



# Giles Brook Primary School

The Four Operations



GILES BROOK SCHOOL

Telephone: 01908 507627

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# Learning

## At The Heart Of The Community

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- [SUBJECTS](#)
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Latest News

Term Dates

Curriculum

<https://www.gilesbrook.co.uk/curriculum/subjects/>



Lower Phase



Upper Phase



Maths Information Evenings



Maths Videos



Printable 12 x 12 Table Grid



Printable Times Tables Lists



Multiplication Triangles for Learning Products and Factors



Giles Brook School Mathematics Calculation Policy



National Curriculum Mathematics

GBS - Calculation video table

Addition	Subtraction	Multiplication	Division	Fractions, Decimals & Percentage		
Concrete and pictorial resources <a href="https://www.youtube.com/watch?v=KNI2uP8VBM0&amp;list=PLApB0B2tXnj7y3ls-KXwwpJDX511kNo_I&amp;index=8">https://www.youtube.com/watch?v=KNI2uP8VBM0&amp;list=PLApB0B2tXnj7y3ls-KXwwpJDX511kNo_I&amp;index=8</a>	Subtraction using a 10 frame <a href="https://www.youtube.com/watch?v=Cc4wrkXsKj8">https://www.youtube.com/watch?v=Cc4wrkXsKj8</a>	Repeated addition on a number line <a href="https://www.youtube.com/watch?v=wksK99VN7Cs">https://www.youtube.com/watch?v=wksK99VN7Cs</a>	Sharing equally using arrays <a href="https://www.youtube.com/watch?v=mwig70aQuHl&amp;list=PLZXaB-dpg4g0v8JWmltV1hYieAOp0GAPQ&amp;index=2">https://www.youtube.com/watch?v=mwig70aQuHl&amp;list=PLZXaB-dpg4g0v8JWmltV1hYieAOp0GAPQ&amp;index=2</a>	What are fractions? <a href="https://www.youtube.com/watch?v=Cy2qMba9ruk">https://www.youtube.com/watch?v=Cy2qMba9ruk</a>	Finding fractions of amounts of objects and numbers <a href="https://www.youtube.com/watch?v=TXJOIs7vXMs">https://www.youtube.com/watch?v=TXJOIs7vXMs</a>	Equivalent fractions <a href="https://www.youtube.com/watch?v=gchHhd6HizI">https://www.youtube.com/watch?v=gchHhd6HizI</a>
Number line <a href="https://www.youtube.com/watch?v=6i1XG26XgKQ&amp;list=PLApB0B2tXnj7y3ls-KXwwpJDX511kNo_I&amp;index=11">https://www.youtube.com/watch?v=6i1XG26XgKQ&amp;list=PLApB0B2tXnj7y3ls-KXwwpJDX511kNo_I&amp;index=11</a>	Number line <a href="https://www.youtube.com/watch?v=hES1mvRqvp4">https://www.youtube.com/watch?v=hES1mvRqvp4</a>	Arrays <a href="https://www.youtube.com/watch?v=XOyQVDMjUdo">https://www.youtube.com/watch?v=XOyQVDMjUdo</a>	Short division <a href="https://www.bbc.co.uk/bitesize/topics/z36tyrd/articles/zgxdfcw">https://www.bbc.co.uk/bitesize/topics/z36tyrd/articles/zgxdfcw</a>	Adding and subtracting fractions <a href="https://www.bbc.co.uk/bitesize/topics/zhdwxnb/articles/z9n4k7h">https://www.bbc.co.uk/bitesize/topics/zhdwxnb/articles/z9n4k7h</a>	Multiplying fractions <a href="https://farnboroughprimary.co.uk/wp-content/uploads/2020/04/Multiplying-Fractions-Landscape.mp4?_t=3">https://farnboroughprimary.co.uk/wp-content/uploads/2020/04/Multiplying-Fractions-Landscape.mp4?_t=3</a>	Dividing fractions by integers <a href="https://www.bbc.co.uk/bitesize/articles/zhw8wtly">https://www.bbc.co.uk/bitesize/articles/zhw8wtly</a>
Formal written method <a href="https://www.youtube.com/watch?v=iwNA3uEC14I">https://www.youtube.com/watch?v=iwNA3uEC14I</a>	Formal written method <a href="https://www.bbc.co.uk/bitesize/topics/zy2mn39/articles/zc78srd">https://www.bbc.co.uk/bitesize/topics/zy2mn39/articles/zc78srd</a>	Short multiplication ( x a single digit) <a href="https://www.youtube.com/watch?v=k68CPfchTE">https://www.youtube.com/watch?v=k68CPfchTE</a>	Long Division <a href="https://www.youtube.com/watch?v=ZFYLSouUMYs4&amp;t=93s">https://www.youtube.com/watch?v=ZFYLSouUMYs4&amp;t=93s</a>	Converting improper fractions to mixed numbers <a href="https://www.bbc.co.uk/bitesize/articles/z4ypscw">https://www.bbc.co.uk/bitesize/articles/z4ypscw</a>	Decimals explained <a href="https://www.youtube.com/watch?v=t9vqm2eM5mk">https://www.youtube.com/watch?v=t9vqm2eM5mk</a>	Compare and order decimals <a href="https://www.bbc.co.uk/bitesize/articles/zqn7wnb">https://www.bbc.co.uk/bitesize/articles/zqn7wnb</a>
		Long multiplication ( x by 2 digits or more) <a href="https://farnboroughprimary.co.uk/wp-content/uploads/2020/04/Long-Multiplication_Training.mp4?_t=2">https://farnboroughprimary.co.uk/wp-content/uploads/2020/04/Long-Multiplication_Training.mp4?_t=2</a>	Multiplying and dividing by 0, 1, 10 and 100 <a href="https://www.bbc.co.uk/bitesize/topics/z36tyrd/articles/z2fkwx">https://www.bbc.co.uk/bitesize/topics/z36tyrd/articles/z2fkwx</a>	Fractions to decimals <a href="https://www.youtube.com/watch?v=mtX8mhHtarc&amp;list=PLZXaB-dpg4g03cgU7eOGVfz9iOkAhtK9X&amp;index=3">https://www.youtube.com/watch?v=mtX8mhHtarc&amp;list=PLZXaB-dpg4g03cgU7eOGVfz9iOkAhtK9X&amp;index=3</a>	Adding and subtracting decimals <a href="https://www.bbc.co.uk/bitesize/articles/zyhcbqt">https://www.bbc.co.uk/bitesize/articles/zyhcbqt</a>	Multiplying decimals by a whole number <a href="https://www.youtube.com/watch?v=BAwkn4hGGyq">https://www.youtube.com/watch?v=BAwkn4hGGyq</a>
				Percentages explained <a href="https://www.bbc.co.uk/bitesize/topics/zniqtfr/articles/z8ws3k7">https://www.bbc.co.uk/bitesize/topics/zniqtfr/articles/z8ws3k7</a>	Equivalent fractions, decimals and percentages <a href="https://www.youtube.com/watch?v=0A1TcfW7nFo&amp;list=PLZXaB-dpg4g03cgU7eOGVfz9iOkAhtK9X&amp;index=4">https://www.youtube.com/watch?v=0A1TcfW7nFo&amp;list=PLZXaB-dpg4g03cgU7eOGVfz9iOkAhtK9X&amp;index=4</a>	Finding percentage of an amount <a href="https://www.bbc.co.uk/bitesize/articles/zvxn82">https://www.bbc.co.uk/bitesize/articles/zvxn82</a>



