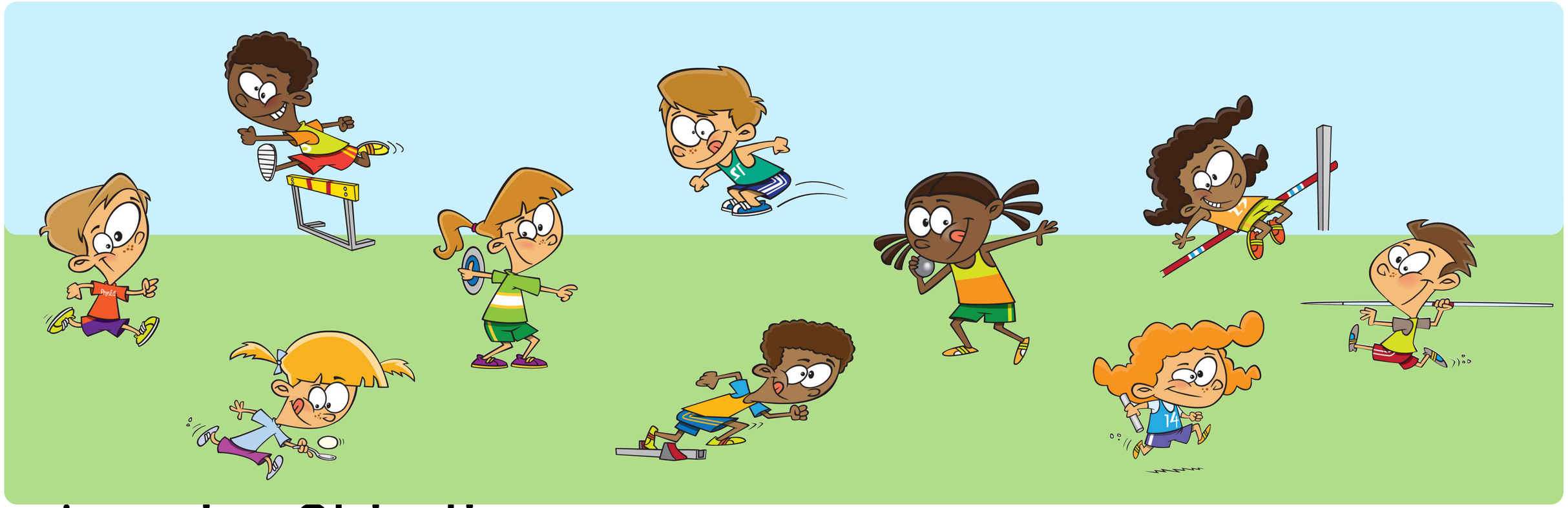
Using Addition and Subtraction 1



Learning Objective:

To use the formal method for addition, including carrying more than once

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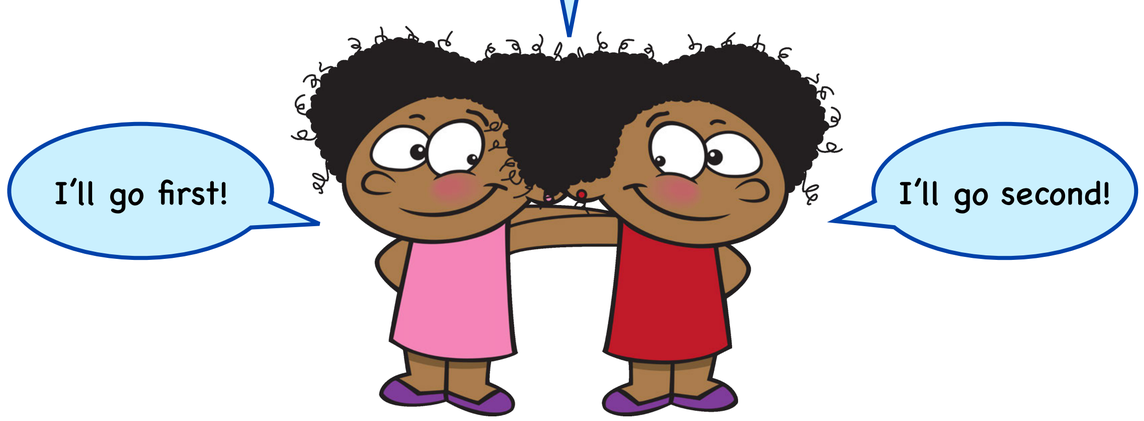
With a partner, take it in turns to solve each step of this column addition, **explaining** to each other what you are doing and why. Decide who is going to go first, and who is going to go second.



