

$4 + 1, 6 + 3, 10 + 4$
Number facts
Single digit numbers
Doubles
Ten and single digits

I just knew it!

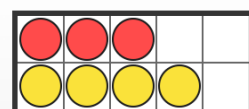
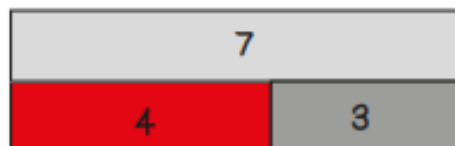
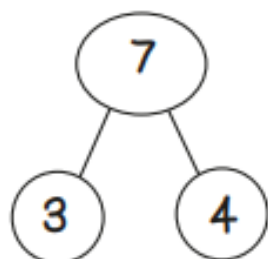
$3 + 7$
Use known addition facts

If I know $3 + 7 = 10$
then I know
 $3 + 8 = 11$
because it is 1 more

$7 + 8$
Use near doubles

If I know $7 + 7 = 14$
then I know
 $7 + 8 = 15$
because it is 1 more

$7 = 3 + 4$
Secure addition bonds of
single digits and ten

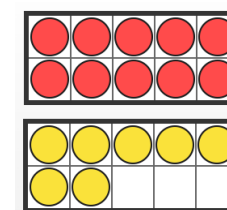


How shall I add?
Year 1



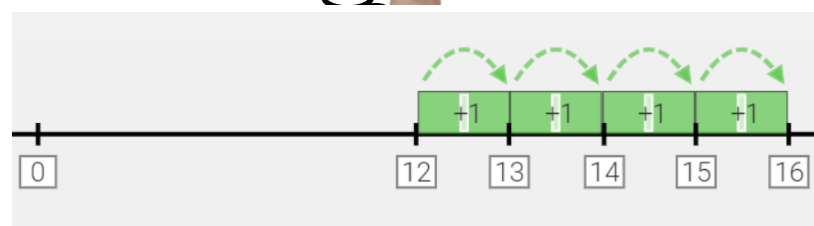
$7 + 10$
Add ten

34	35	36	37	38	39
24	25	26	27	28	29
14	15	16	17	18	19
4	5	6	7	8	9



$12 + 4$
Counting on in 1s

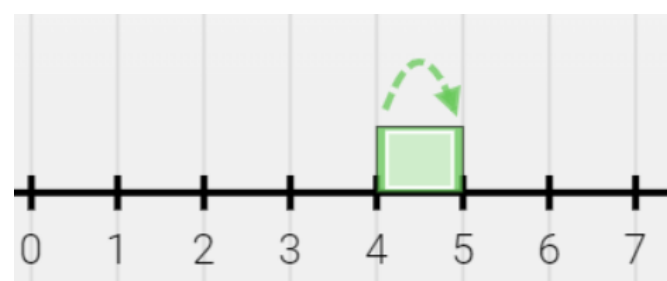
Put 12 in my head
and count on ...



Notice the relationships

$24 + 1$
Find one more

1 more than 4 is 5
1 more than 14 is 15
1 more than 24 is 25



$7 + 4$
Count all

Then, count on from
largest number
7...8, 9, 10, 11

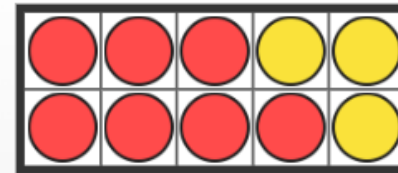
$8 + 7, 9 + 9, 14 + 3$
Number facts
Single digit numbers
Doubles
Teens and single digits

I just knew it!

$13 + 17$
Use known facts
 $30 + 70$

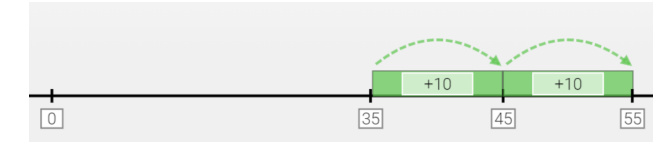
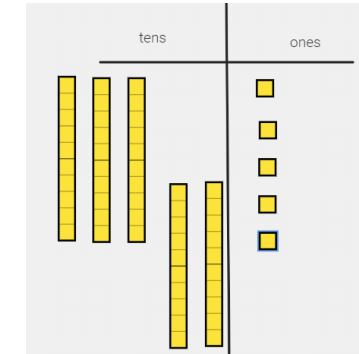
If I know $3 + 7 = 10$
then I know
 $3 \text{ tens} + 7 \text{ tens} = 10 \text{ tens}$

If I know $3 + 7 = 10$
then I know
 $13 + 17$ is 2 tens more

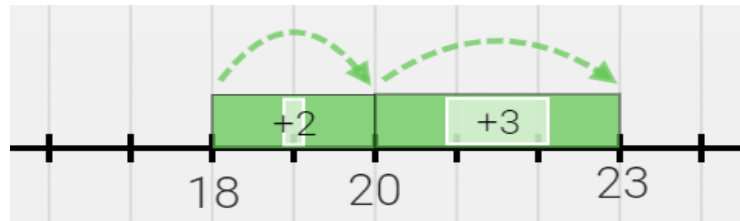


$35 + 20$
Add multiples of ten

If I know $3 + 2 = 5$
then I know
 $3 \text{ tens} + 2 \text{ tens} = 5 \text{ tens}$
so $30 + 20 = 50$



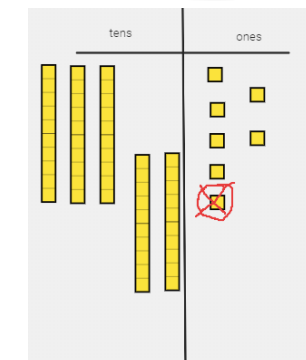
$5 + 18$
Greatest number first
then bridge



