 0.6



0.6 x 4 = 24 tenths
0.6 x 4 = 2.4



2.34 x 100
Multiply by 10, 100

1000s	100s	10s	1s	1/10s	1/100s
			●●	●●	●●
		●●	●●	●●	
	●●	●●	●●		

2.34
x10
23.4
x10
234
x100

---

7 x 36

Use the distributive law

7 x 36

= 7 x 30 + 7 x 6
= 210 + 42
= 252

	30	6
7	210	42

236 x 7

200	30	6
x7	x7	x7

1400 + 210 + 42 = 1652

Multiplication
YEAR 5

Known facts:
Rapid recall of all multiplication tables up to 12 x 12

423 x 4
Partition and combine

423 x 4

400	20	3
x4	x4	x4
1600	80	12

1600 + 80 + 12 = 1692

427 x 38
Formal written method

```
  427
x  38
 3416
12810
16226
```

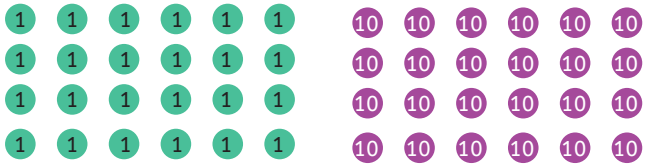
	400	20	7
30	12,000	600	210
8	3,200	160	56

6 x 4
Use known facts and place value

6 x 4 = 24
60 x 4 = 240
60 x 40 = 2400

40 is ten times greater than 4

6 x 10 x 4 x 10
= 24 x 100



2.34 x 1000
Multiply by 10, 100, 1000

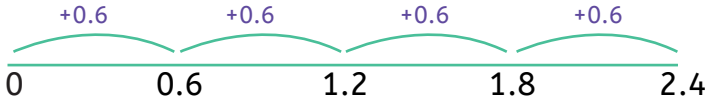
1000s	100s	10s	1s	1/10s	1/100s
			●●	●●	●●
		●●	●●	●●	
	●●	●●	●●		
●●	●●	●●			

2.34 x10 23.4 x10 234 x10 2340 x100

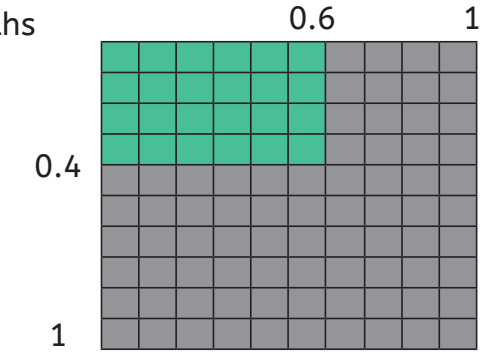
6 x 4
Use known facts and place value

0.6 is ten times smaller than 6

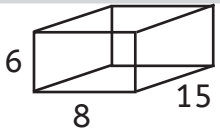
0.6 x 4 = 2.4
4 jumps of 0.6



0.6 x 0.4 = 24 hundredths
0.6 x 0.4 = 0.24

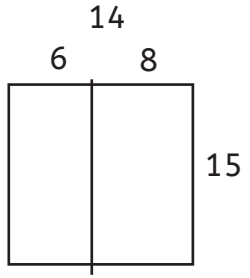


15 x 42
Using factors and distributive law



15 x 48
Factor pair
= 15 x 6 x 8
= 90 x 8
= 720

15 x 14
= 15 x 6 + 15 x 8
= 90 + 120
= 210



Multiplication
YEAR 6

Known facts:
Rapid recall of all multiplication tables up to 12 x 12

4203 x 4
Partition and recombine

4203 x 4

4000	200	3
x4	x4	x4
16,000	800	12

16,000 + 800 + 12 = 16,812

6 x 4
Use known facts and place value

60 x 40 = 24
600 x 400 = 240,000
6000 x 4000 = 24,000,000

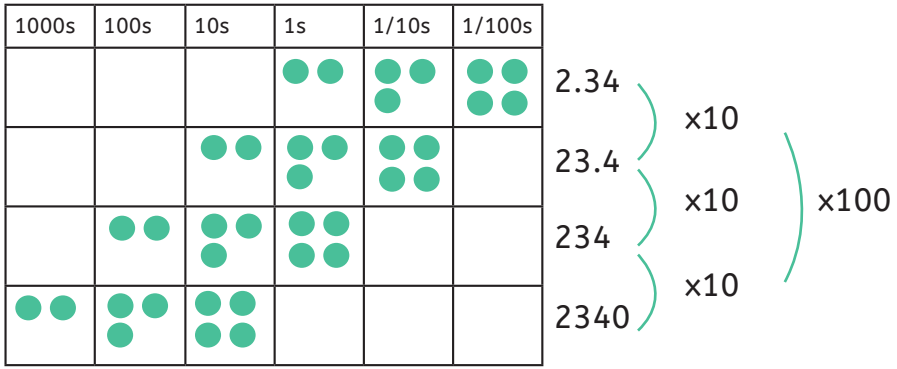
40 is ten times greater than 4

6 x 10 x 4 x 10
= 24 x 100

2427 x 38
Formal written method

```
  2427
x   38
-------
 19416
 3 2 5
 72810
 1   2
-------
 92226
 1 1
```

2.34 x 1000
Multiply by 10, 100, 1000

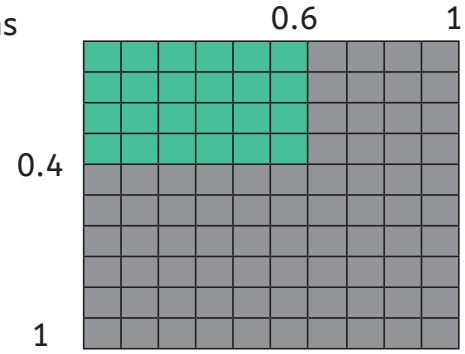


6 x 4
Use known facts and place value

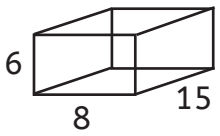
0.6 is ten times smaller than 6

0.06 x 4 = 0.24
4 jumps of 0.06

0.6 x 0.4 = 24 hundredths
0.6 x 0.4 = 0.24



15 x 42
Using factors and distributive law



15 x 48
Factor pair
= 15 x 6 x 8
= 90 x 8
= 720

15 x 14
= 15 x 6 + 15 x 8
= 90 + 120
= 210