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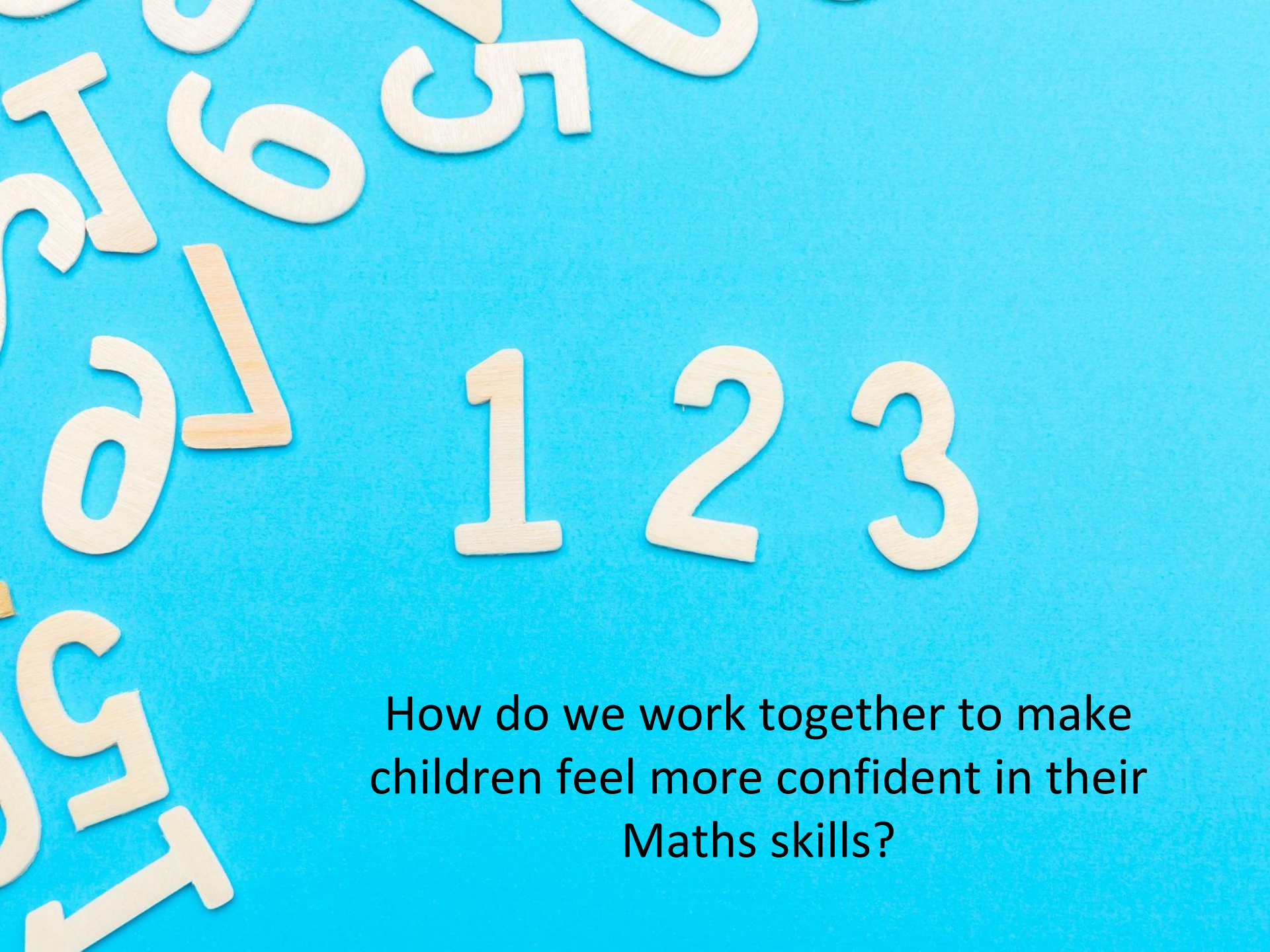
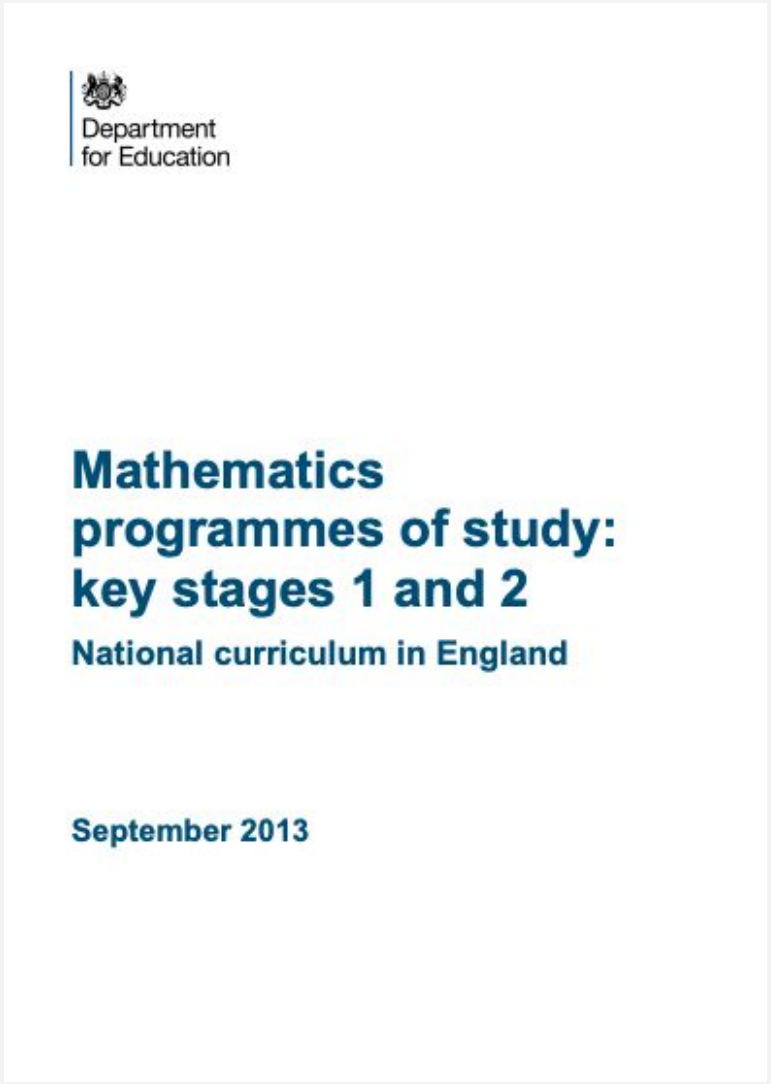


How do we work together to make children feel more confident in their Maths skills?

Aims of tonight's meeting

- To get an insight into how the 4 operations are taught at Upper Arley
- To gain an understanding of the National Maths curriculum and expectations for the operations.
- To take part in a variety of Maths activities - get stuck in!  Look out for this sign.
- To take away new knowledge that will empower you to support your child at home.