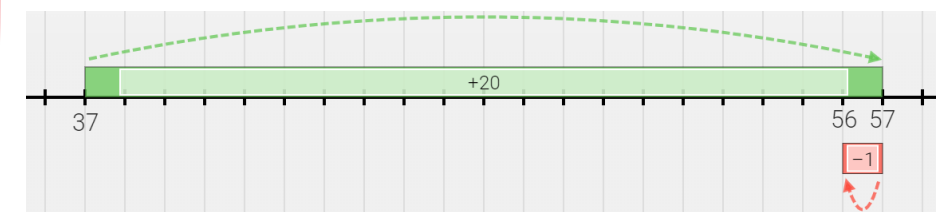
How shall I add?
Year 2



$37 + 19$
Round then adjust

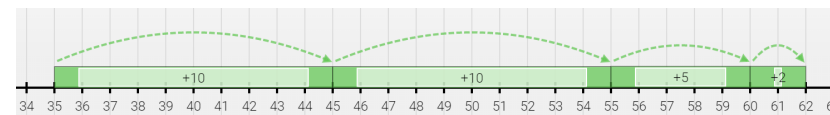
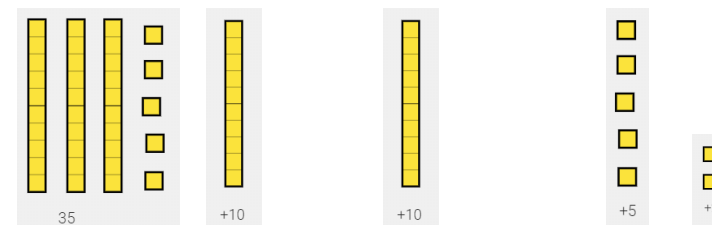
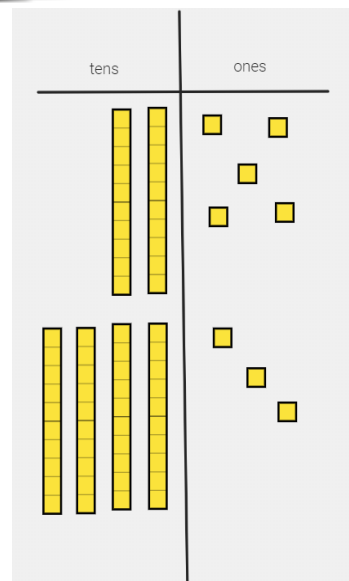


Add 20 then **subtract 1**



$25 + 43$
Partition and recombine

$$\begin{array}{l} 25 + 43 \\ (20) + (5) + (40) + (3) \\ (60) + (8) = 68 \end{array}$$



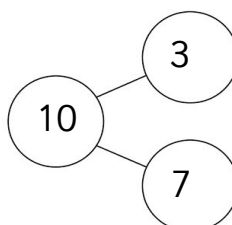
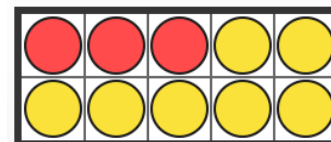
$35 + 27$
Count on in tens then ones

5 - 1, 7 - 3, 10 - 6
Number facts
Single digit numbers
Teens subtract single digits

I just knew it!

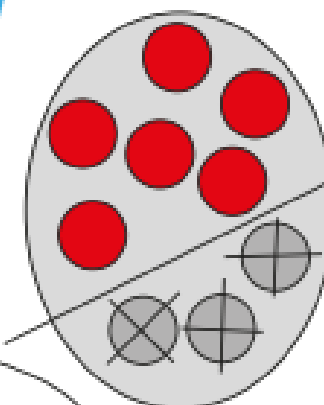
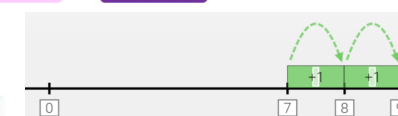
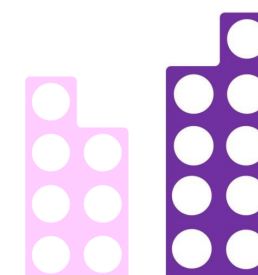
3 + 7
Use known addition facts
to derive subtraction facts

If I know $3 + 7 = 10$
then I know
 $10 - 3 = 7$

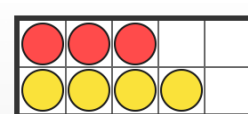
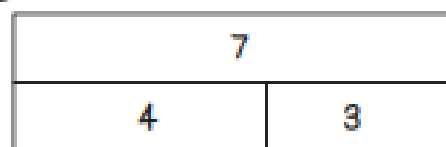
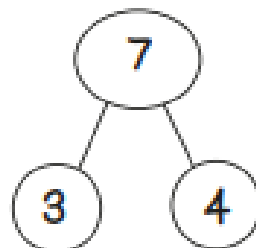


9 - 7
Find the difference between
two numbers

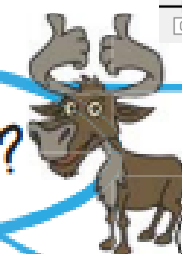
9 is 2 more than 7
7 is 2 less than 9 so
the difference
between 7 and 9 is 2