	H	T	O
	7	6	4
+	5	2	8

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Did you solve it correctly together? Well done!

Which step do you think was the trickiest, and why?

Think, pair, then share your ideas.

	H	T	O
	7	6	4
+	5	2	8
1	2	9	2
		1	

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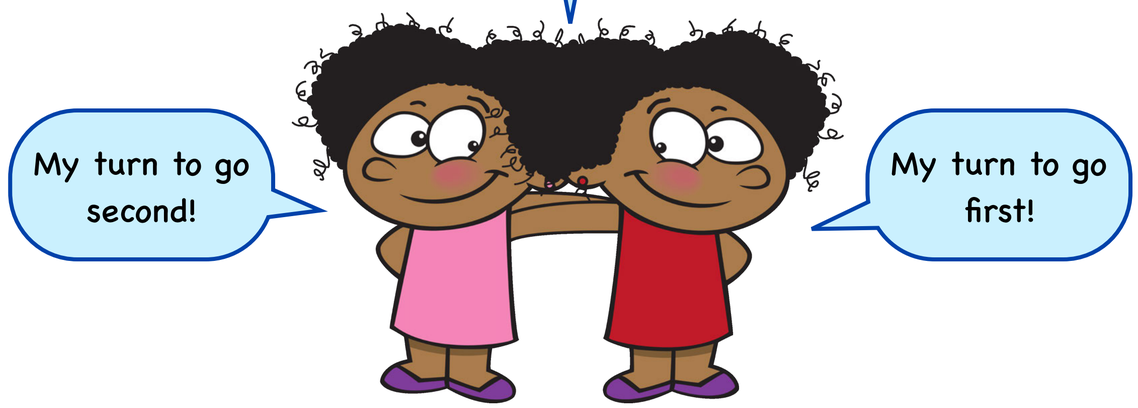
	H	T	O
	2	4	3
+	9	1	7

OK, now try this one in your pairs. This time, the person who went first last time needs to go second, and the person who went second needs to go first.



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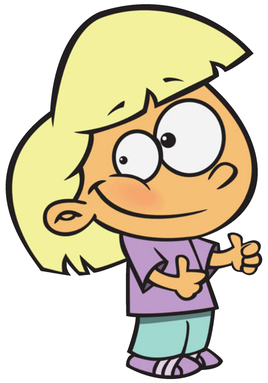
	H	T	O
	2	4	3
+	9	1	7
1	1	6	0
		1	



Did you solve it correctly together? Well done!

How confident do you feel at solving addition problems with the column method?

Think, pair, then share your ideas.

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Can you help me?

I've started to solve this column addition, and I've remembered to put the tens digit under the line... but now the next column adds up to over nine too!

What should I do next?

Think, pair, then share your ideas.

	H	T	O
	2	6	7
+	5	6	5
			2
		1	

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First, we add up all the numbers in the tens column (including the 10 under the line), which gives us a total of 13.

This 13 actually represents 130, as we have really added 60, 60 and 10 together. So, the '3' digit (which represents 30) is put in the tens column...

...and the '1' digit (which represents 100) is put **under** the line in the hundreds column.

	H	T	O
	2	6	7
+	5	6	5
		3	2
	1	1	

Do you know what the final answer is?

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	H	T	O
	2	6	7
+	5	6	5
	8	3	2
	1	1	

Did you work out the final answer correctly? Great!