Mathematics National Curriculum



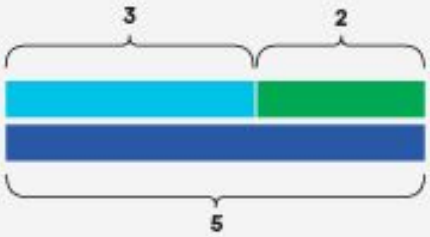
- Maths objectives for each year band
- Areas of maths:

  Number - Number & Place Value
  Number - Addition & Subtraction
  Number - Multiplication & Division
  Number - Fractions

  Measurement
  Geometry - shape
  Geometry - position and direction
  Statistics

Approach to the National Curriculum

Concrete



Pictorial

3 + 2 = 5

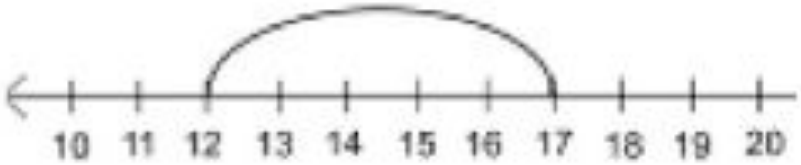
Abstract

Addition

Addition

Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.

12 + 5 = 17

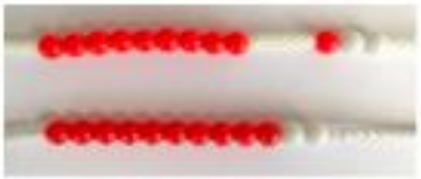


Start at the larger nurnber on the number line and count on in ones or in one jump to find the answer.

5 + 12 = 17

Place the larger number in your head and count on the smaller number to find your answer.

Addition



6 + 5 = 11

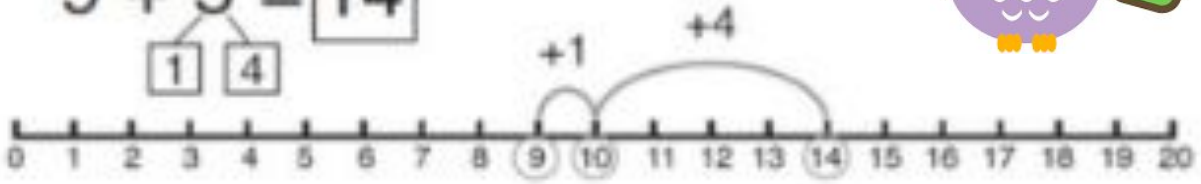
Start with the bigger number and use the smaller number to make 10.

Use pictures or a number line.
Regroup or partition the smaller number to make 10.

3 + 9 =

9 + 5 = 14

1 4



7 + 4 = 11

Addition

4 + 7 + 6= 17

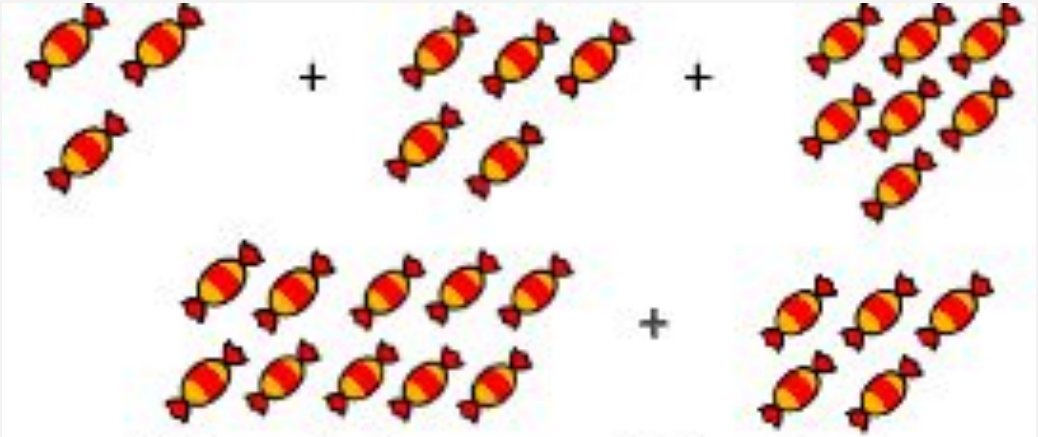
Put 4 and 6 together to make 10. Add on 7.

Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.

$$\underset{10}{(4 + 7 + 6)} = \boxed{10} + \boxed{7}$$

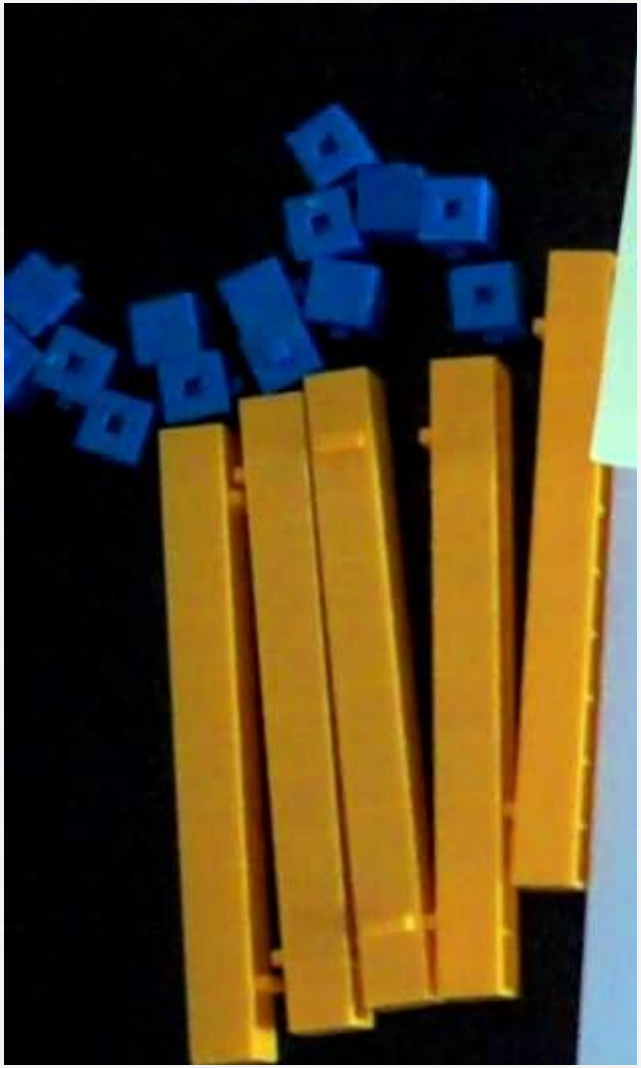
$$= \boxed{17}$$

Combine the two numbers that make 10 and then add on the remainder.



Add together three groups of objects. Draw a picture to recombine the groups to make 10.