7 - 3 = 4
Secure subtraction facts of
single digits and ten



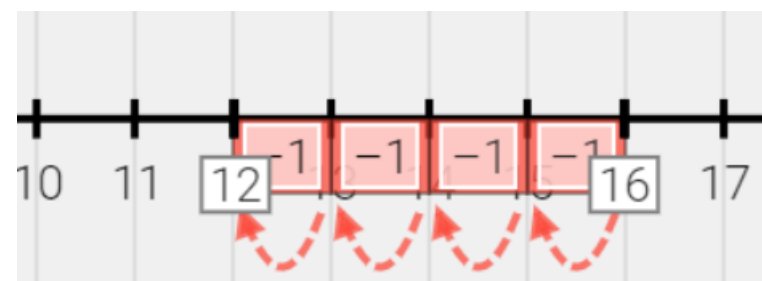
How shall I subtract?
Year 1



9 - 3
Take away

16 - 4
Counting back in 1s

16 in my head...
15, 14, 13, 12



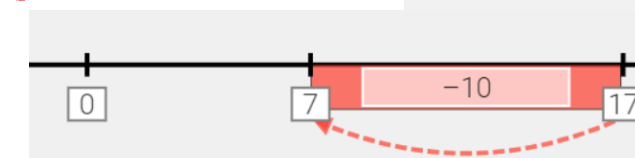
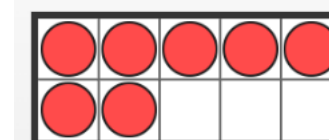
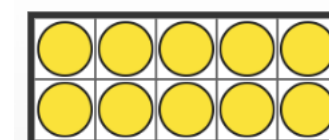
Notice the relationships

23 - 1
Find one less

1 less than 4 is 3
1 less than 14 is 13
1 less than 24 is 23



17 - 10
Take away ten

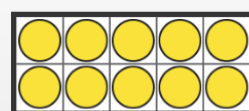
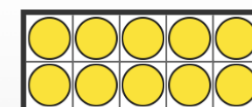
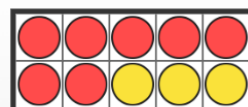
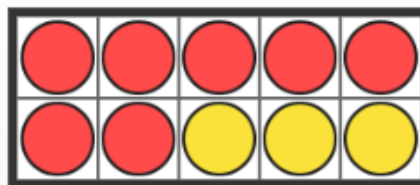


9 - 4, 13 - 5, 18 - 9
Number facts
Single digit numbers
Halves
Teens and single digits

I just knew it!

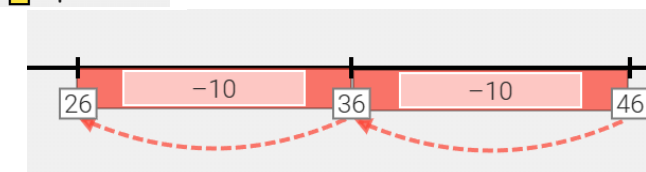
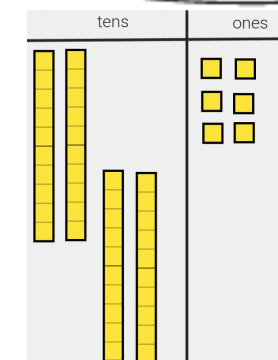
30 - 7
Use known facts
100 - 70

If I know $10 - 7 = 3$
then I know
 $30 - 7$ is 2 tens and 3

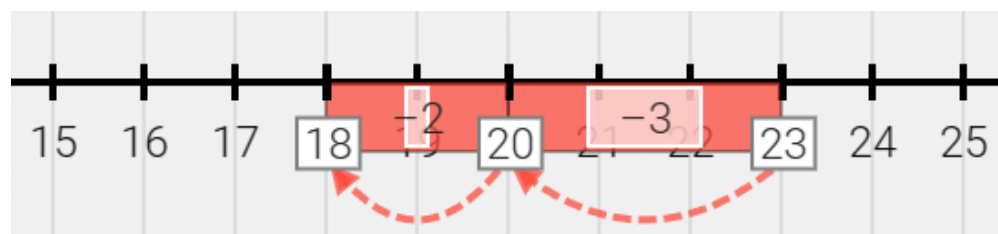


46 - 20
Count back: multiples of ten

If I know $4 - 2 = 2$
then I know
4 tens - 2 tens = 2 tens
so $40 - 20 = 20$



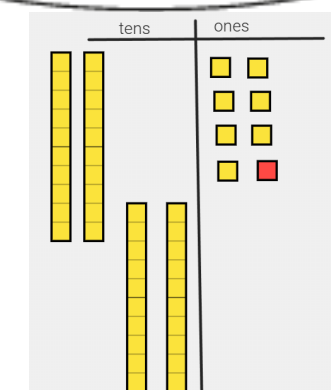
23 - 5
Count back: bridge through
a multiple of ten



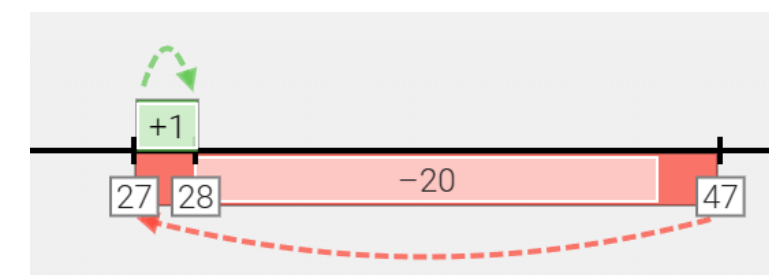
How shall I subtract?
Year 2



47 - 19
Round then adjust

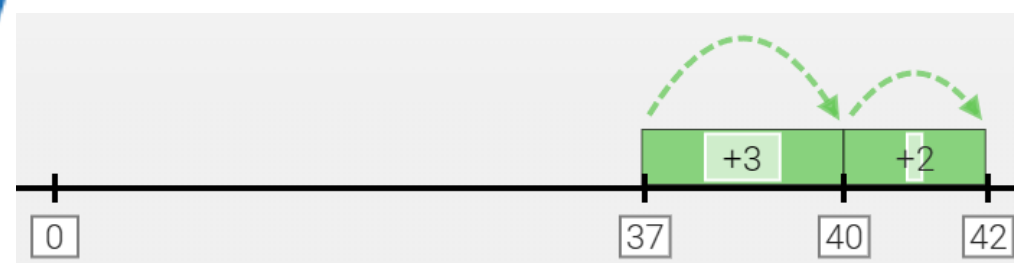
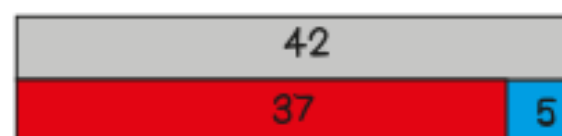


