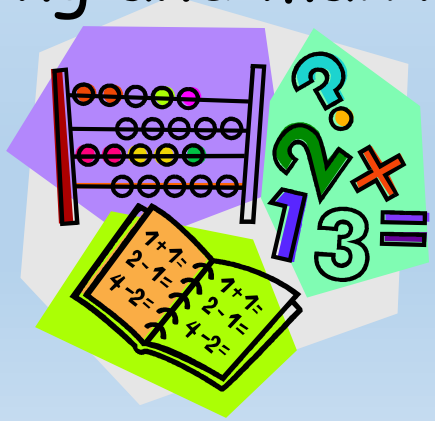
Parent Workshop

Aims of the Session

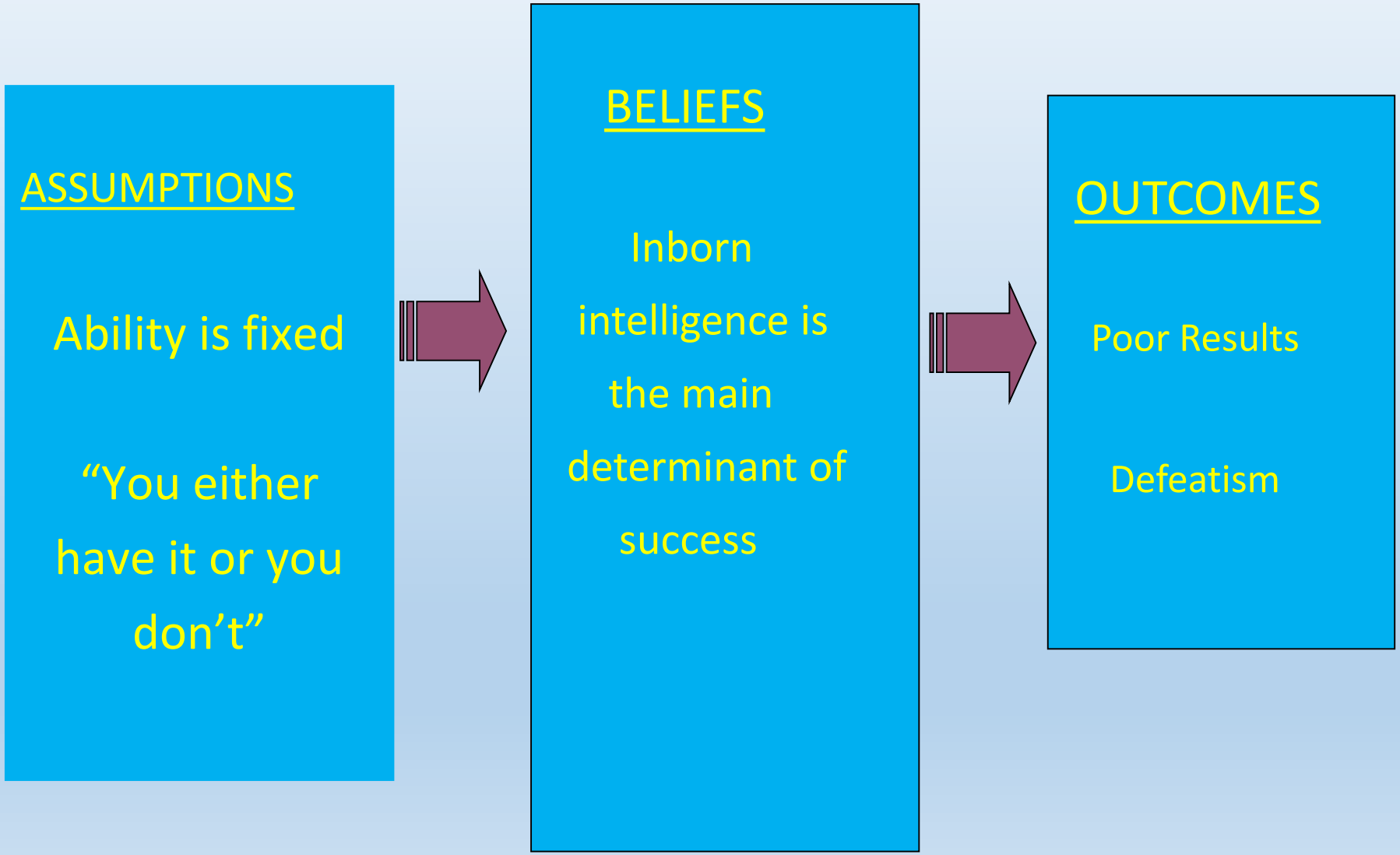
- Gain an insight into the Maths Mastery approach and how it is taught.
- The importance of Number Facts.
- Look at the four operations.
- Ideas for supporting and making maths fun at home!



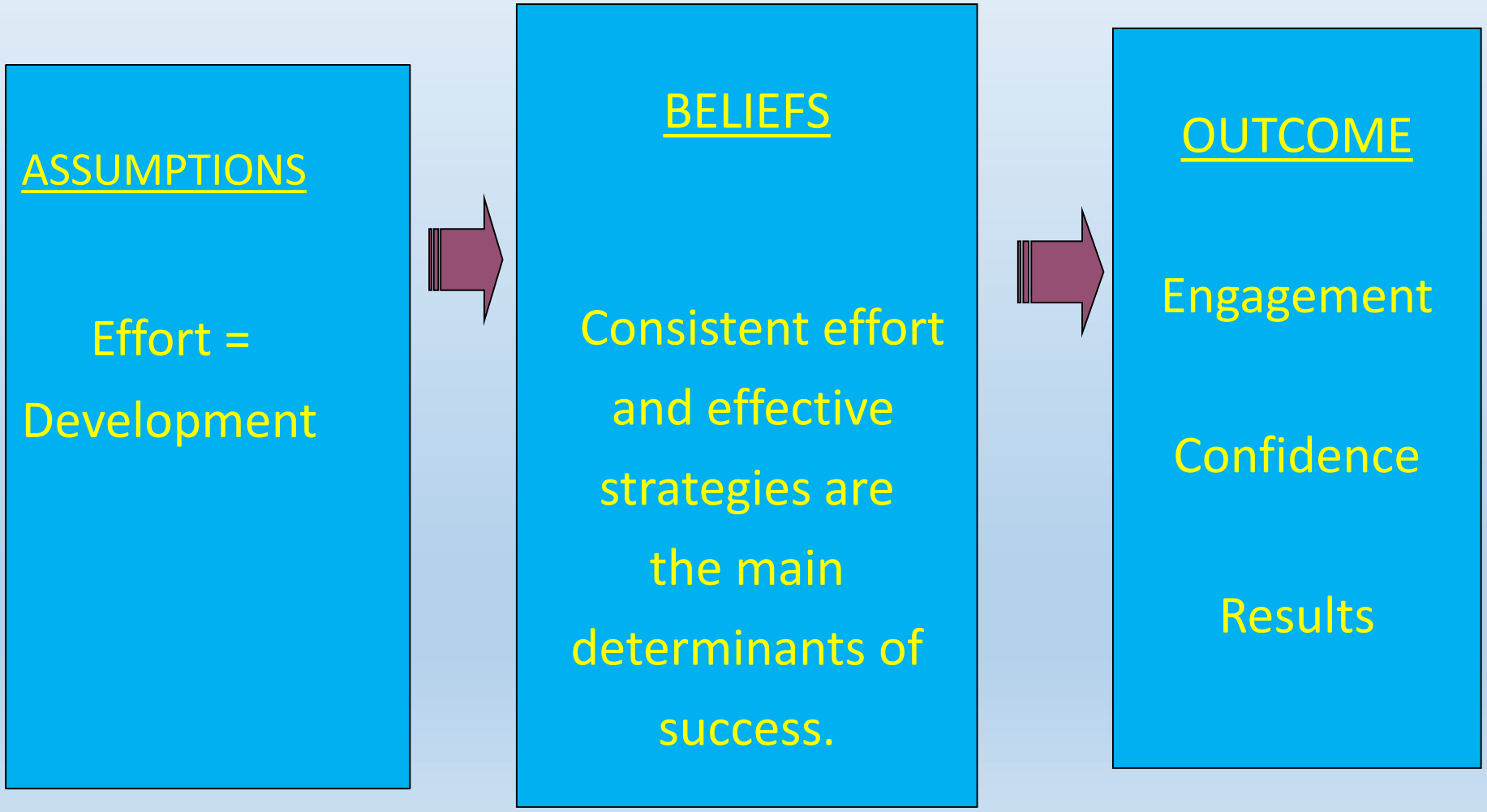
Why Maths Mastery?