Addition

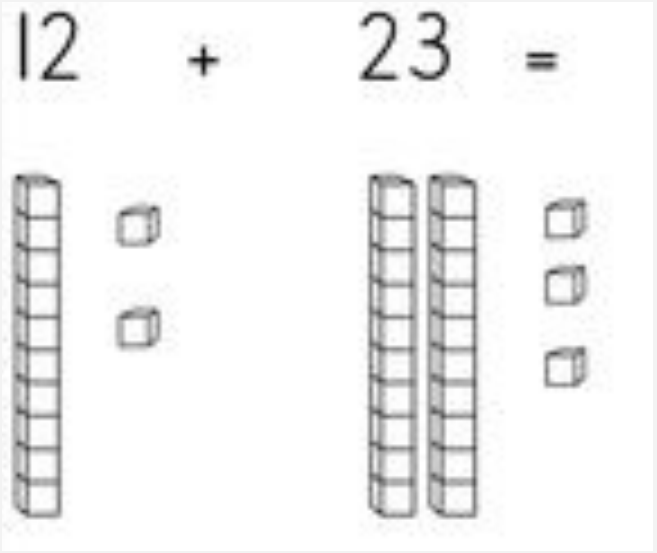


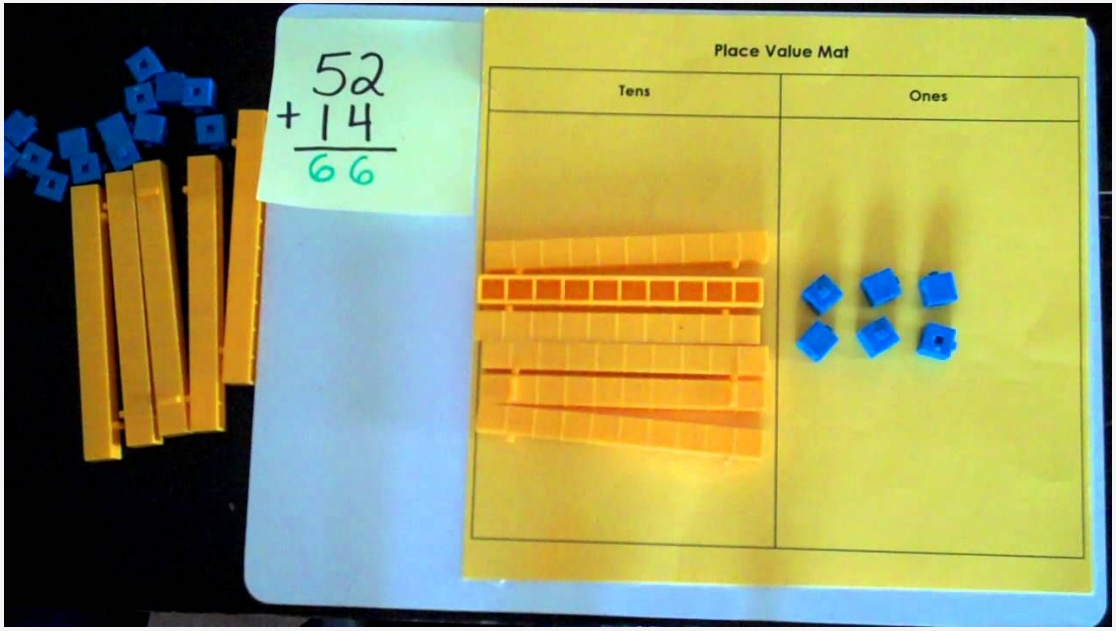
52 + 14 =

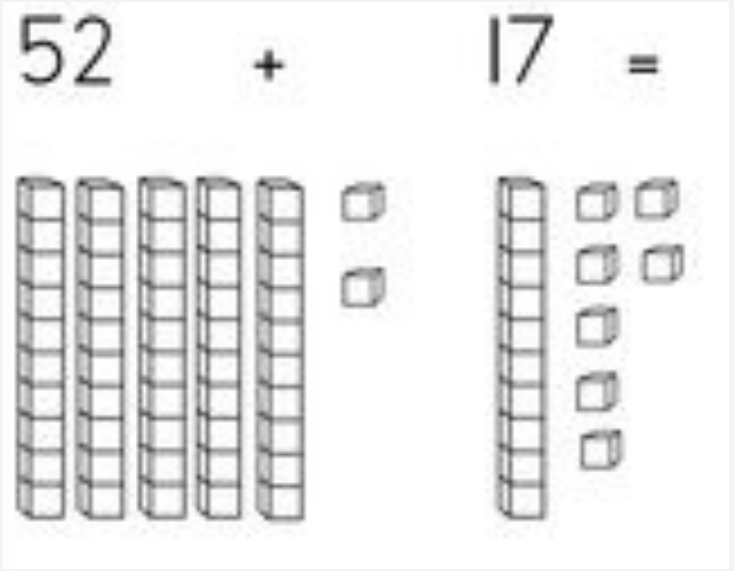
Use the base 10 on your table to solve this.

Working towards
a Formal Method

Addition







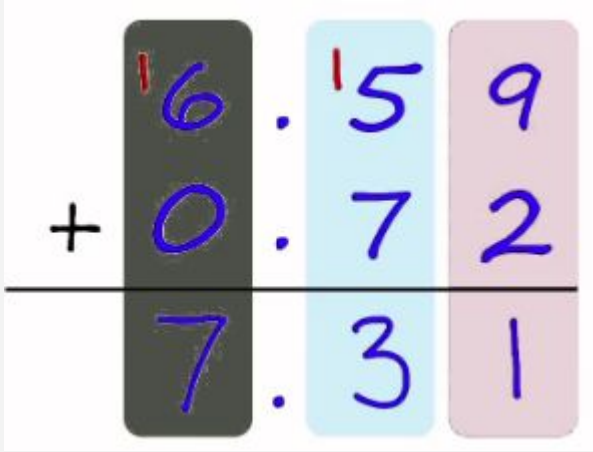
No regrouping

Addition

hundreds	tens	units
		
		

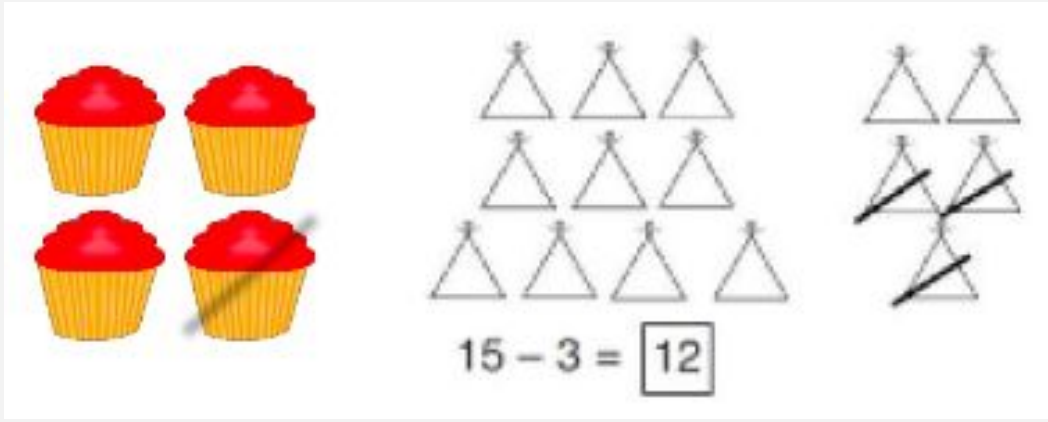
$$\begin{array}{r} 43 \\ +\ 26 \\ \hline \\ \hline \end{array}$$

					H	T	U
					3	4	7
				+	2	7	1
Add the units then add the tens then add the hundreds:					6	1	8
If the tens add to more than 100, move a 100 into the 100s column.					1		