Take away 20 then **add 1**

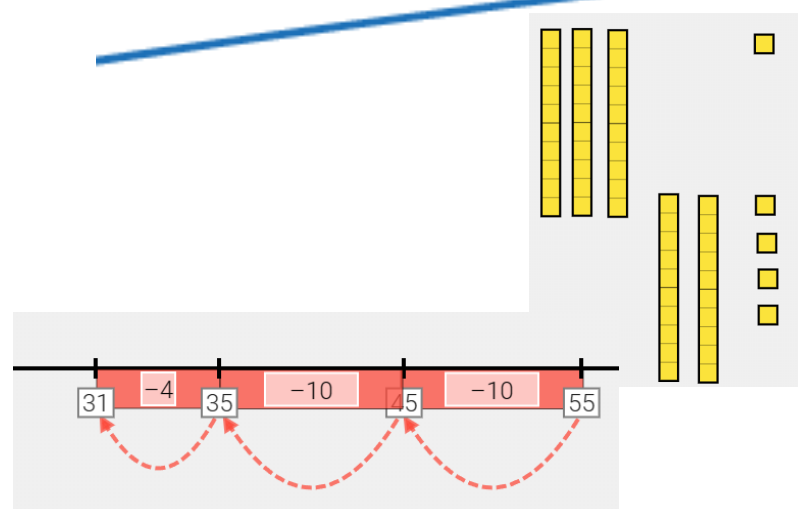


42 is 5 more than 37,
37 is 5 less than 42 so
the difference between
37 and 42 is 5

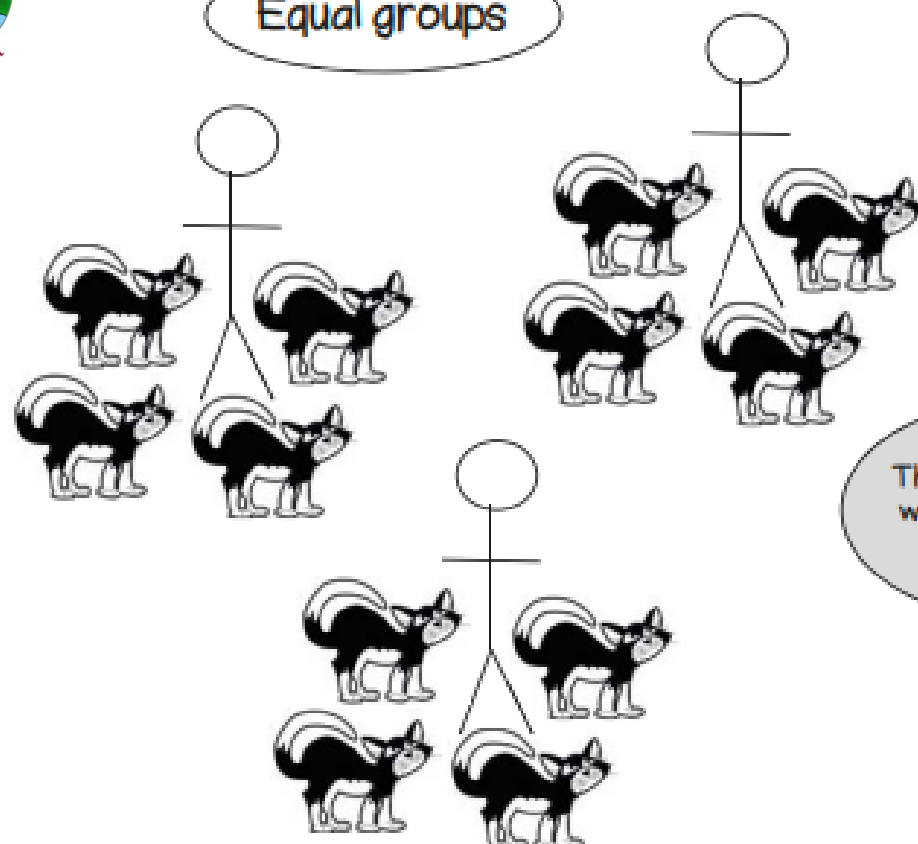
42 - 37
Find the difference between
two numbers



55 - 24
Count back in tens then ones

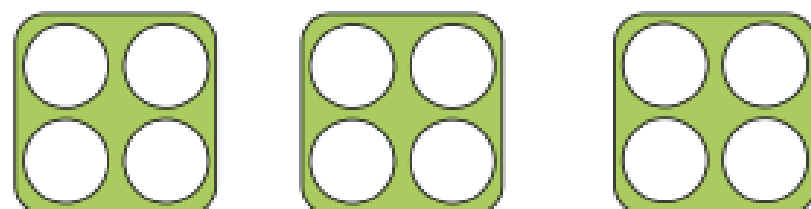
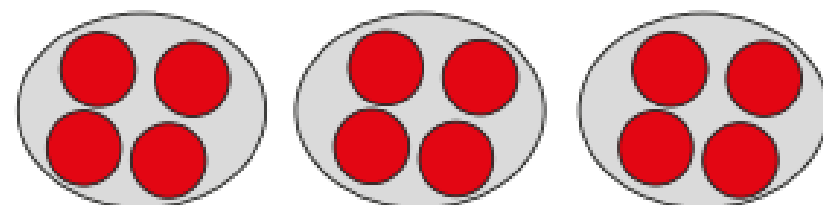