*Value*

*Belief*

**EFFORT**



# A Mastery approach to teaching Mathematics....

- Small steps
- Aim to be secure in knowledge and understanding of a concept
- All children receive the same teaching
- Teachers adapt where necessary to support anyone struggling or encourage greater depth



# Our calculation policy...

- Show progression of C.P.A.
- Links to a mastery approach
- Gives suggestions/guidance on key methods

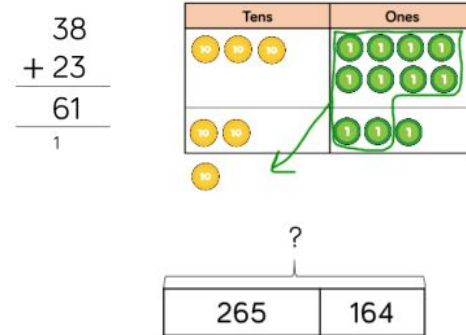
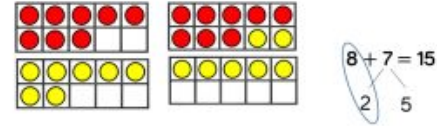


## Addition

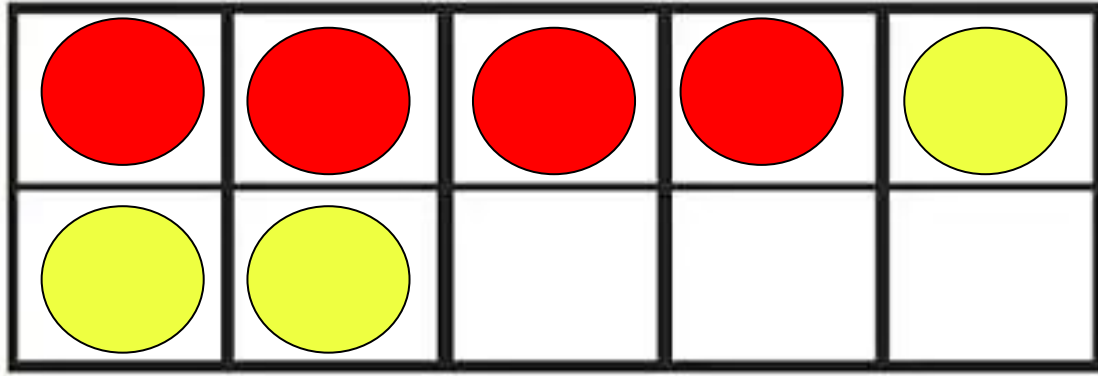
Year Group	Information	Methods
1	<p><u>Progression Statement</u>                      -adding 1 digit numbers within 10.                      -adding 1 and 2 digits to 20.</p> <p><u>Use of Methods</u>                      These models support children in understanding partitioning, counting on and back, learning and applying number bonds to and within 10 and 20. Concrete resources and pictorial representations should be used alongside abstract methods such as part-whole and number lines.</p> <p><u>EOY Expectations</u>                      By the end of the year, children should be able to answer a range of addition and subtraction questions that use these representations as well as abstract (digits and symbols) representation.</p> <p>They should also be able to solve missing number problems such as <math>9 = \_ + 5</math> when using resources, counting out the total amount, finding the known number and then counting what is left. It is important to verbalise processes like this in a STEM sentence.</p>	