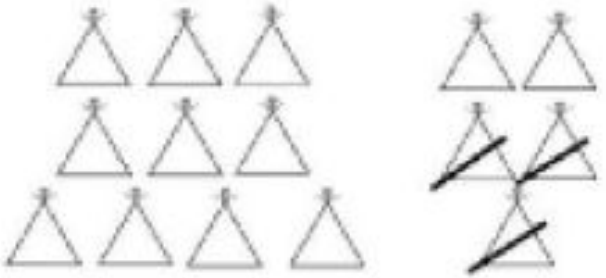


Subtraction

Subtraction



Subtraction

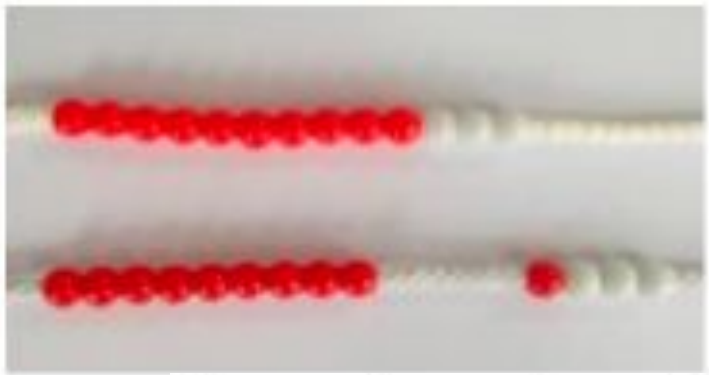


15 – 3 = 12

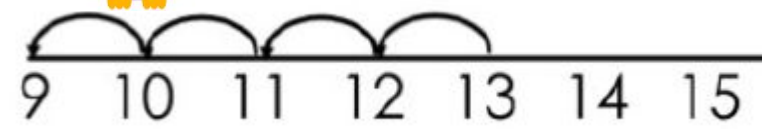
18 -3= 15

8 – 2 = 6

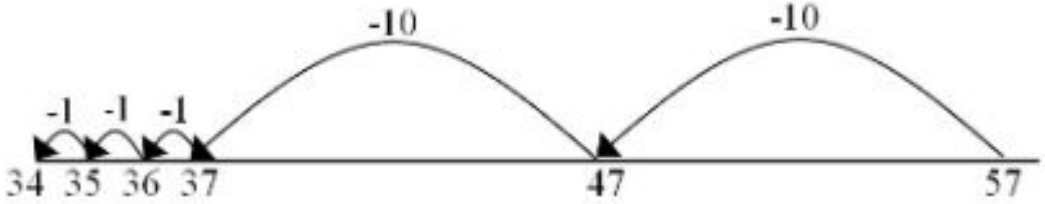
Subtraction



Use counters and move them away from the group



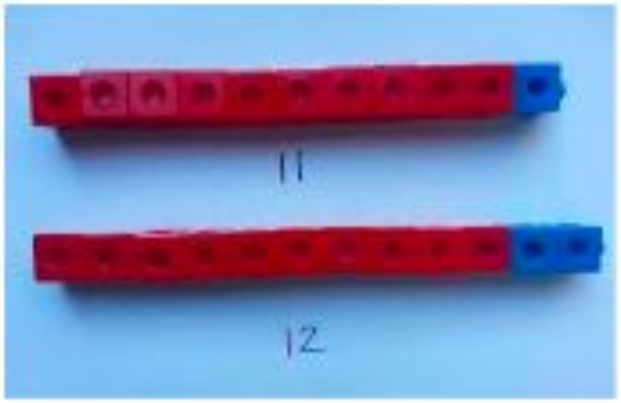
Start at the bigger number and count back the smaller number showing the jumps on the number line.



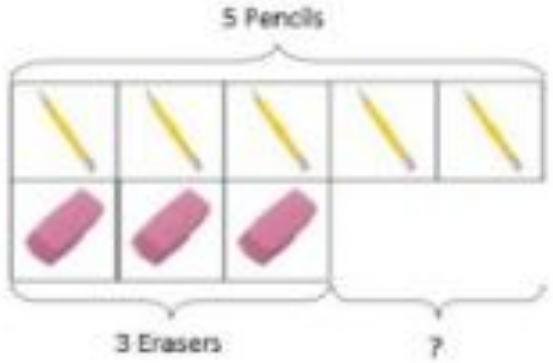
Put 13 in your head, count back 4. What number are you at? Use your fingers to help.

Subtraction

Compare amounts and objects to find the difference.

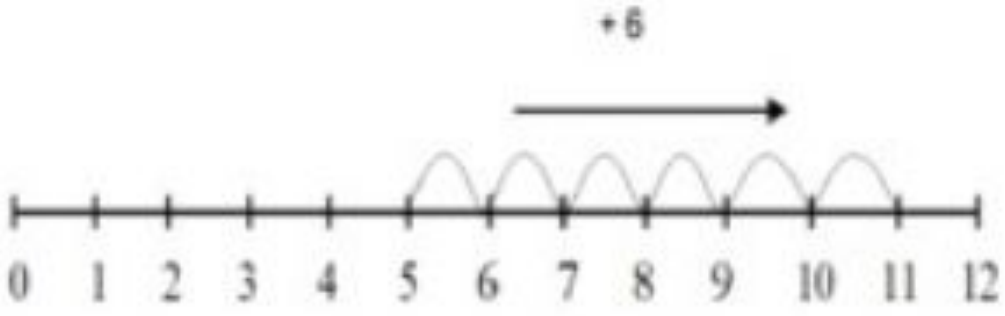


Use cubes to build towers or make bars to find the difference



Use basic bar models with items to find the difference.

Subtraction

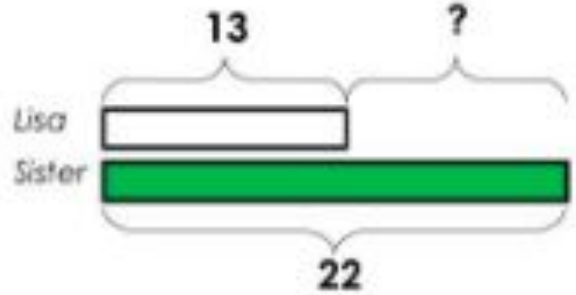


Count on to find the difference.

Comparison Bar Models

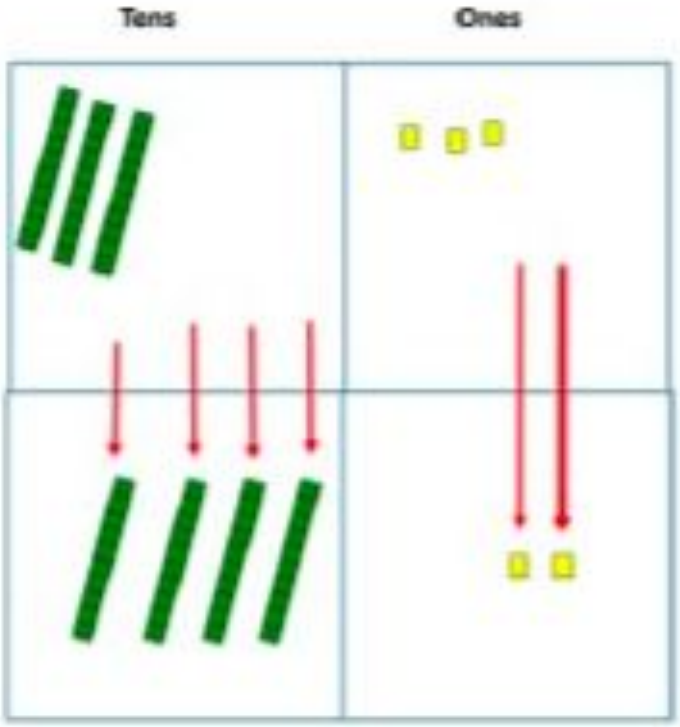
Draw bars to find the difference between 2 numbers.

Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them.