Equal groups



Count in ones

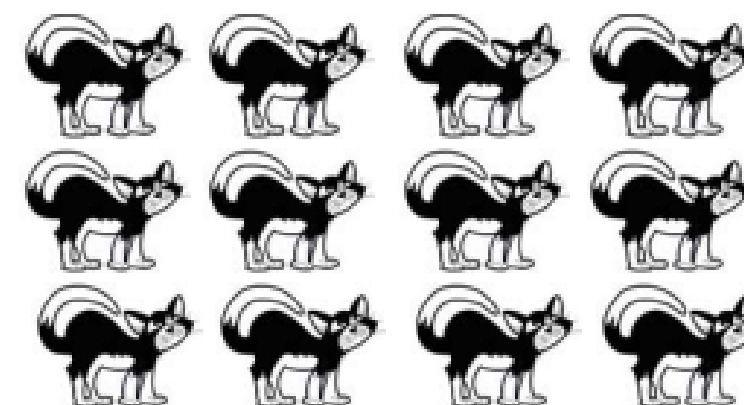
1,2,3,4,5,6,7,8,9,10,11,12



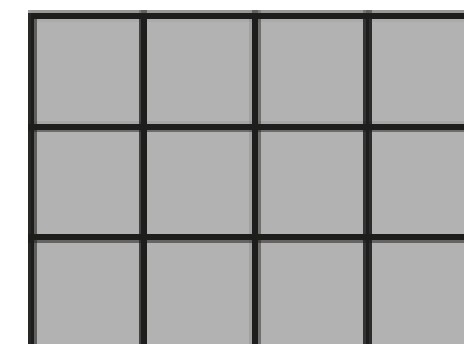
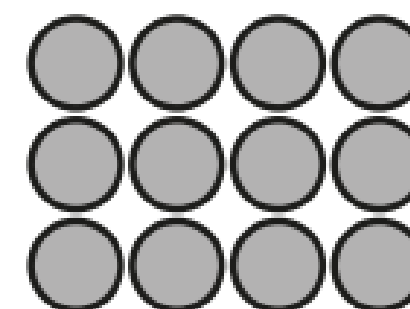
3 people each have 4 cats.
How many cats are
there in total?

There are 3 groups
with 4 cats in each
group

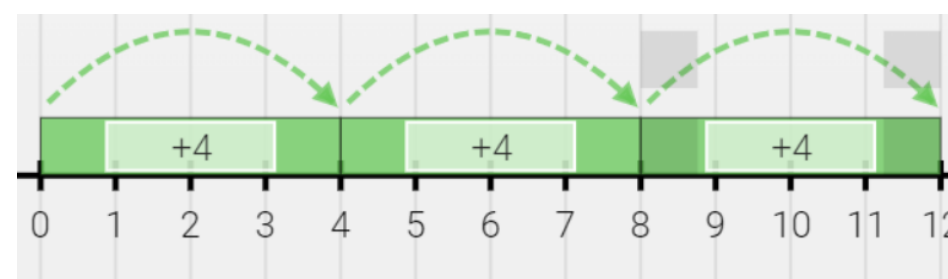
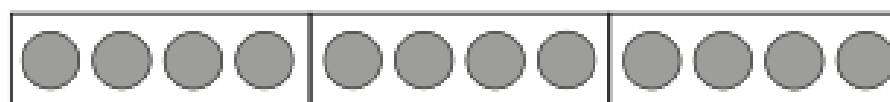
How shall I multiply?
Year 1



Arrays



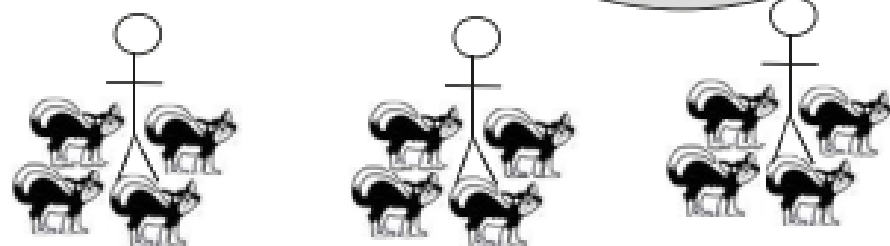
Repeated addition



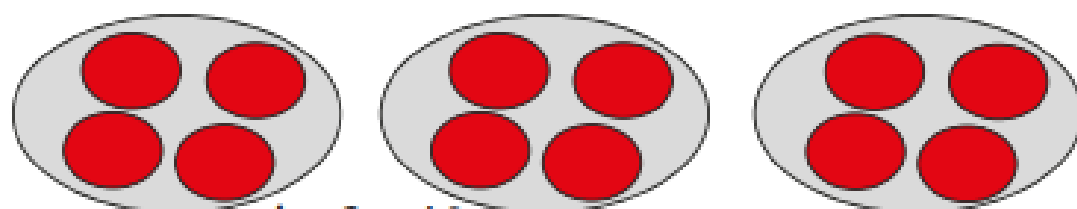
$$4 + 4 + 4 = 12$$

Equal groups

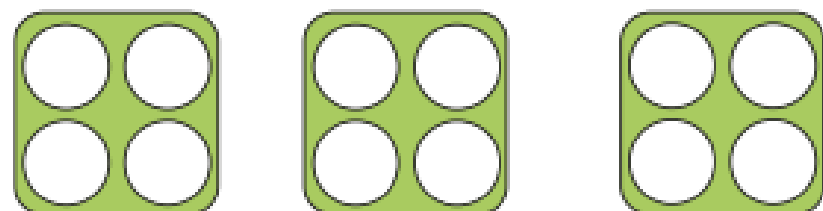
There are 3 groups with 4 cats in each group