For each operation we will look at how some of the following methods could be used:

- Tens frame
- Place value chart
- Bar model
- Formal written method



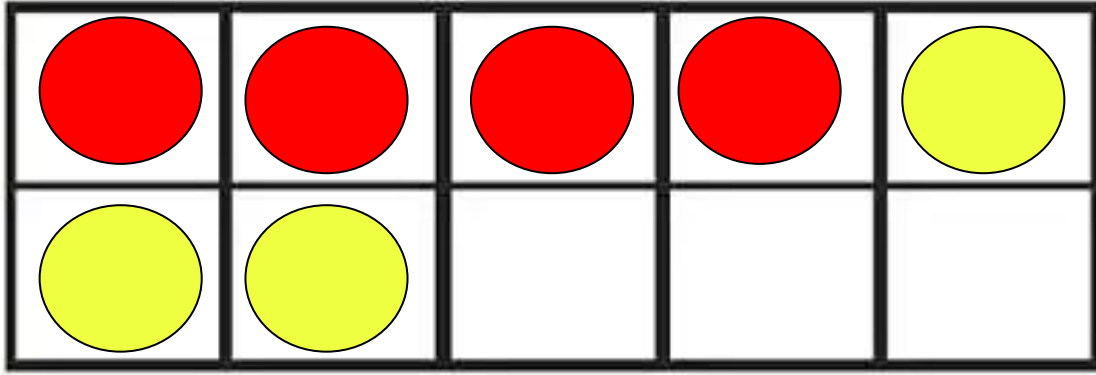
Addition - tens frame  $4 + 3 = 7$



$$4 + 1 + 2 = 7$$

Addition

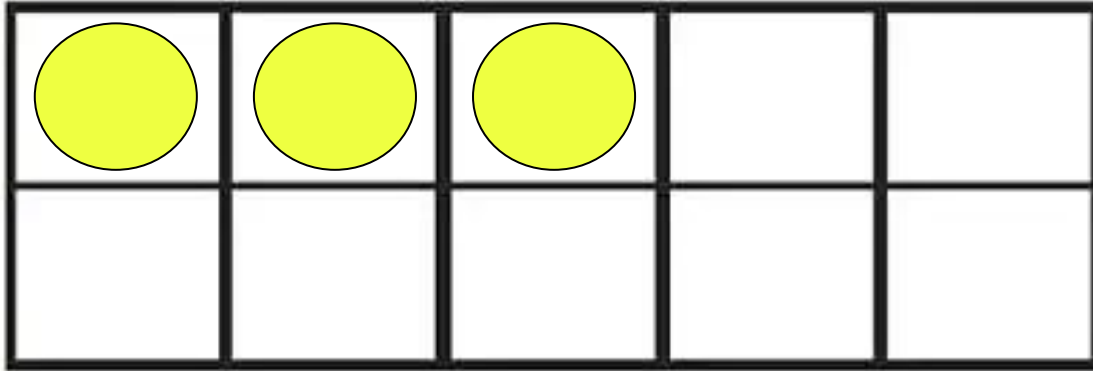
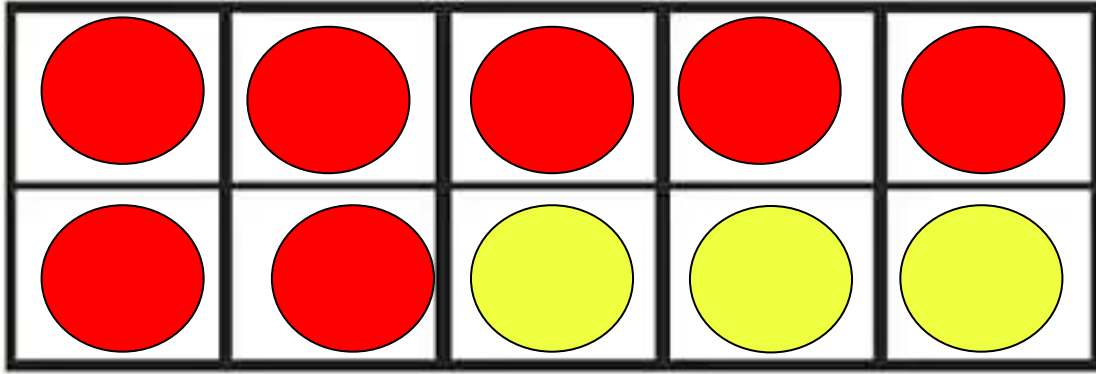
$$40 + 30 = 70$$