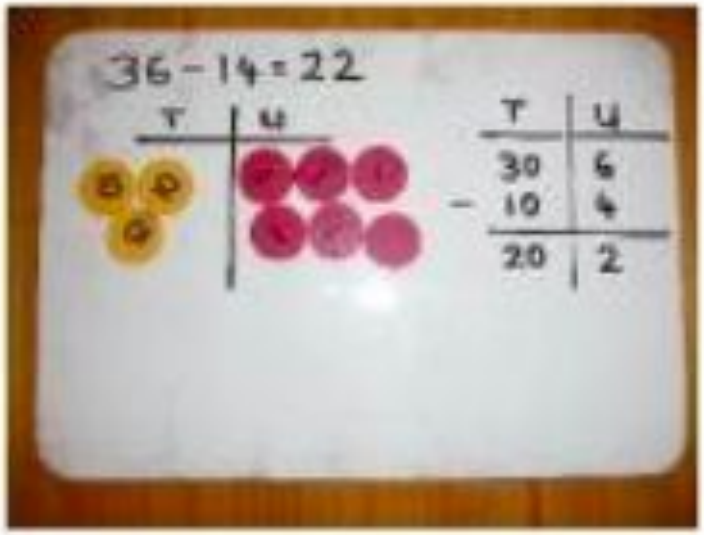


Hannah has 23 sandwiches, Helen has 15 sandwiches. Find the difference between the number of sandwiches.

Subtraction



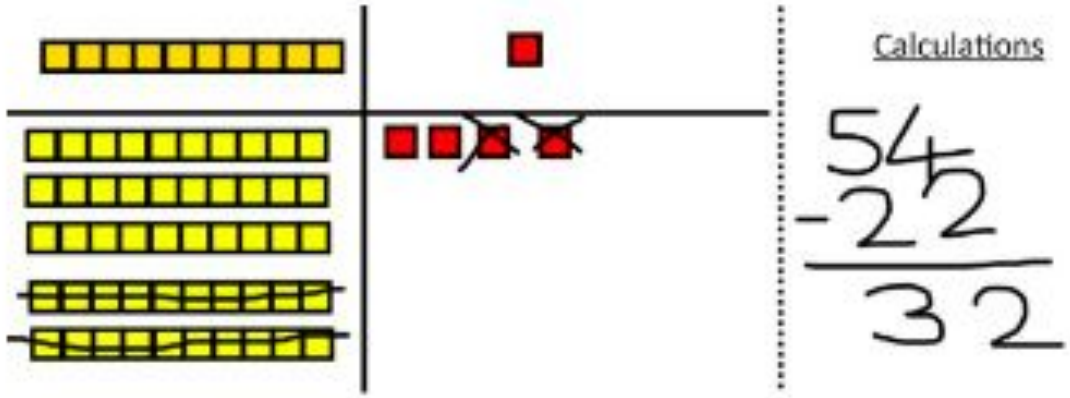
Use Base 10 to make the bigger number then take the smaller number away.

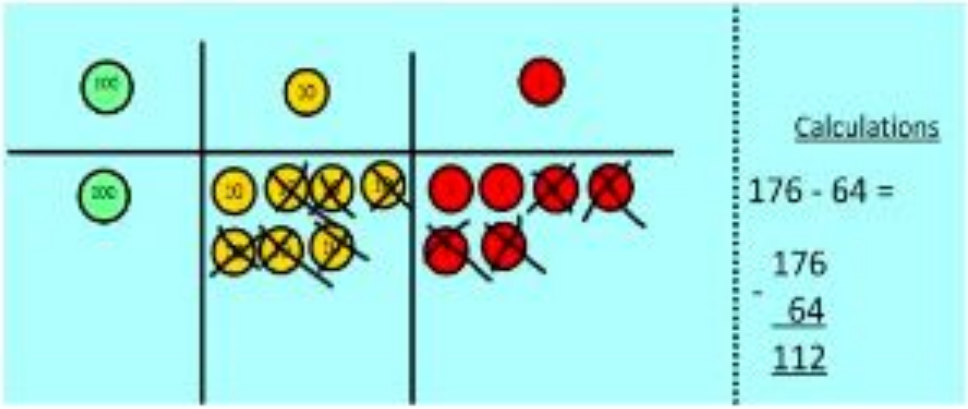


Show how you partition numbers to subtract. Again make the larger number first.

Subtraction

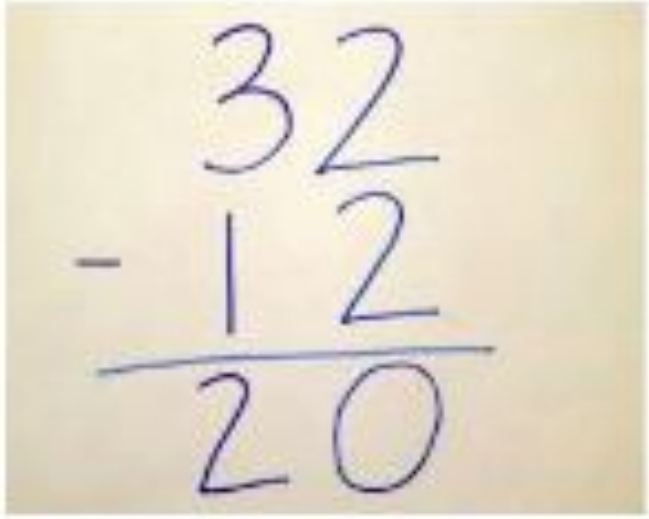
Draw the Base 10 or place value counters alongside the written calculation to help to show working.





Subtraction

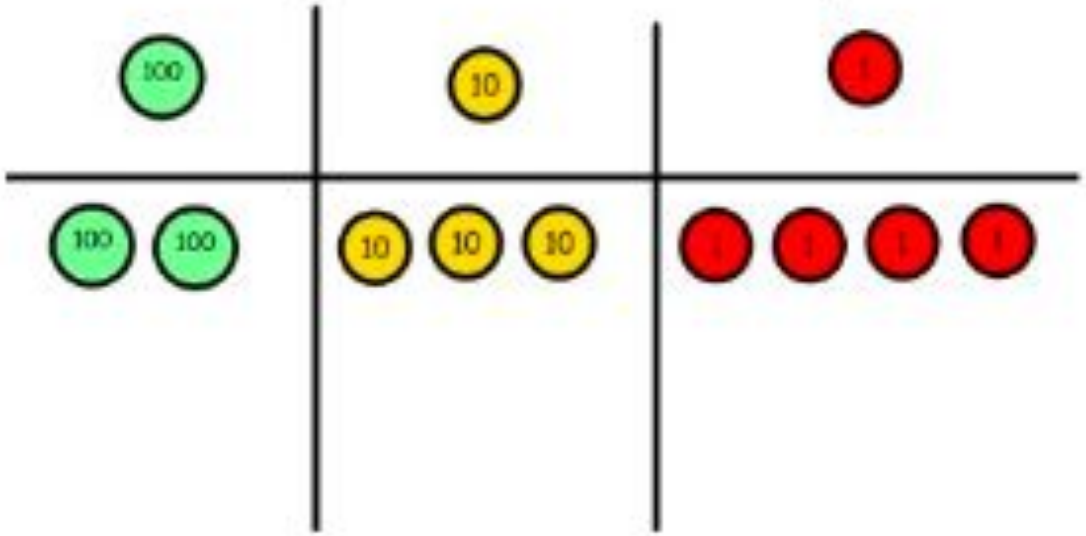
This will lead to a clear written column subtraction.



Subtraction

Use Base 10 to start with before moving on to place value counters. Start with one exchange before moving onto subtractions with 2 exchanges.