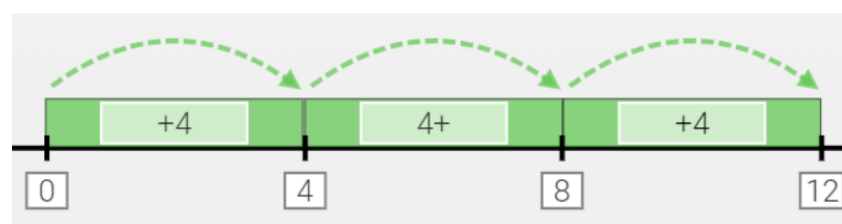
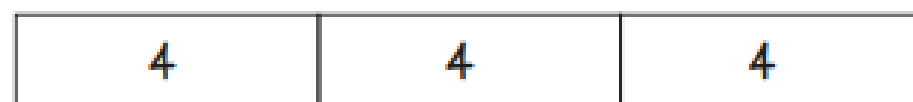
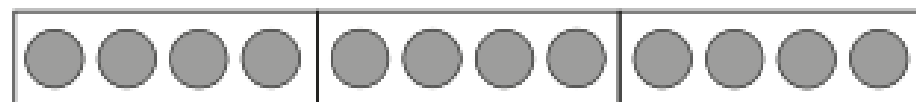
Four cats, multiplied by 3



$$4 \times 3 = 12$$



Repeated addition



$$4 + 4 + 4 = 12$$

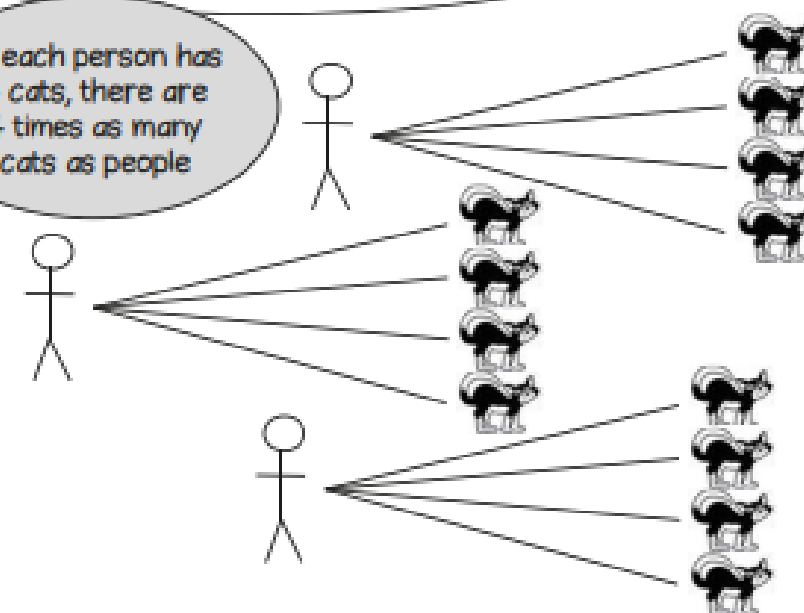
3 people each have 4 cats.
How many cats are there in total?

Recall of 2x, 5x and 10x tables

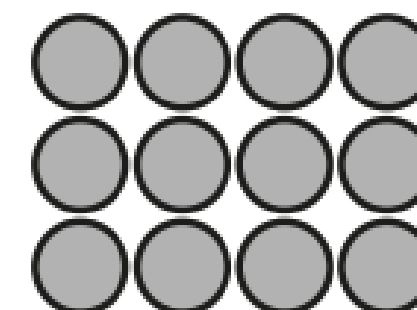
People	Cats
1	4
2	8
3	12

One to many correspondence

If each person has 4 cats, there are 4 times as many cats as people

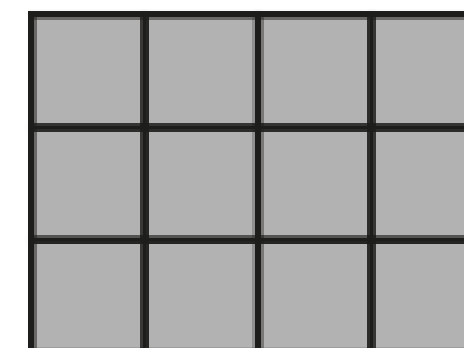


Arrays



$$4 \times 3 = 12$$

$$3 \times 4 = 4 \times 3$$



How shall I multiply?
Year 2

Count in ones

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

Count in twos

2, 4, 6, 8, 10, 12

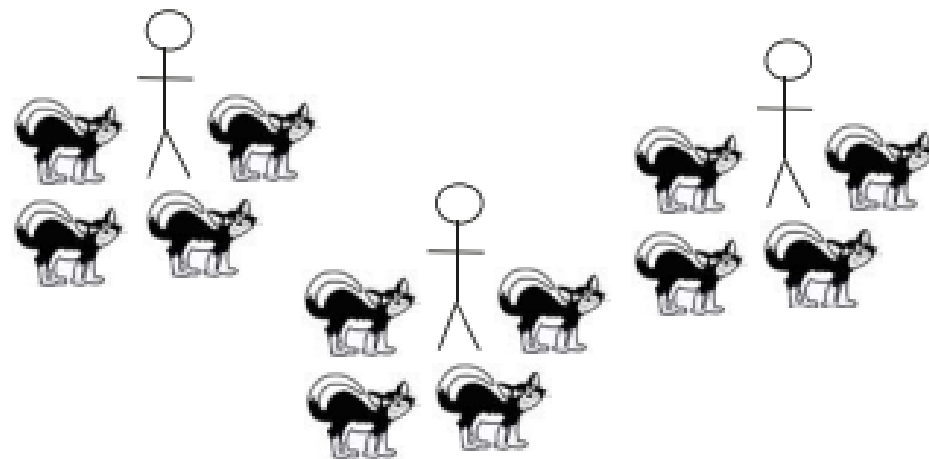
Use a known fact

If 2×3 is 6, then
 4×3 is double 6.