$$40 + 10 + 20 = 70$$

Addition

$$7 + 6 = 13$$

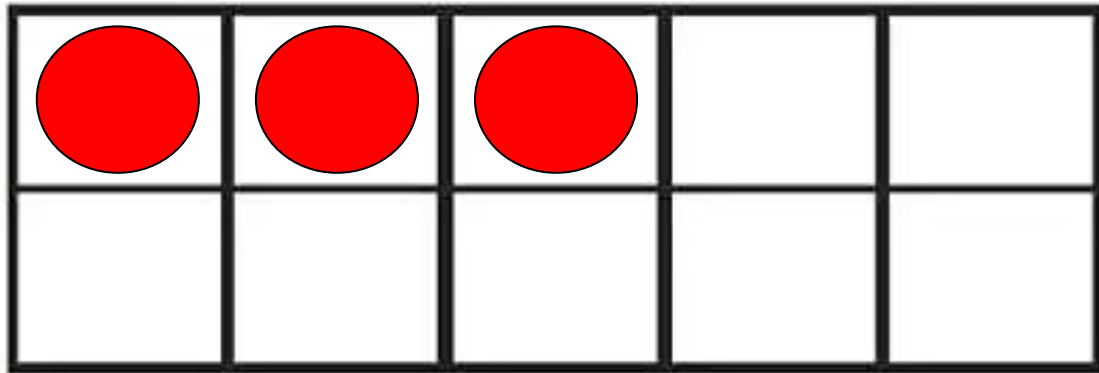
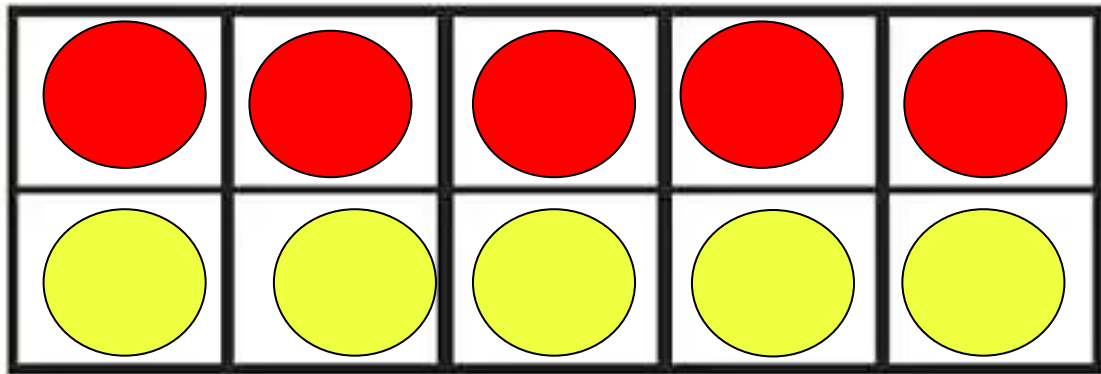