Make the larger number with the place value counters



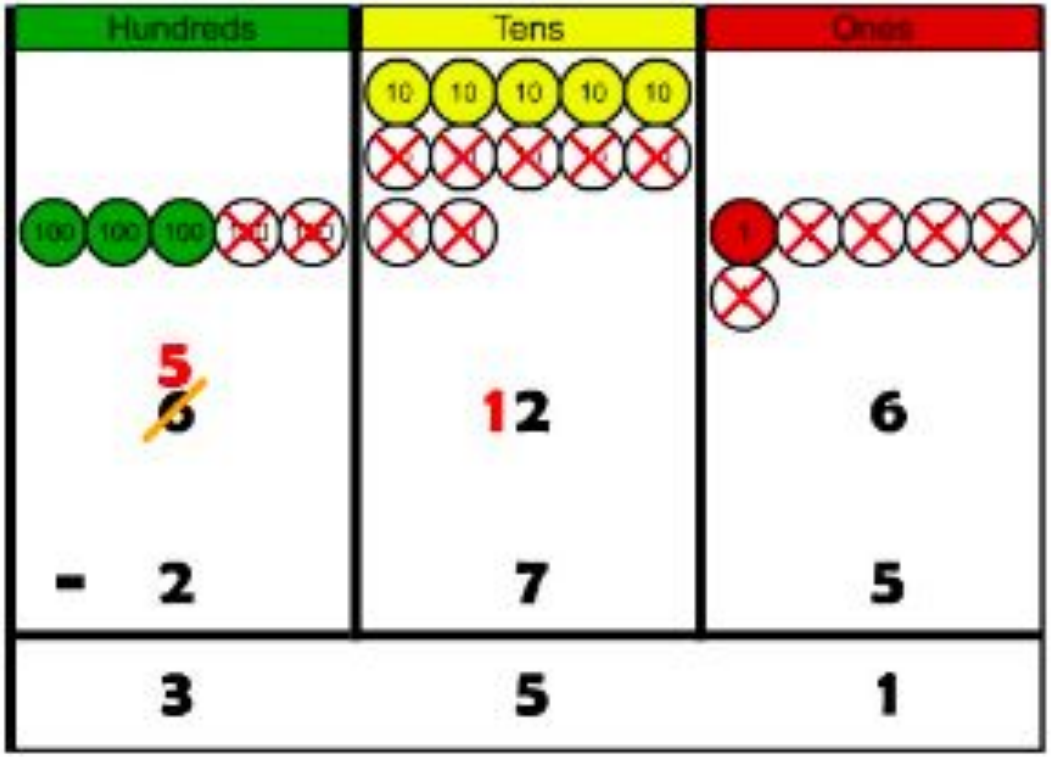
Calculations

$$\begin{array}{r} 234 \\ -\ 88 \\ \hline \end{array}$$

Start with the ones, can I take away 8 from 4 easily? I need to exchange one of my tens for ten ones.

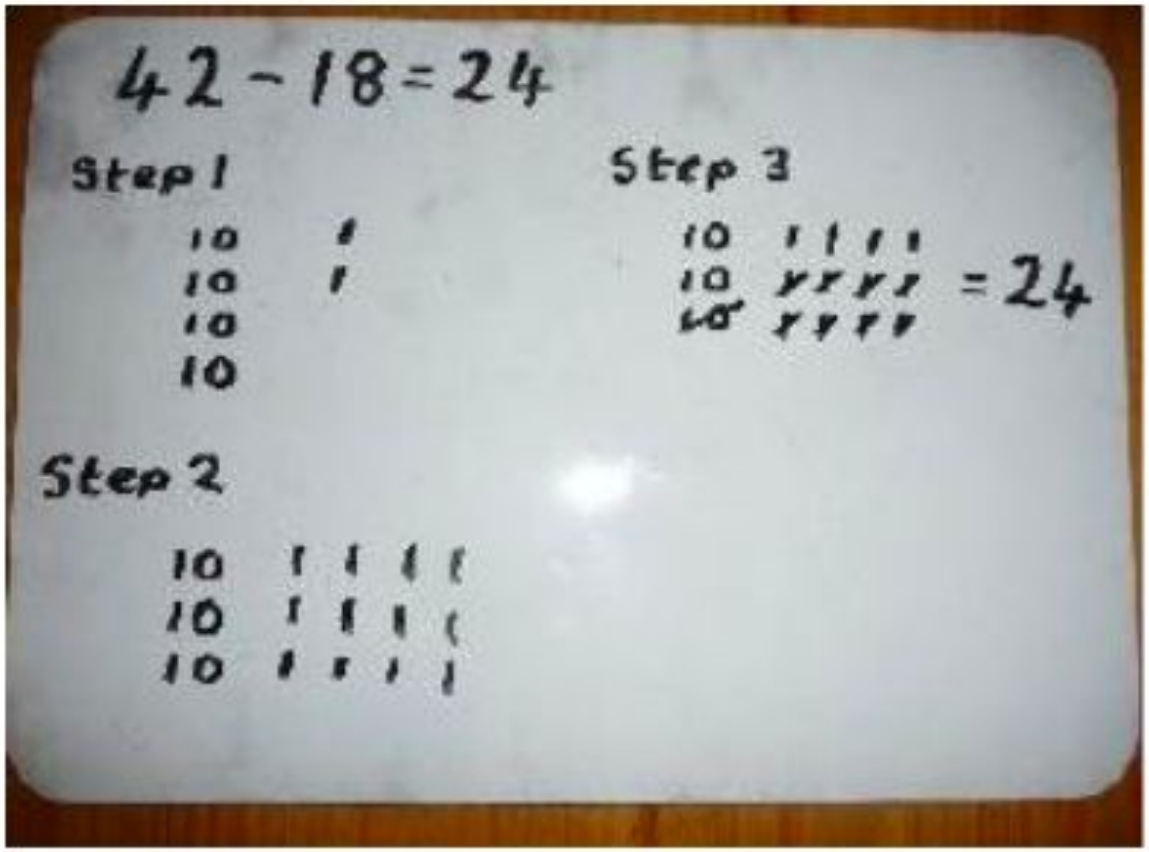
Subtraction

Draw the counters onto a place value grid and show what you have taken away by crossing the counters out as well as clearly showing the exchanges you make.