- Success in mathematics for every child
- Close the attainment gap
- Research based approach
- Children think like mathematicians

Belief in Innate Ability



Belief in Effort-Based Ability



Number Facts by Year Group:

Reception: 1+1 2+2 3+3 4+4 5+5 2+1 2+3
Counting in 10s, 5s and 2s

Year One:
1+9 2+8 3+7 4+6 6+6 7+7 8+8 9+9
4+2 5+2 7+2 8+2 4+3 5+3
Counting in 10s, 5s and 2s

Year Two:
4+7 4+9 3+8 3+9 5+4 5+6 8+7 8+9
5+7 5+8 5+9 6+9

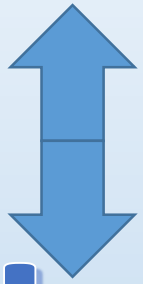
x10 x5 x2 Tables

Year Three: x3 x4 x9 Tables
Year Four: x6 x7 x8 Tables
Year Five & Six: All the above

Times Tables Rockstar

Context – Big Picture

Concrete



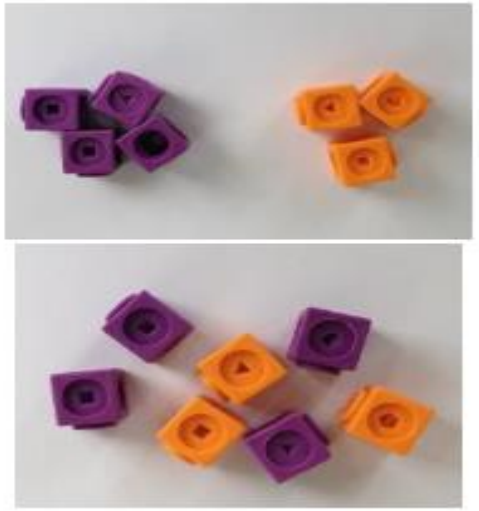
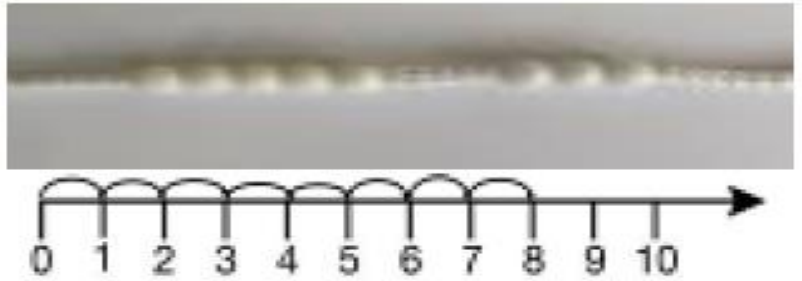
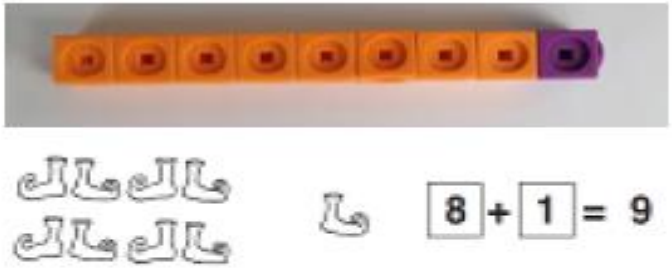
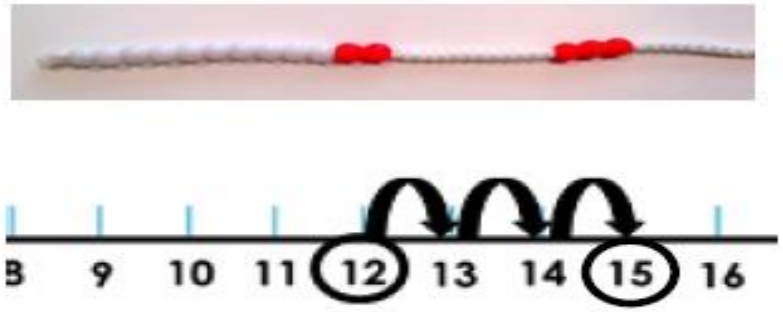
Pictorial