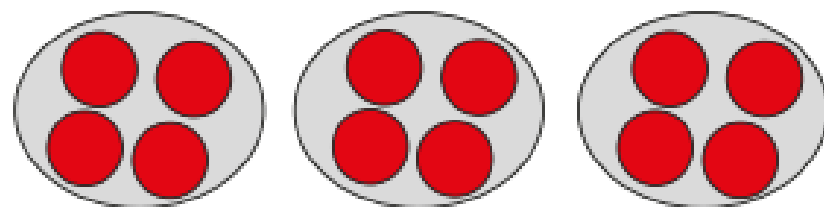
Sharing

12 shared into
3 equal groups

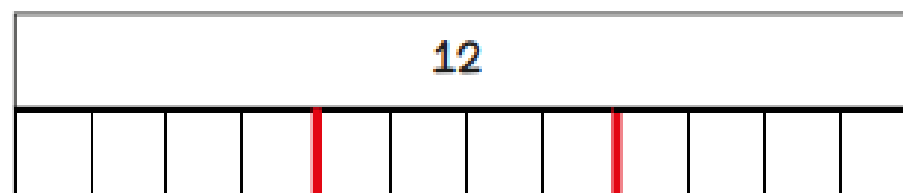
There are 12 cats.
Three people each have the same number of cats.
How many do they have each?



1 for you, 1 for you,
1 for you...



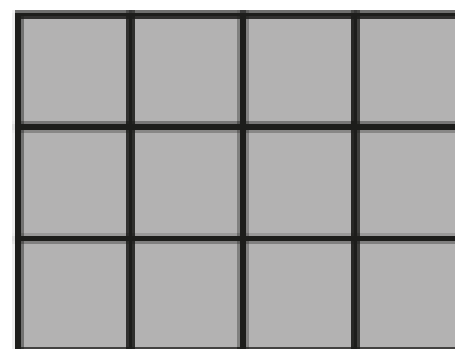
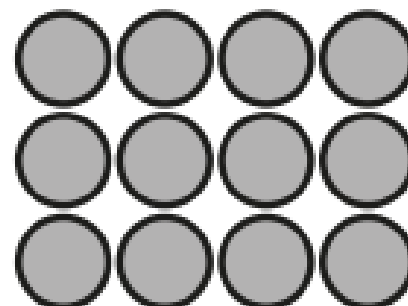
Bar model



$$12 \div 3 = 4$$

How shall I divide?
Year 1

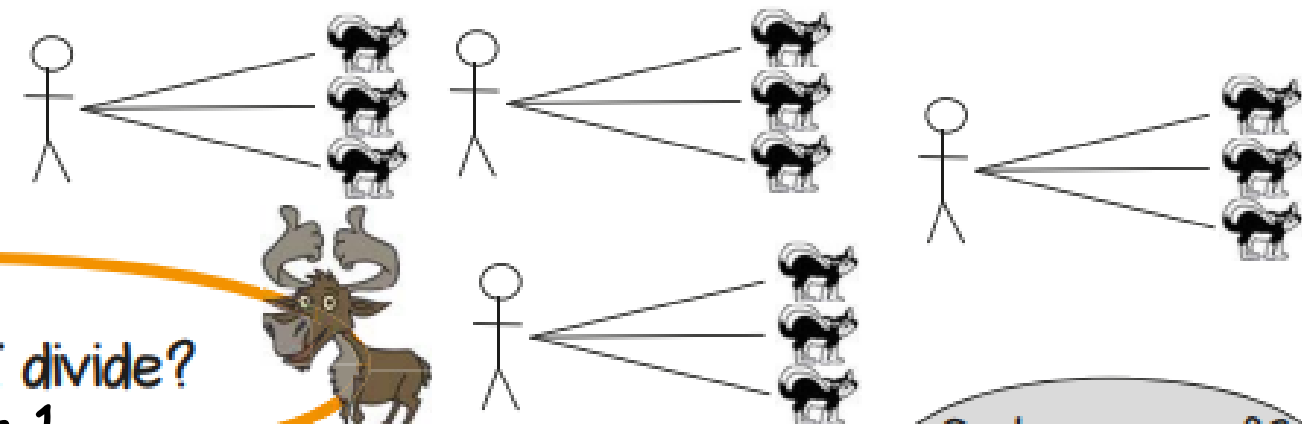
12 can be described as
3 columns of 4
or 4 rows of three



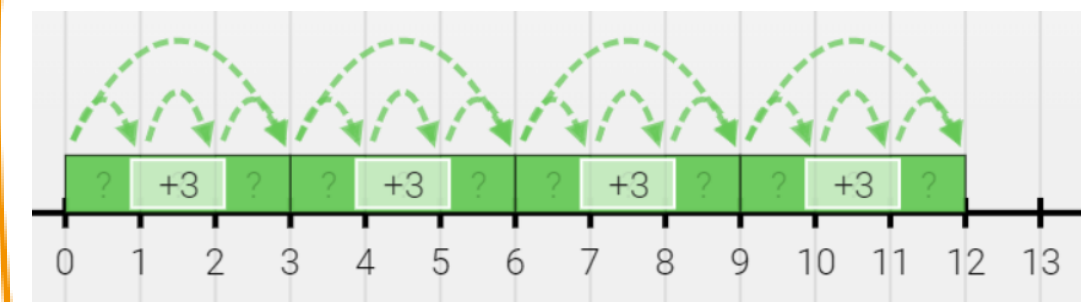
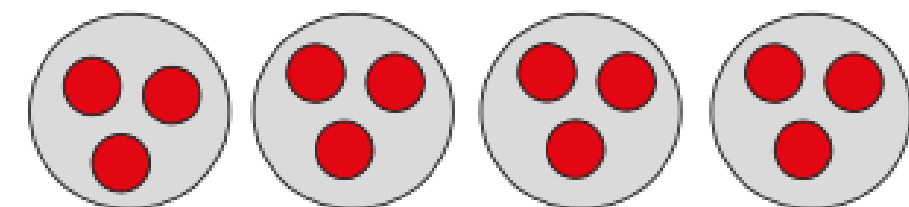
Grouping

How many groups
of 3 are there in 12?

There are 12 cats.
Each person owns 3 cats.
How many people are there?