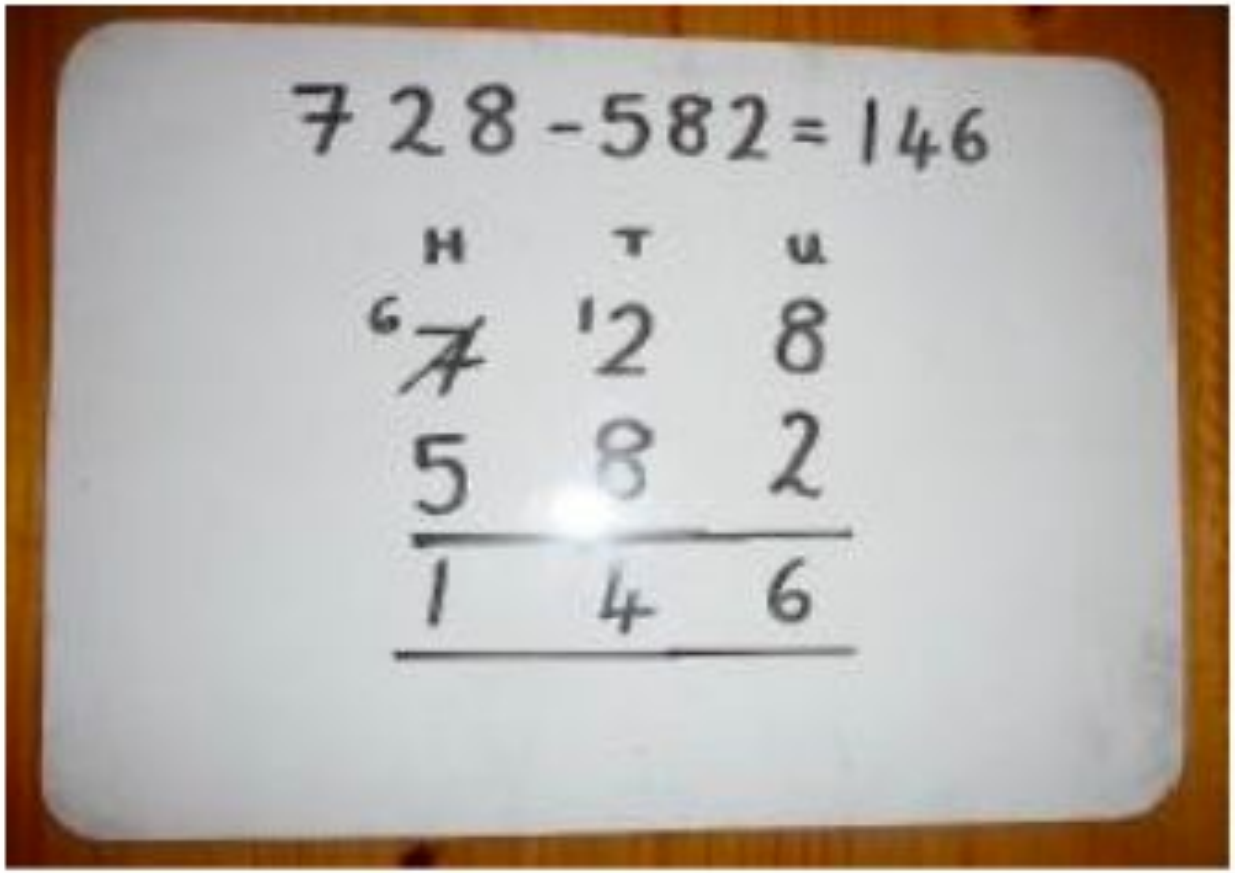
Subtraction

When confident, children can find their own way to record the exchange/regrouping.



Just writing the numbers as shown here shows that the child understands the method and knows when to exchange/regroup.

Subtraction



Moving forward the children use a more compact method.

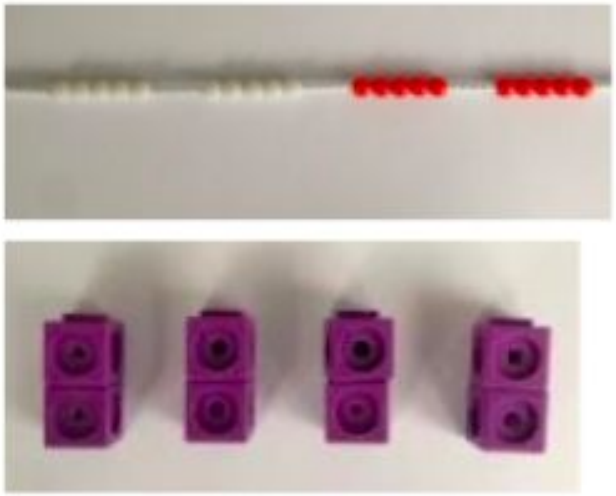
Subtraction

This will lead to an understanding of subtracting any number including decimals.

$$\begin{array}{rrrrr} & & 5 & 12 & 1 \\ & 2 & \cancel{6} & \cancel{3} & .\ 0 \\ - & & 2 & 6 & .\ 5 \\ \hline & 2 & 3 & 6 & .\ 5 \end{array}$$

Multiplication

Multiplication



Count in multiples supported by concrete objects in equal groups.

Use a number line or pictures to continue support in counting in multiples.

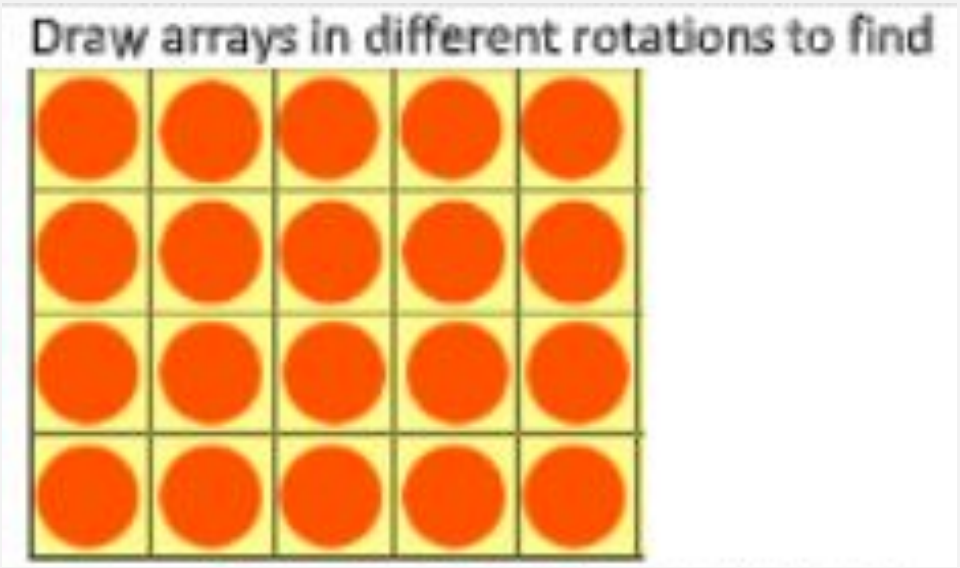
Count in multiples of a number aloud.

Write sequences with multiples of numbers.

2, 4, 6, 8, 10

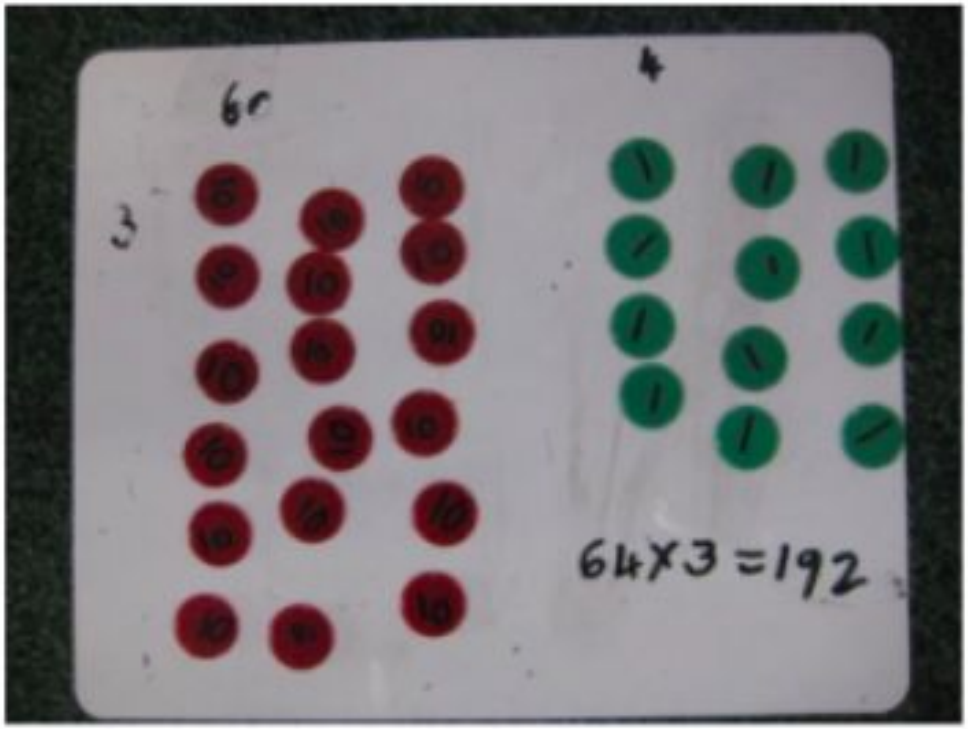
5, 10, 15, 20, 25, 30

Multiplication



Multiplication

Children can continue to be supported by place value counters at the stage of multiplication.