$$7 + 3 = 10$$

$$+ 3 = 13$$

Subtraction

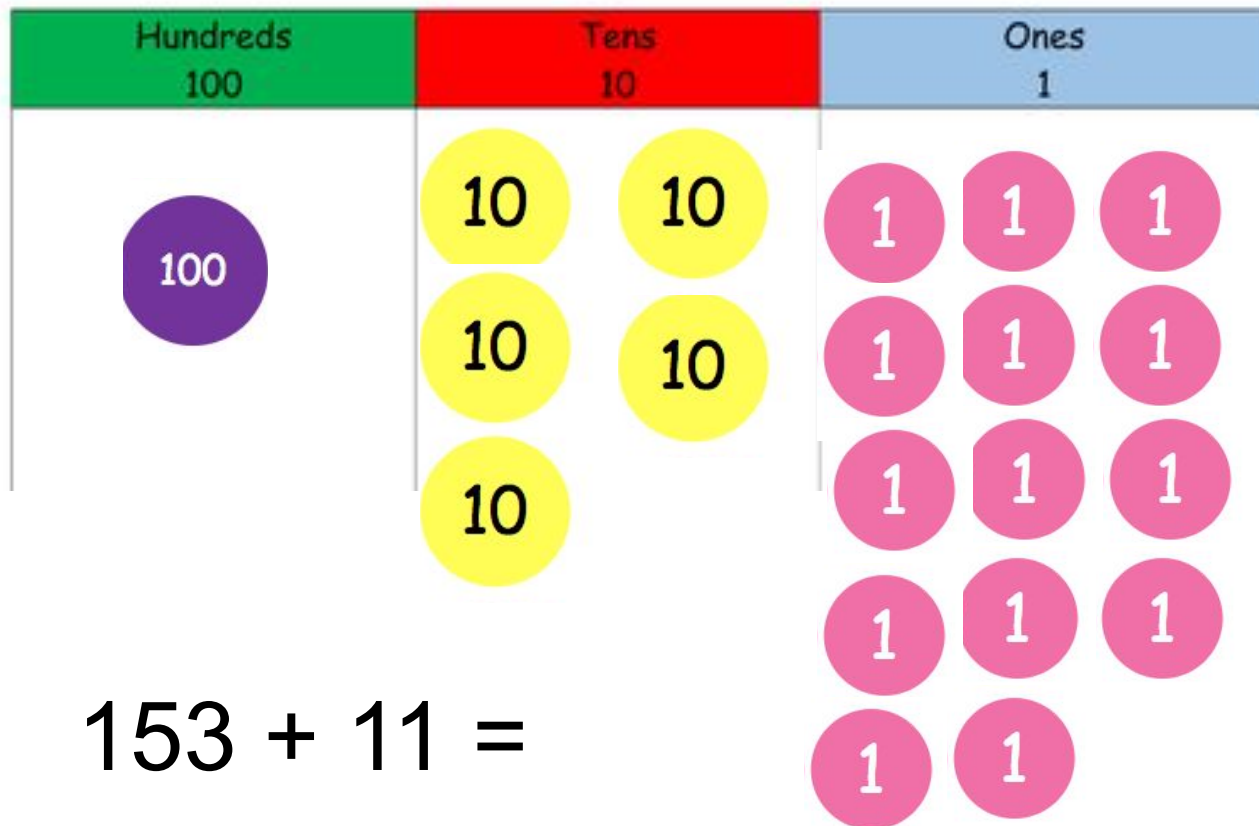
$$13 - 5 = 8$$



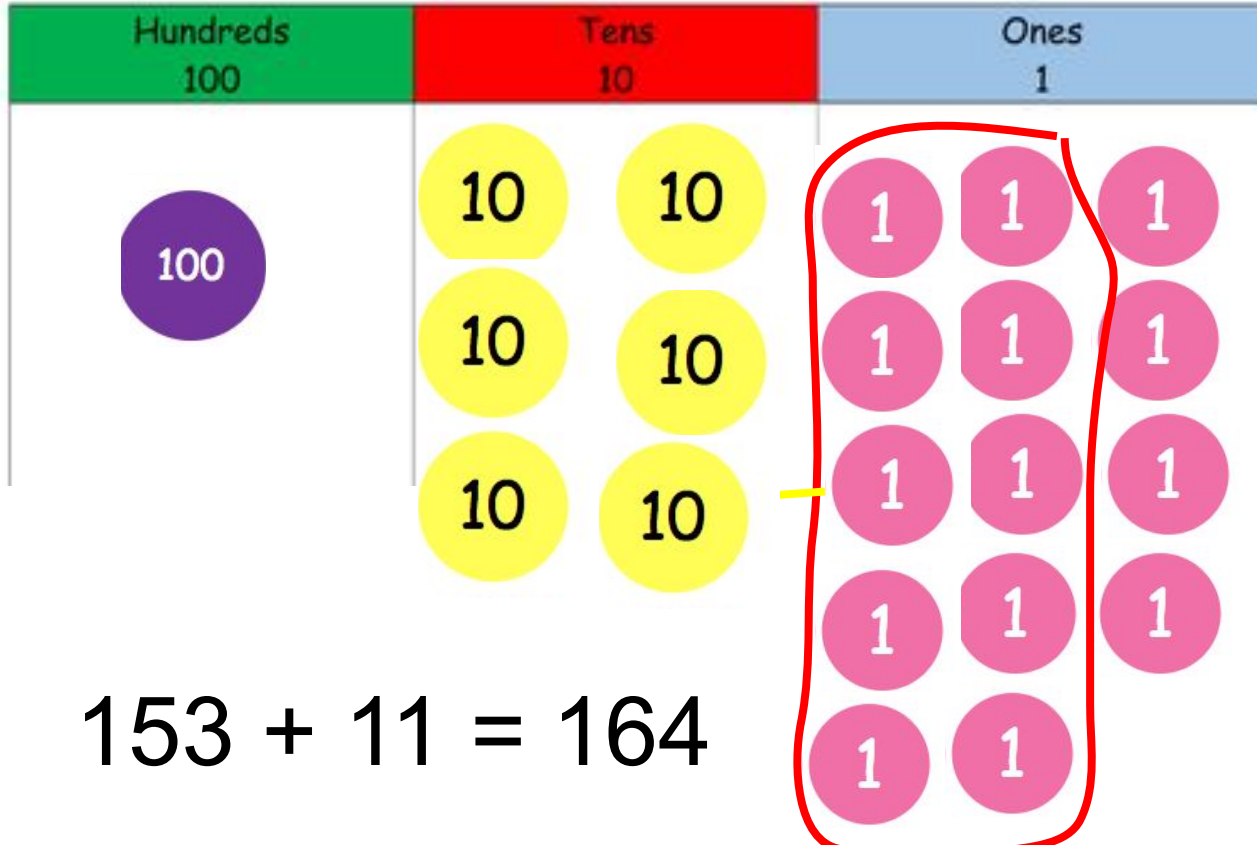




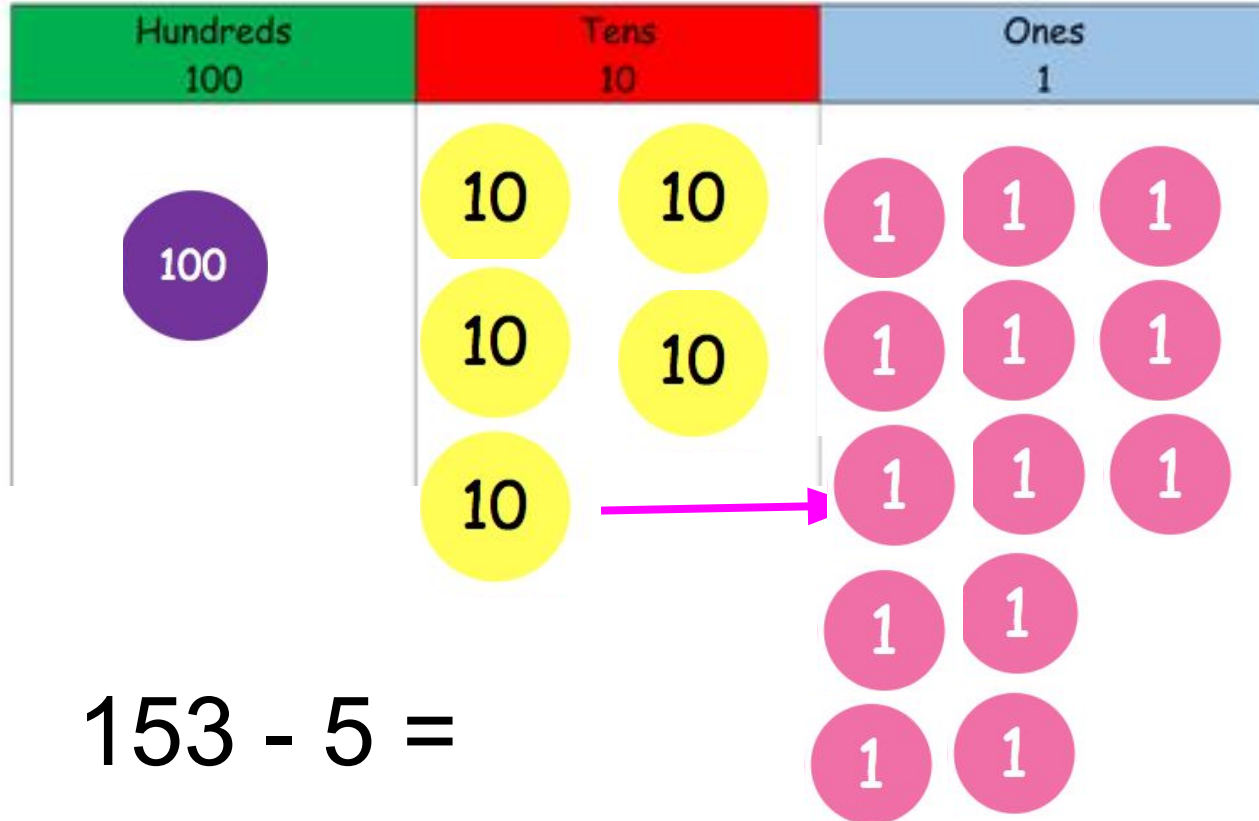
# Addition - Place Value Chart



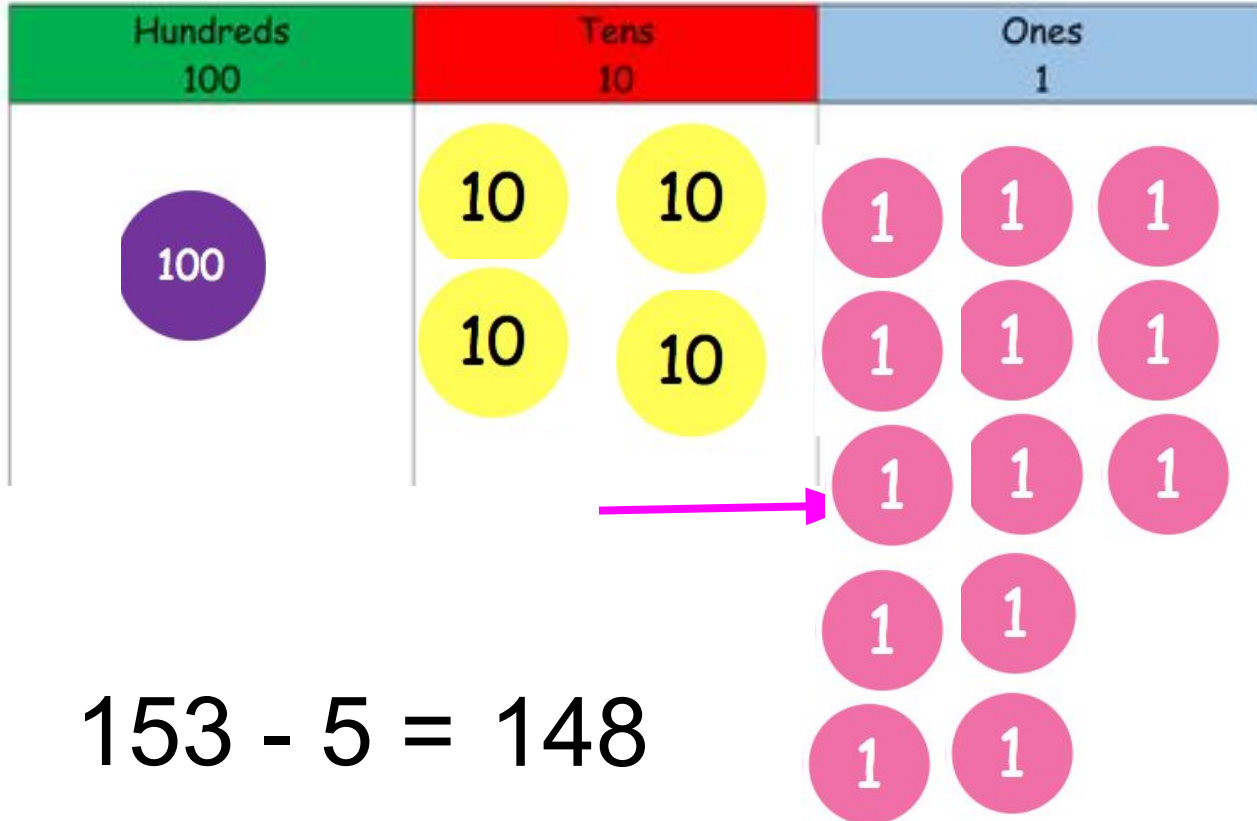
# Addition - Place Value Chart



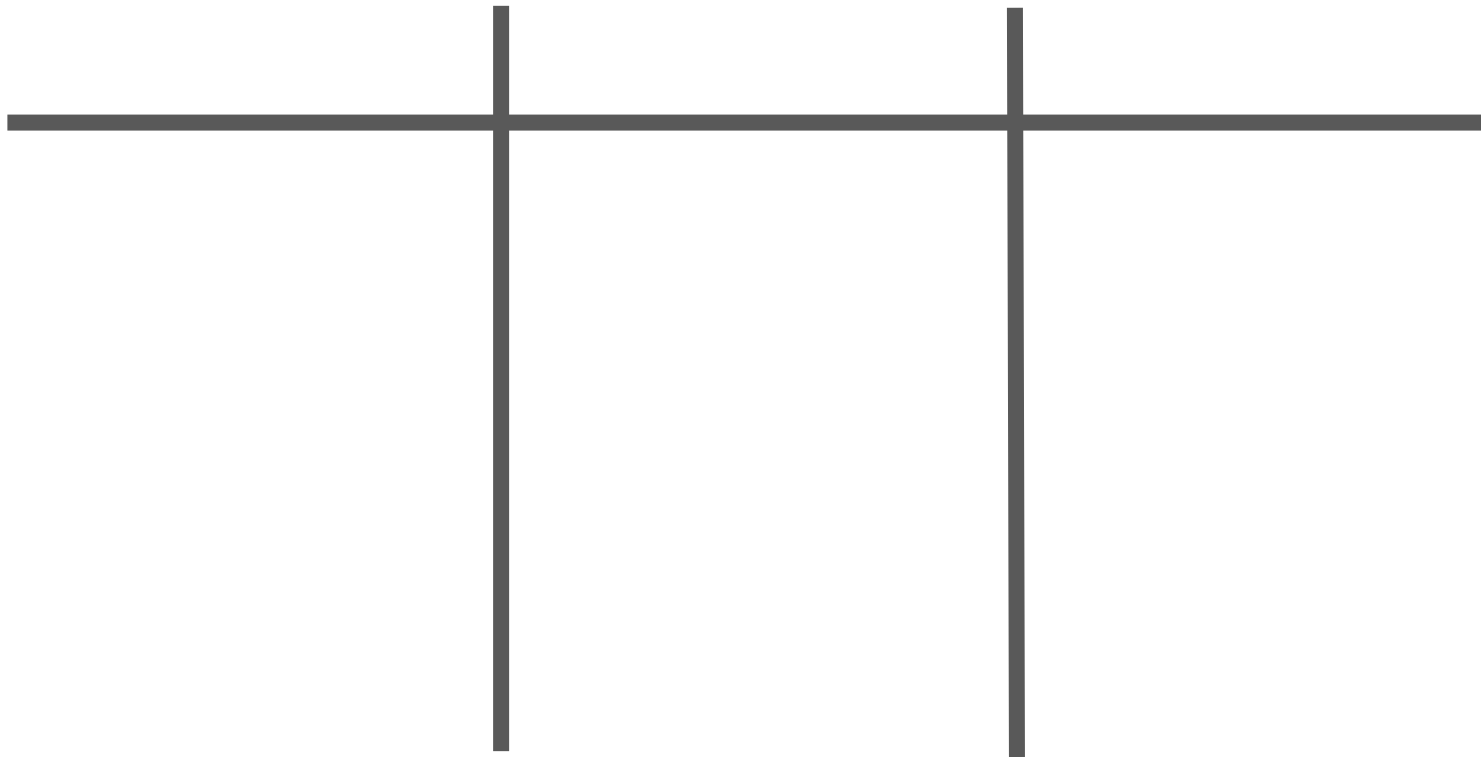
# Subtraction - Place Value Chart



# Subtraction - Place Value Chart



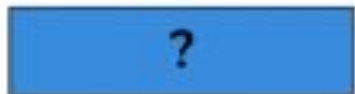
$124 + 9 =$



# Bar Model

## ADDITION

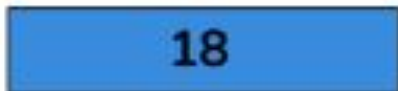
$$3 + 4 = ?$$



$$3 + 4 = 7$$