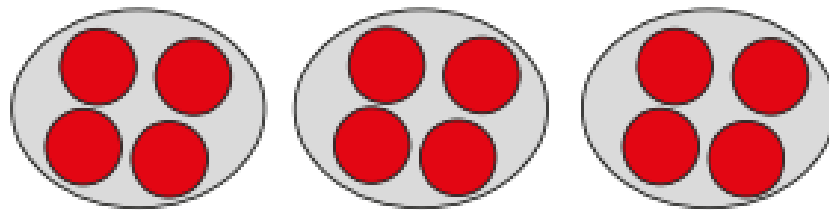
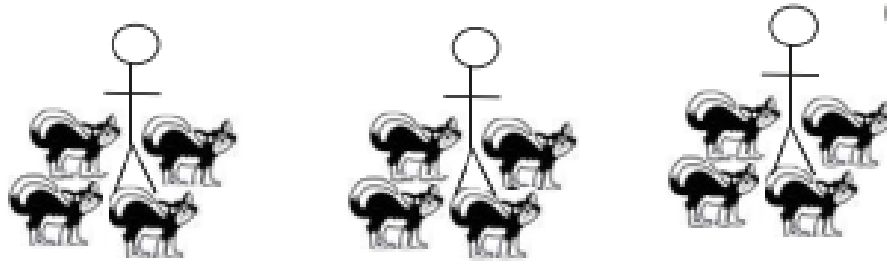
Grab a group of 3,
grab a group of 3...



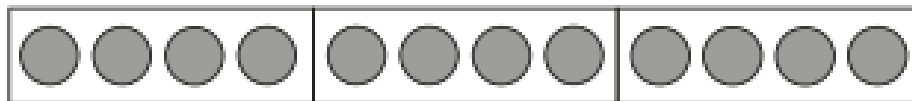
Sharing

12 shared into
3 equal groups

There are 12 cats.
Three people each have the same
number of cats.
How many do they have each?



Bar model



12		
4	4	4

Link to fractions.
One third of 12 is 4

$$12 \div 3 = 4$$

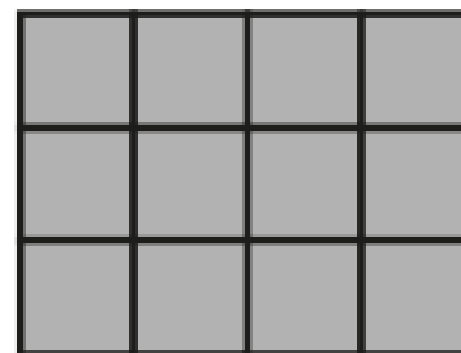
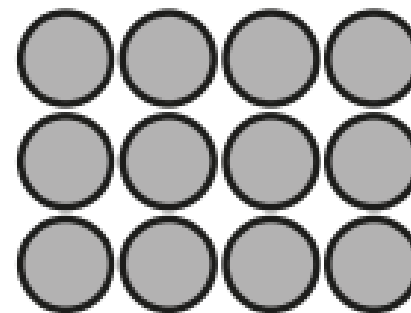
Recall and use 2x, 5x and 10x tables

1 for you, 1 for you,
1 for you...

Grab a group of 3,
grab a group of 3...

How shall I divide?
Year 2

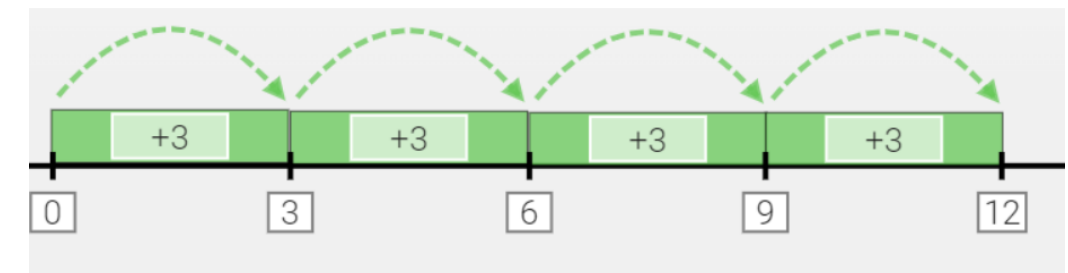
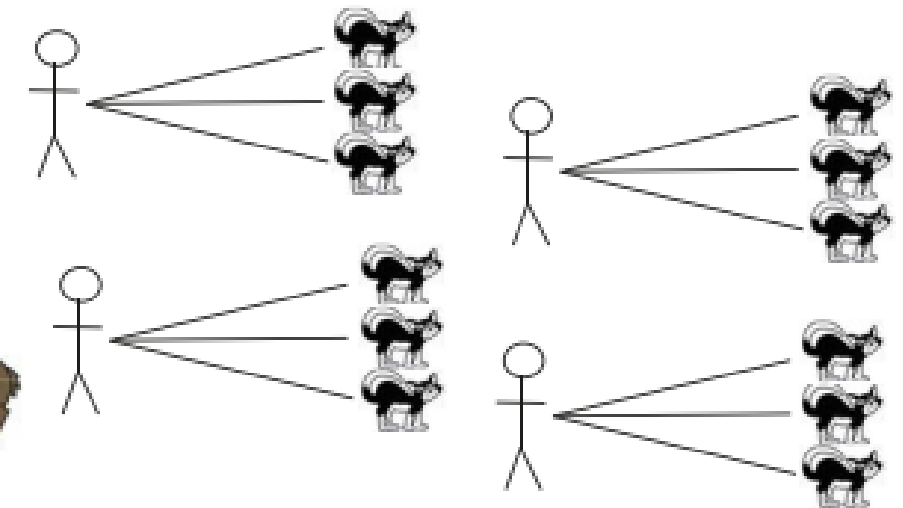
12 can be described as
3 columns of 4
or 4 rows of three



Grouping

How many groups
of 3 are there in 12?

There are 12 cats.
Each person owns 3 cats.
How many people are there?



If I know $3 \times 4 = 12$
then I know $12 \div 3 = 4$