Abstract

The Four Operations

Consistency Counts

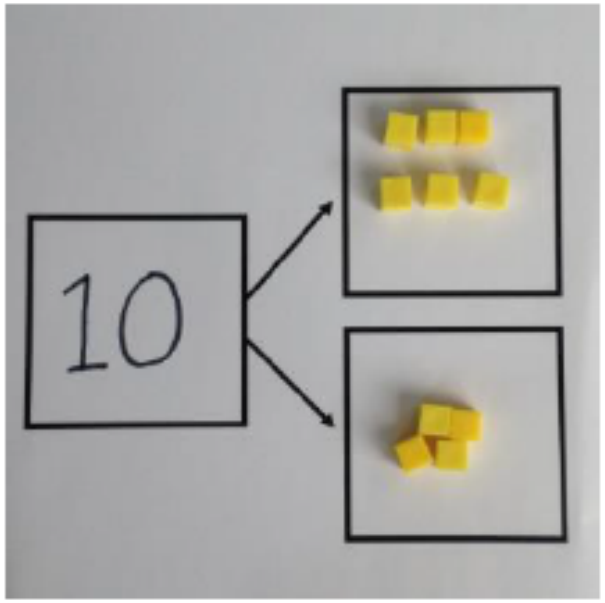
Addition

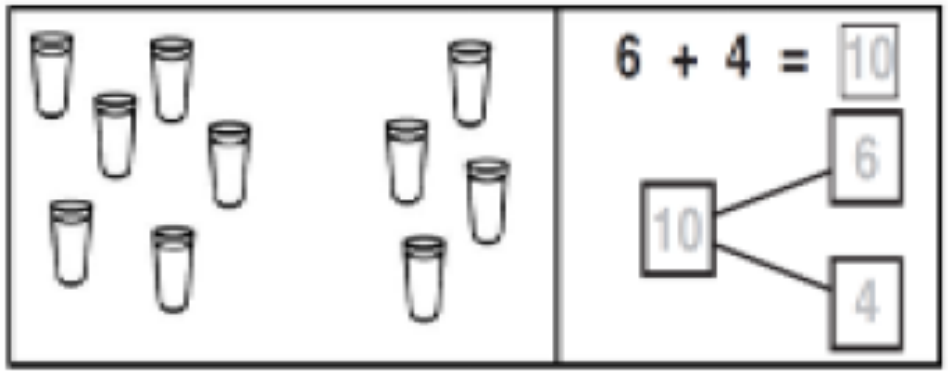
Count all *Joining two groups and then recounting all objects using one-to-one correspondence*	3 + 4 = 7 	 0 1 2 3 4 5 6 7 8 9 10 5 + 3 = 8
Counting on *As a strategy, this should be limited to adding small quantities only (1, 2 or 3) with pupils understanding that counting on from the greater number is more efficient.*	8 + 1 = 9  8 + 1 = 9	15 = 12 + 3  8 9 10 11 12 13 14 15 16

Part-part-whole

Teach both addition and subtraction alongside each other, as pupils will use this model to identify the inverse relationship between them.

This model begins to develop the understanding of the commutativity of addition, as pupils become aware that the parts will make the whole in any order.





10 = 6 + 4

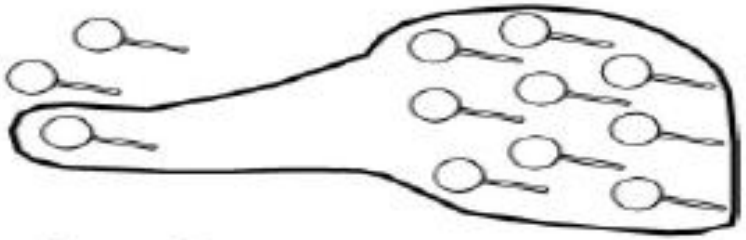
10 – 6 = 4

10 – 4 = 6

10 = 4 + 6

Regrouping ten ones to make ten

This is an essential skill that will support column addition later on.



3 + 9 =

3 + 9 = 12

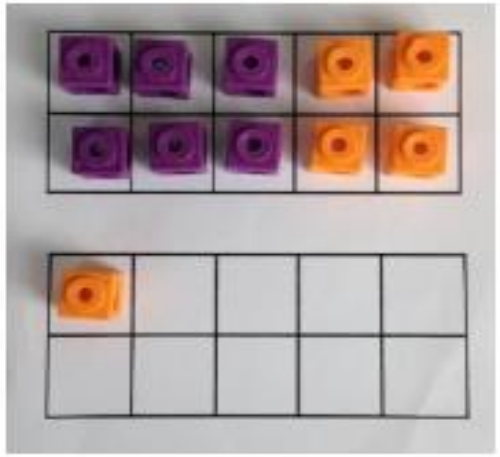
'Make ten' strategy

Pupils should be encouraged to start at the greater number and partition the smaller number to make ten.

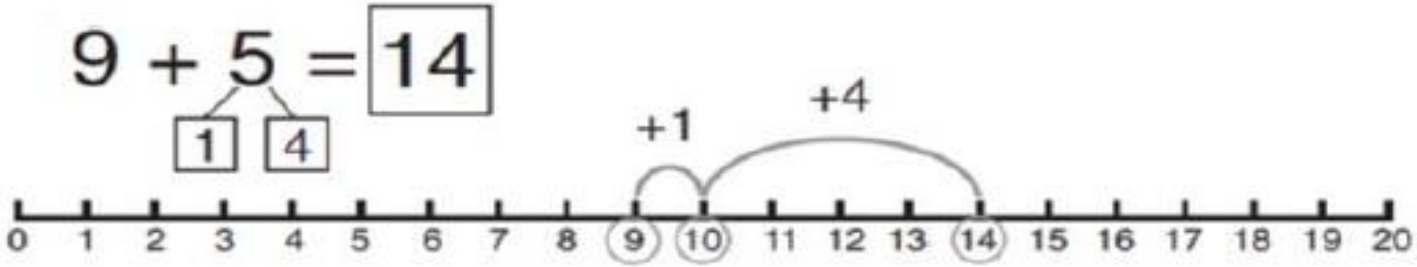
The colours of the beads on the bead string make it clear how many more need to be added to make ten.

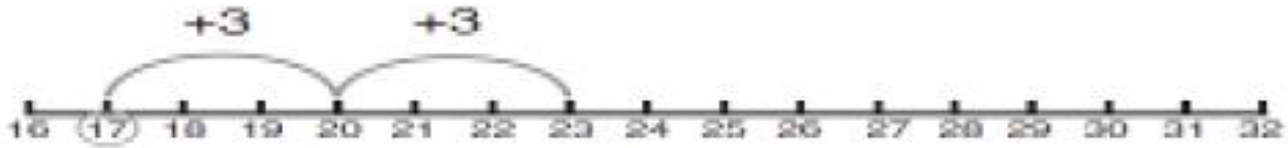
Also, the empty spaces on the ten frame make it clear how many more are needed to make ten.