## SUBTRACTION

$$18 - 3 = ?$$



$$18 - 3 = 15$$

## MULTIPLICATION

$$4 \times 5 = ?$$



{            ?            }

$$4 \times 5 = 20$$

## DIVISION

$$27 \div 9 = ?$$



$$27 \div 9 = 3$$

A cake costs twice as much as a drink.



The total cost of a cake and a drink is £6

How much does a cake cost?



# Column Addition

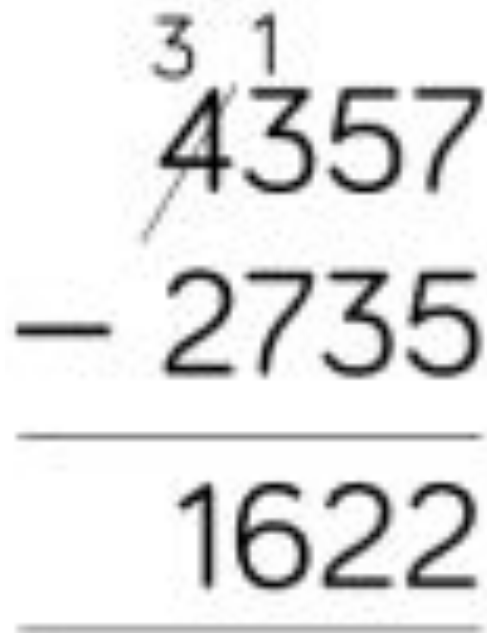
	1	3	7	8
+	2	1	4	8
<hr/>				
	3	5	2	6
		1	1	

Exchanges



Column Subtraction

Exchanges



The diagram shows a column subtraction problem:  $4357 - 2735 = 1622$ . The number 4357 is written with a diagonal