It is important at this stage that they always multiply the ones first and note down their answer followed by the tens which they note below.

Multiplication

Start with long multiplication, reminding the children about lining up their numbers clearly in columns.

If it helps, children can write out what they are solving next to their answer.

```
  32
x 24
 ---
   8   (4 x 2)
 120   (4 x 30)
  40   (20 x 2)
 600   (20 x 30)
 ---
 768
```

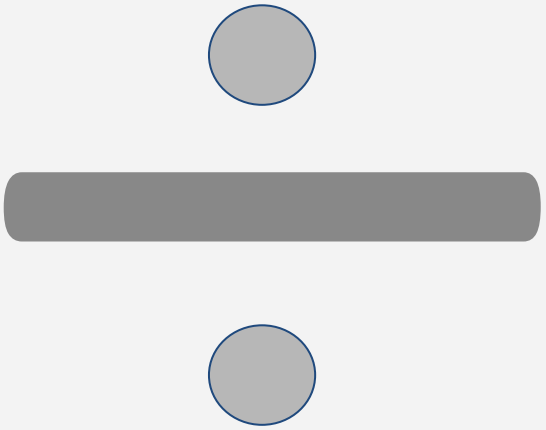
```
      7  4
   x  6  3
 ----------
      1  2
   2  1  0
   2  4  0
+  4  2  0  0
 ----------
   4  6  6  2
```

Multiplication

This moves to the more compact method.

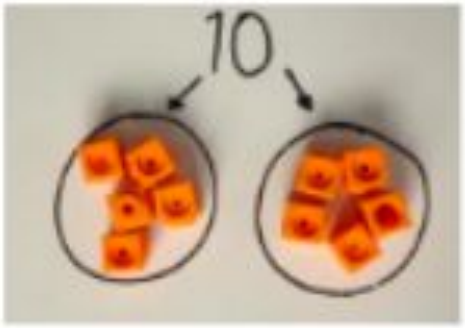
$$
\begin{array}{r}
{\scriptstyle 2\ \ 3\ \ 1} \\
1342 \\
\times\ \ 18 \\
\hline
13420 \\
10736 \\
\hline
24156 \\
\hline
{\scriptstyle 1}
\end{array}
$$

Division



Sharing into groups

Division



I have 10 cubes, can you share them equally in 2 groups?

Children use pictures or shapes to share quantities.

$8 \div 2 = 4$

Share 9 buns between three people.

$9 \div 3 = 3$

Division

Link division to multiplication by creating an array and thinking about the number sentences that can be created.

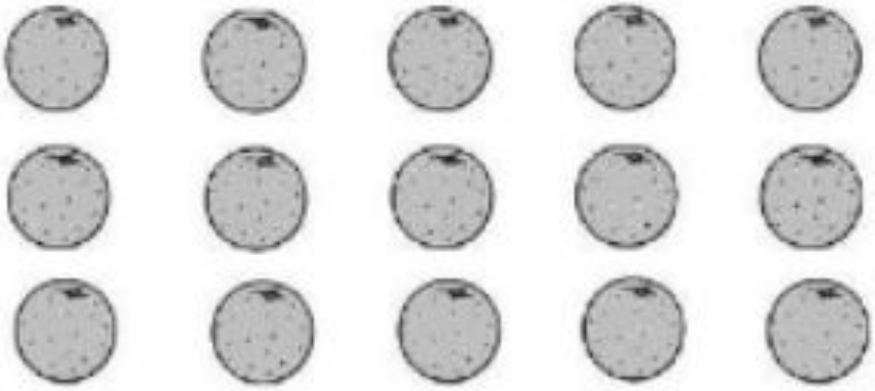
E.g. 15 ÷ 3 = 5 5 x 3 = 15 15 ÷ 5 = 3 3 x 5 = 15

7 x 4 = 28

4 x 7 = 28

28 ÷ 7 = 4

28 ÷ 4 = 7

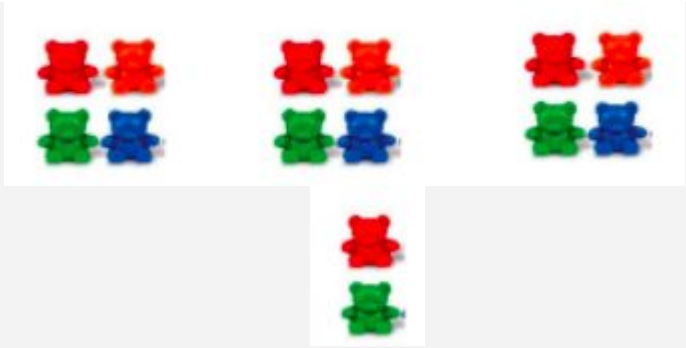


Draw an array and use lines to split the array into groups to make multiplication and division sentences.

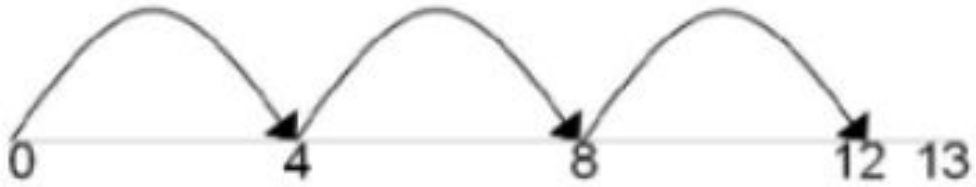
Division

14 ÷ 3 =

Divide objects between groups and see how much is left over



Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.

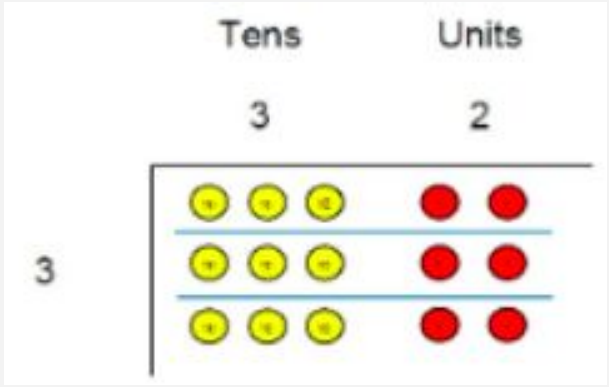


Complete written divisions and show the remainder using r.

$$29 \div 8 = 3 \text{ REMAINDER } 5$$

dividend divisor quotient remainder

Division



Use place value counters to divide using the bus stop method alongside

$$\begin{array}{r} 2\ 1\ 8 \\ 4\overline{)\,8\ 7\ 2} \\ \quad\ 3 \end{array}$$

Move onto divisions with a remainder.

$$\begin{array}{r} 8\ 6\ \text{r}\ 2 \\ 5\overline{)\,4\ 3\ 2} \\ \quad\ 3 \end{array}$$

Finally move into decimal places to divide the total accurately.

$$\begin{array}{r} 1\ 4\ .\ 6 \\ 3\ 5\overline{)\,5\ 1\ 1\ .\ 0} \\ \quad\ 16\quad\ 21 \end{array}$$


ANY
QUESTIONS?