6 + 5 = 11



4 + 9 = 13



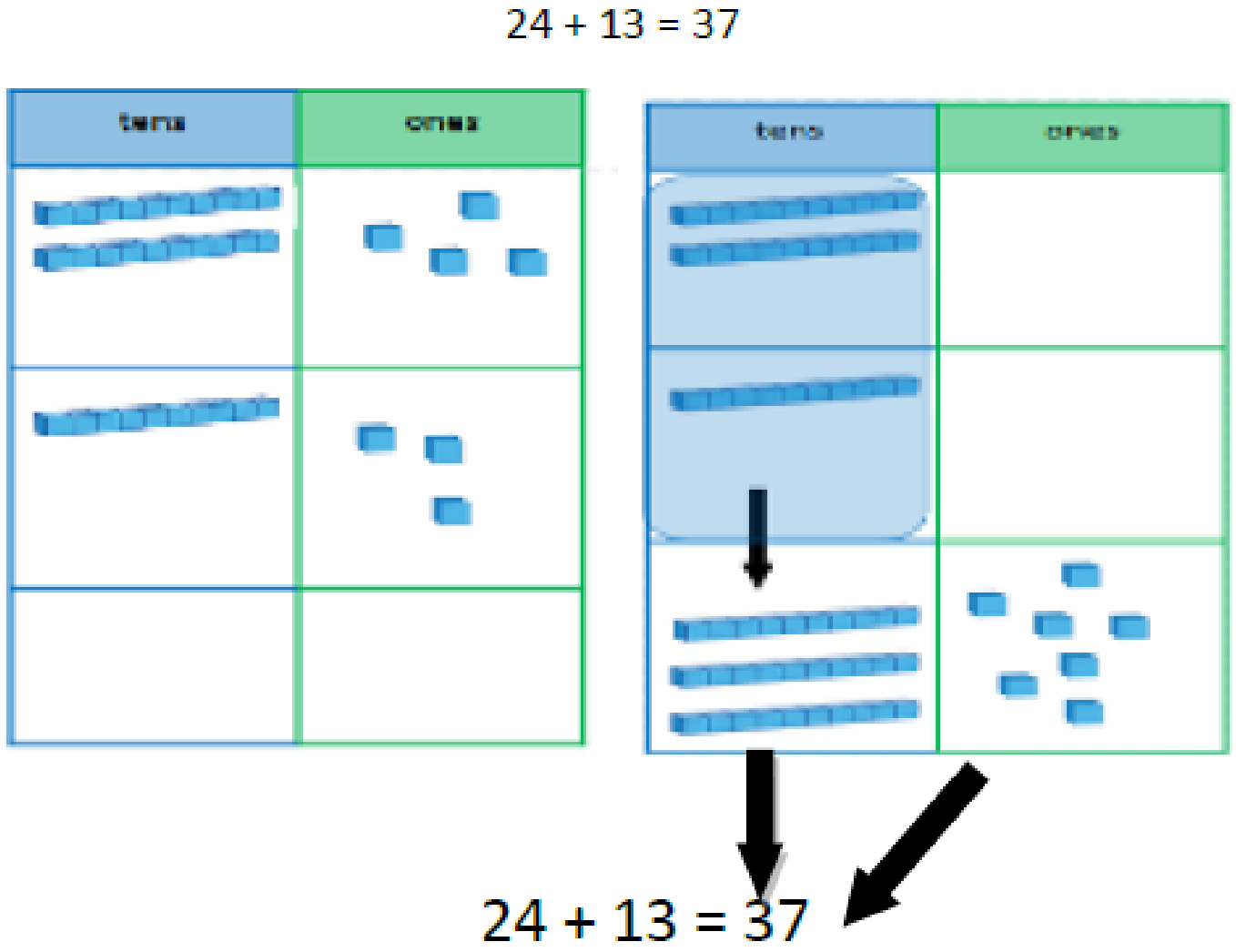


17 + 6 = 23

3 3

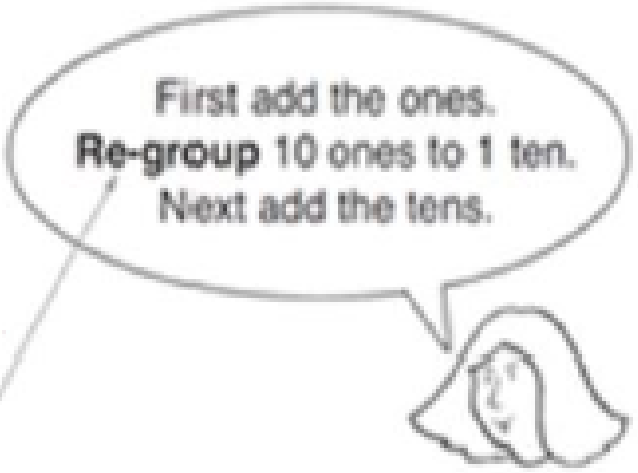
Partitioning to add (no regrouping)

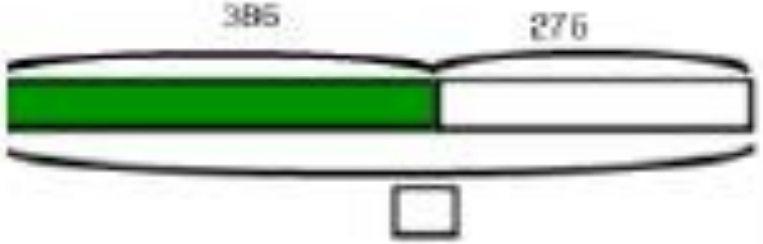
Place value grids and Dienes blocks could be used as shown in the diagram before moving onto pictorial representations. Dienes blocks should always be available, as the main focus in Year 1 is the concept of place value rather than mastering the procedure.