slash through the 4 and 3. Above the 3 is a '3' and above the 5 is a '1'. An arrow points from the word 'Exchanges' to the '3' above the 3. A horizontal line is drawn below the 2735, and another horizontal line is drawn below the 1622.

$$\begin{array}{r} \overset{3}{\cancel{4}}\overset{1}{3}57 \\ - 2735 \\ \hline 1622 \\ \hline \end{array}$$

## Short Multiplication

	Th	H	T	O
	1	8	2	6
×				3
	5	4	7	8
	2		1	

## Long Multiplication

	Th	H	T	O
		2	3	4
×			3	2
		4	6	8
<sub>1</sub> 7	<sub>1</sub> 0	2	0	
7	4	8	8	

Include a placeholder before completing this row of calculations.

## Short Division

		2	1	4
	4	8	5	16

## Long Division

$$\begin{array}{r}
 00617 \\
 73 \overline{) 45041} \\
 \underline{-438} \phantom{1} \\
 124 \phantom{1} \\
 \underline{-73} \phantom{1} \\
 511
 \end{array}$$

The long division process shows the following steps:

- Divide 45041 by 73. The quotient is 617.
- Subtract 438 from 450 to get 124.
- Bring down the next digit (1) to get 1241.
- Subtract 73 from 124 to get 511.

The final result is 617.

# Thank you for coming!



Please complete this feedback form:

<https://forms.gle/XxrD7bhFwY9qzi6d9>