24 + 17

Tens	Ones
2	4
+ 1	7
1	





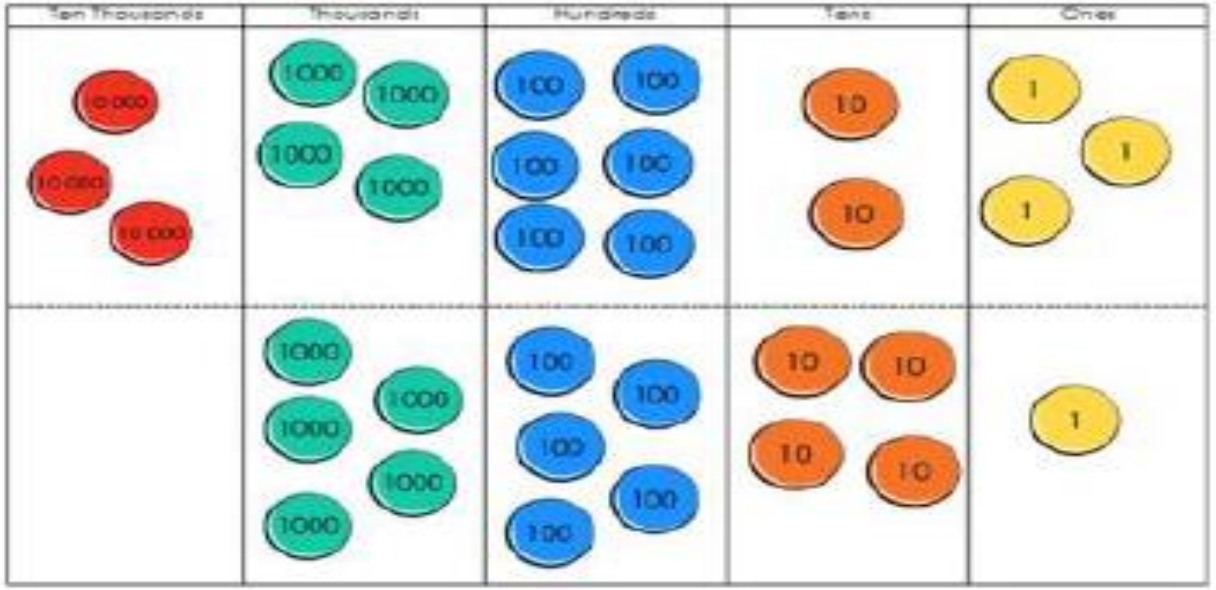
	2	7	5
+	3	8	6

+

=

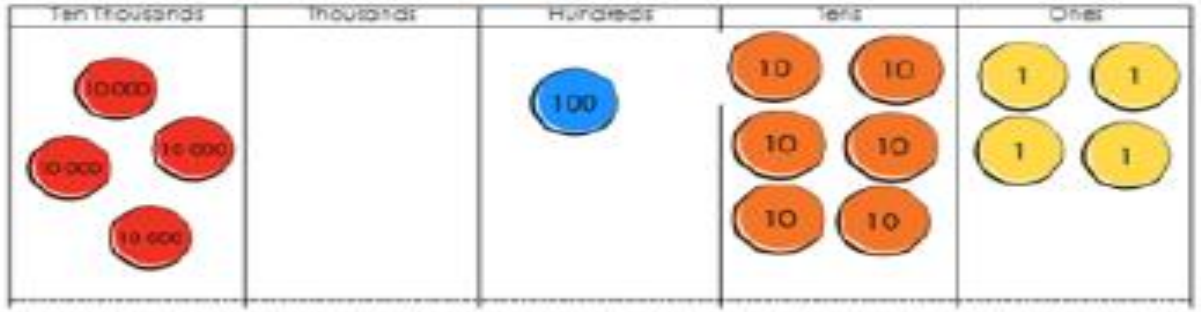
hundreds	tens	ones

	3	4	6	2	3
+		5	5	4	1



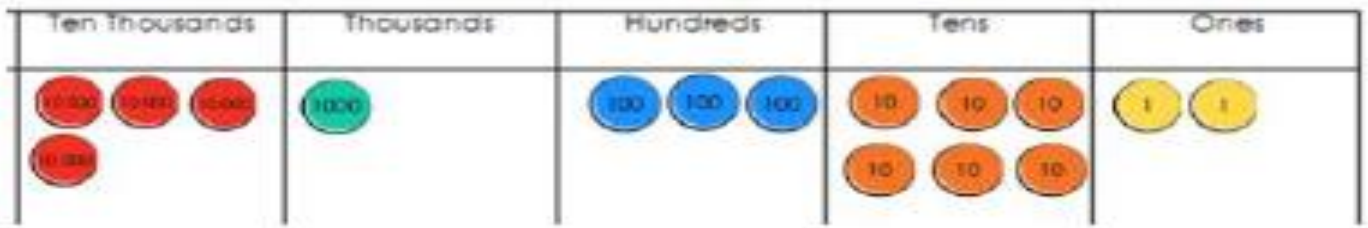
Combine the counters in each column and regroup as needed:

	3	4	6	2	3
+		5	5	4	1
	4	0	1	6	4

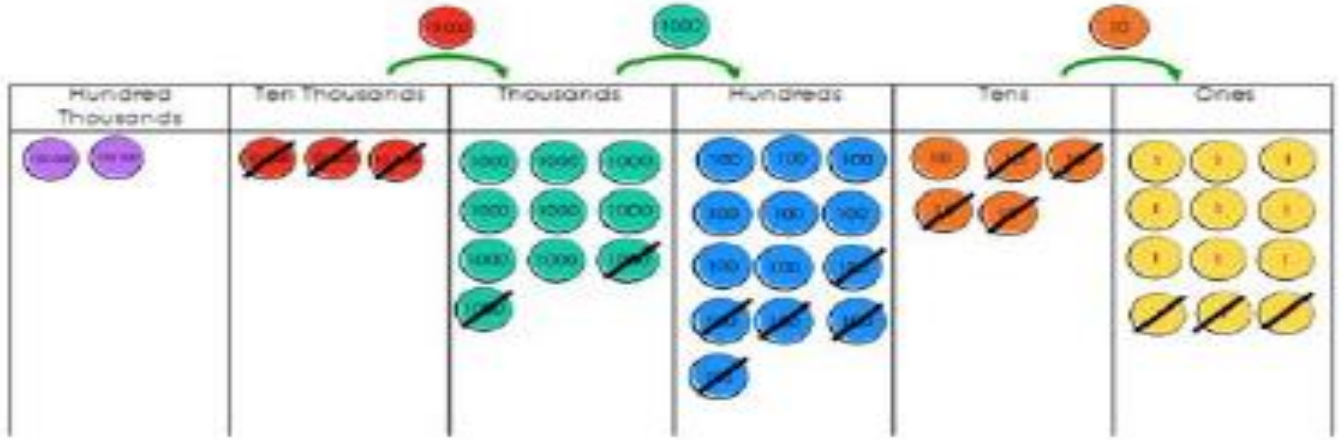


Subtraction

$$\begin{array}{r} 4\ 1\ 3\ 6\ 2 \\ -\ 3\ 2\ 2\ 4\ 3 \\ \hline \\ \hline \end{array}$$



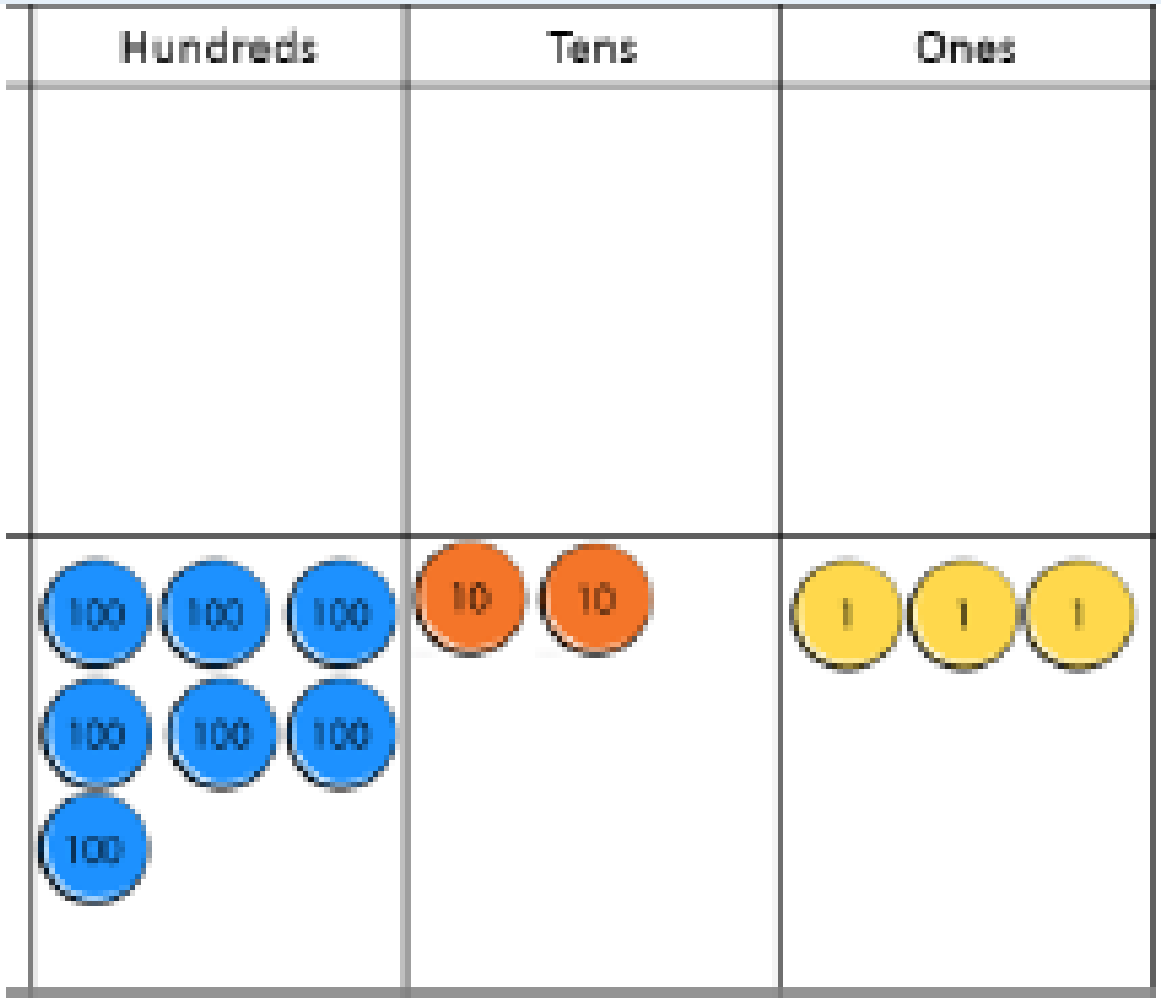
$$\begin{array}{r} {\scriptstyle 3}\not{4}\ {\scriptstyle 1}1\ 3\ {\scriptstyle 5}\not{6}\ {\scriptstyle 1}2 \\ -\ 3\ 2\ 2\ 4\ 3 \\ \hline 9\ 1\ 1\ 9 \\ \hline \end{array}$$



Multiplication

$$
\begin{array}{r}
241 \\
\times \quad 3 \\
\hline
723 \\
\hline
\end{array}
$$

1



Multiplying by a 2-digit number

Formal written method of long multiplication

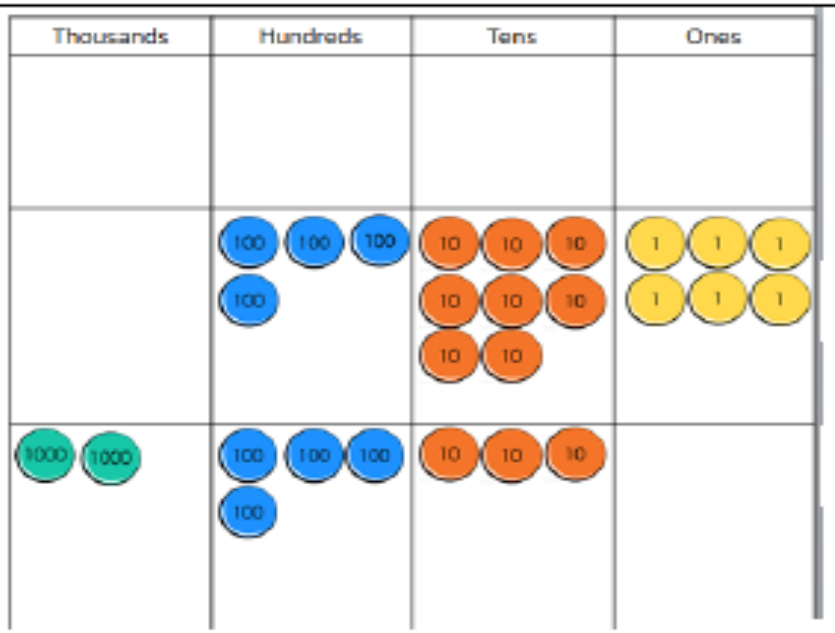
In Year 6 pupils are extended from multiplication by a 1-digit number to multiplication by a 2-digit number.

Extend the place value chart model used in Year 4, using an additional row on the place value chart.

Extend understanding of the distrubitive law to develop conceptual understanding of the two rows of the formal written method.

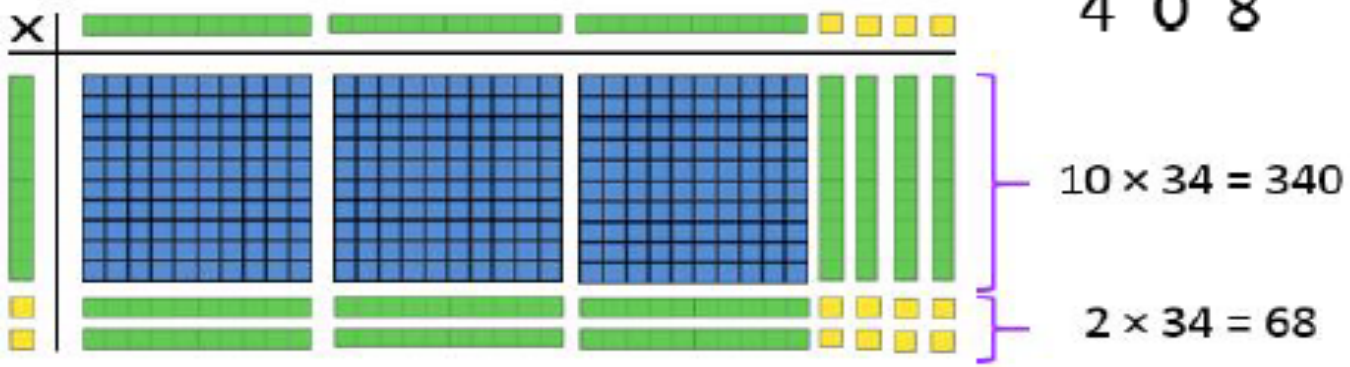
Dienes blocks can be used to construct area models to represent this.

```
  243
x  12
----
  486
 2430
----
```




```
  34
x 12
----
  68
 340
----
 408
```

12 × 34

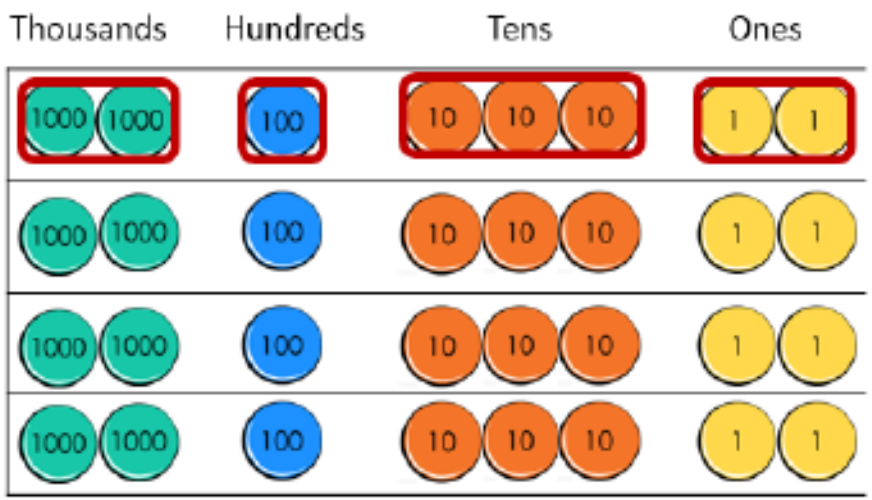


Division

8528 ÷ 4

$$\begin{array}{r} 2132 \\ 4\overline{)8\,5^{1}2\,8} \end{array}$$

Sharing



8 thousands shared into 4 equal groups

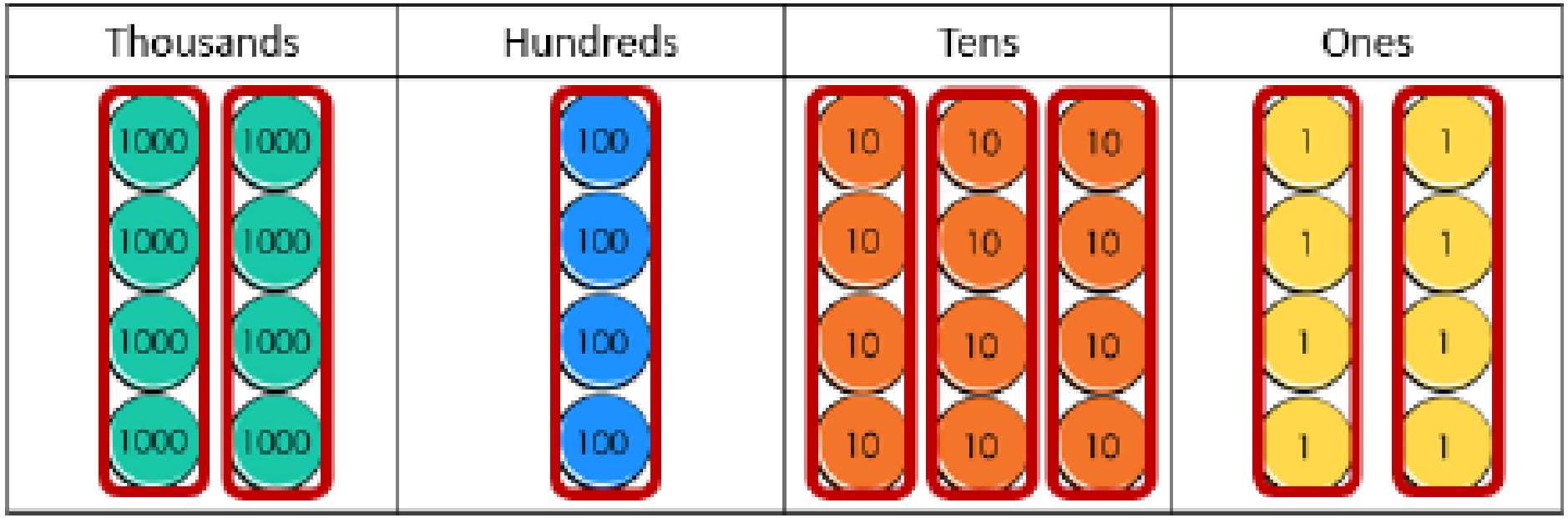
5 hundreds shared into 4 equal groups

Regroup 1 hundred for 10 tens

12 tens shared into 4 equal groups

8 ones shared into 4 equal groups.

Grouping



How many groups of 4 thousands in 8 thousands?

How many groups of 4 hundreds in 5 hundreds?

Regroup 1 hundred for 10 tens.

How many groups of 4 tens in 12 tens?

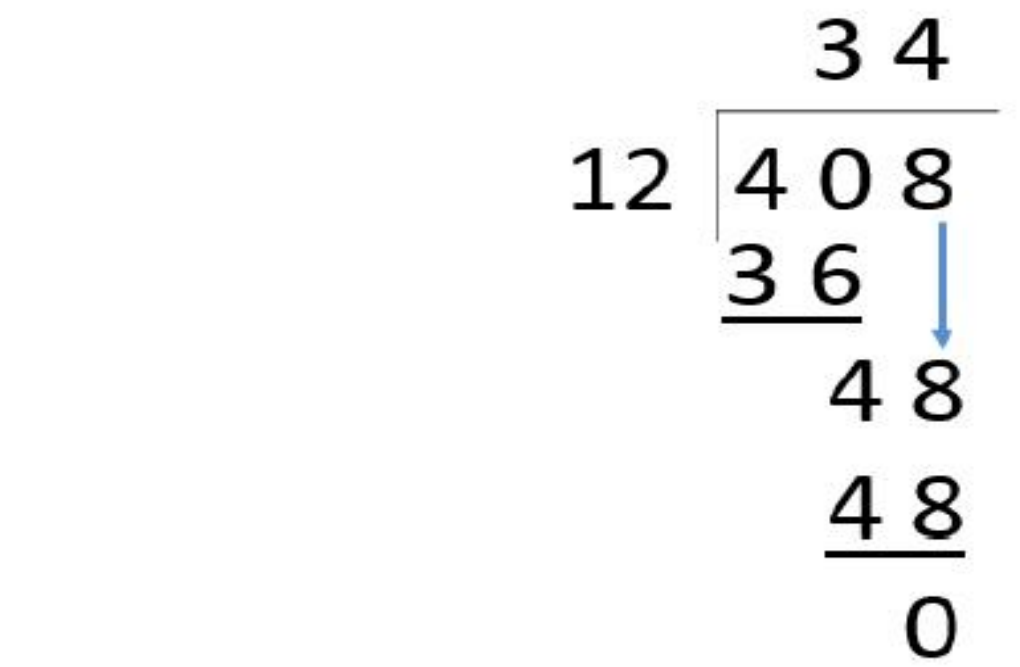
How many groups of 4 ones in 8 ones?

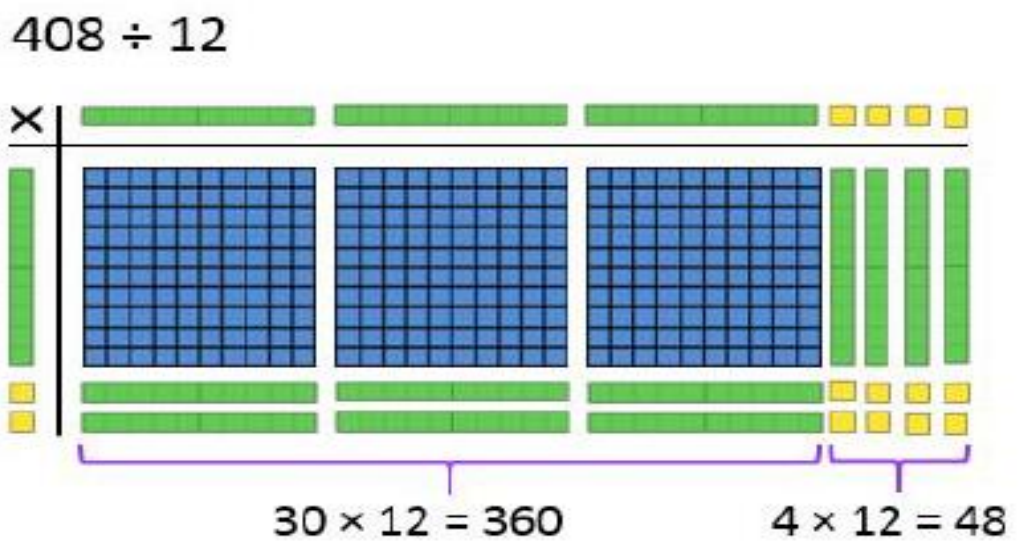
Long division

Dividing a 4-digit number by a 2-digit number

Follow the language structures of the short division strategy. Instead of recording the regrouped amounts as small digits the numbers are written out below. This can be easier to work with when dividing by larger numbers.

If dividing by a number outside of their known facts, pupils should start by recording some multiples of that number to scaffold.





How to help at Home

Top tips for parents and families:

Be positive about maths. Don't say things like "I can't do maths" or "I hated maths at school"; your child might start to think like that themselves.

Point out the maths in everyday life. Include your child in activities involving maths such as using money, cooking and travelling.

Praise your child for effort rather than talent - this shows them that by working hard they can always improve.

If you struggle with maths yourself - try our free online tool the National Numeracy Challenge to improve your maths level.

6-9 year olds

At this age, children are learning to...

- explain why they think something is correct
- count up to 100 and put numbers up to 100 in the correct order
- add and subtract
- recognise odd and even numbers
- name 2D and 3D shapes
- measure the lengths and weights of objects
- put events in the correct order, for example, giving instructions for a familiar journey
- collect information to work out answers to questions, for example, how do people travel to school?

Activities for 6-9 year olds

Around the house

Maths and money

Games

Out and about

Books and TV

Around the house

Tips & ideas

- **Talk about time.** For example, get them to work out what time you need to leave the house to get to school on time.
- **Cooking.** Measure ingredients and set the timer together. Get them to work out how much more food will you need if extra people are coming for dinner.
- **Talk about the shape and size of objects.** Look online for interesting facts, like tallest and shortest people, or biggest and smallest buildings etc.
- **When you are sharing food** like pizza or cake, ask your child to help you share it equally between the number of people eating.
- **Solve maths problems at home.** For example, ask them how many apples to buy at the shop and why, or how long will it take you to get to Gran's house if you go to the library on the way.
- **Collect information** and create a tally chart, for example to find out the family's favourite animal or fruit etc.
- **Make patterns** with objects, colouring pencils, paint or Play-Doh, and build structures with Lego or boxes.

Maths and money

Tips & ideas

- **Estimate.** At the shops ask your child to estimate how much 3 or 4 items will cost together.
- **Give them small amounts of pocket money.** For example, give them 50p a week and ask them what they think they can buy with it or, if they want to save for something bigger, how long will it take to reach their goal.
- **Talk about the items you buy.** Ask them which are more expensive, which are cheaper, which are heavier, and which are lighter etc.
- **Explore quantities** by asking them to think about how many different ways they can make £1. For example how many 10p coins do you need to make £1.
- **When you buy something**, get your child to hand you the correct money and check the change with them afterwards.

Games

Tips & ideas

- **Play with cards.** Take 2 cards and add the numbers together, the player with the highest number wins. Try it with subtraction, multiplication, and division too.
- **Play 'Think of a number'.** Think of a number between 0-100 and get them have to guess what it is They can ask questions like 'is it less than 20?'.
- **Play with blocks like Lego or Jenga.** Talk about the size, colour, shape, weight and texture of them, and create patterns and structures. Ask them to guess how many blocks they could pile up without them falling down and then build them up to see if they were correct.
- **Play with containers.** For example how many sweets are in the jar? Ask your child to guess and then count to see how close they were.
- **Pick an object** and give your child clues to find it by using directional language, such as up, down, over, under, between, through, beside, behind, in front of, and on top of. Make the game more challenging by giving more complicated directions e.g. 'It's on top of the table and to the left of the magazine'.
- **Play board games** like Connect 4, Jenga, Snakes and Ladders, PLYT or Dominos.
- **Ask your child to design their own board game and dice**. Play the game together and talk about the mathematical thinking, reasoning, or problem solving the game used.

Out and About

Tips & ideas

- **Go on a shape hunt.** How many circles, squares, rectangles or triangles can your child find? Are they 2D or 3D? Try getting them to look for patterns and symmetry.
- **Play outside games that use counting.** Hopscotch, hide and seek, What's the Time Mr Wolf, skipping or hula hooping are a great place to start. Practise times tables by counting in multiples e.g. 4, 8, 12, 16, or 7, 14, 21, 28.
- **Dance.** Ask your child to create dance routines along to their favourite songs.
- **Sport.** Sports are the perfect chance to think about speed, scores, time and angles. Get competitive; try out different angles to score from, ask them how many star jumps can they do in a minute.
- **Ask them to give you directions** to local landmarks or important places. Get to work out how long each stage of the journey takes.
- **Use sticks for shape challenges.** Ask them how many triangles can they make with 9 sticks etc.
- **Explore the local area.** Ask them to guess how many buildings do they think are on the street, how far is it to the nearest river or How many dogs and cats live in your town. Ask for the reasons behind their answers.

Books & TV

Books

For younger children (6-7):

- The Shopping Basket by John Burningham.
- 365 Penguins by Jean-Luc Fromental.
- We're Going on a Bear Hunt by Michael Rosen.
- The Girl Who Never Made Mistakes by Gary Rubinstein - great for teaching kids that it's OK to make mistakes and that you can learn from them.

For older children (8-9):

The Dangerous Book for Boys by Conn and Hal Iggulden., The Daring Book for Girls by Andrew J Buchanan and Miriam Peskowitz - Great activities that use maths like finding north, writing codes, making kites etc., Matilda by Roald Dahl., Danny the Champion of the World by Roald Dahl - how many pheasants did they catch?

Books & TV

Radio

BBC Megamaths is a radio show about a team of detectives on a maths mission to solve mental maths problems.

TV and film

Whatever they're watching, there's opportunities to talk about maths. Ask them questions, such as how fast are the cars going in Top Gear, how many votes are being cast on Strictly Come Dancing or how many years ago did the people on Gory Games live?

On a post It note:

1. Write something new that you have learnt

2. Write one target about Maths that you will take away with you and focus on with your child.

Thank You for Joining Me Today