Do you think you could solve more addition number sentences like this?

Let's find out!

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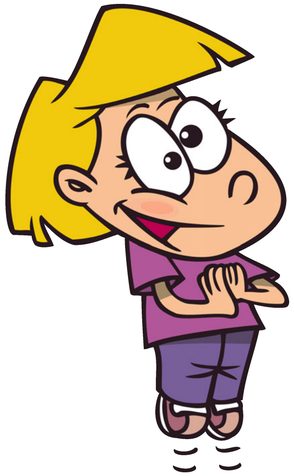

Choose one of these column additions, and solve it with a partner. Explain each step clearly.

$$\begin{array}{r} 598 \\ +\ 243 \\ \hline \\ \hline \end{array} \qquad \begin{array}{r} 605 \\ +\ 298 \\ \hline \\ \hline \end{array}$$

Now solve the other column addition by yourself!

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Did you manage to work out both of the answers correctly?
Excellent addition skills!

	5	9	8
+	2	4	3
	8	4	1
	1	1	

	6	0	5
+	2	9	8
	9	0	3
	1	1	

What does each number **under the line** represent?
Think, pair, then share your answers.

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Each of these column addition solutions are incorrect. An error has been made at some point in the calculations. Can you spot each mistake?

	H	T	O
	3	2	9
+	4	8	6
	7	1	5
		1	

	H	T	O
	5	6	4
+	1	9	7
	7	6	2
	1	1	

	H	T	O
	2	6	5
+	4	4	8
	7	0	3
		1	

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Did you spot them all?!

	H	T	O
	3	2	9
+	4	8	6
	7	1	5
	○	1	

The '1' (representing 100) from the addition of the tens column digits has not been passed on and put under the line.

	H	T	O
	5	6	4
+	1	9	7
	7	6	2
	1	1	

The addition of the digits in the ones column is incorrect - 4 + 7 = 11, not 12.

	H	T	O
	2	6	5
+	4	4	8
	7	0	3
	1	○	

The '1' (representing ten) from the addition of the ones column digits has not been passed on and put under the line.

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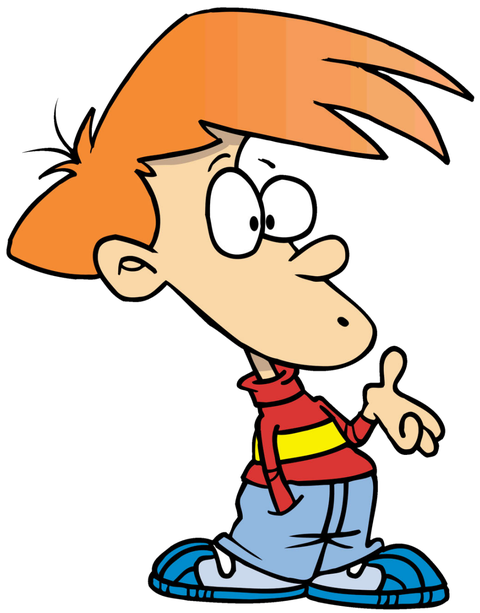
356 + 245 + 227



Can we solve this number sentence using the formal method of column addition?

How could we do it?

Think, pair, then share your ideas.

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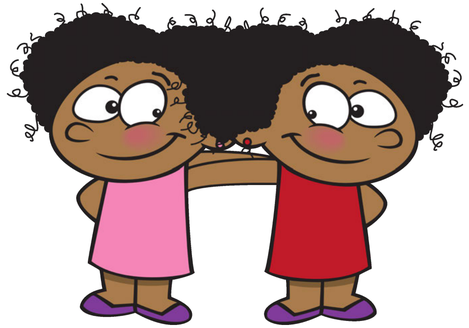
356 + 245 + 227

One way we could solve this number sentence using the column method is to break it down into **two steps**:

Add the **first two** numbers together...



...then add this **answer** to the **third** number.

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

```
  6 0 1
+ 2 2 7
-------
  8 2 8
-------
```

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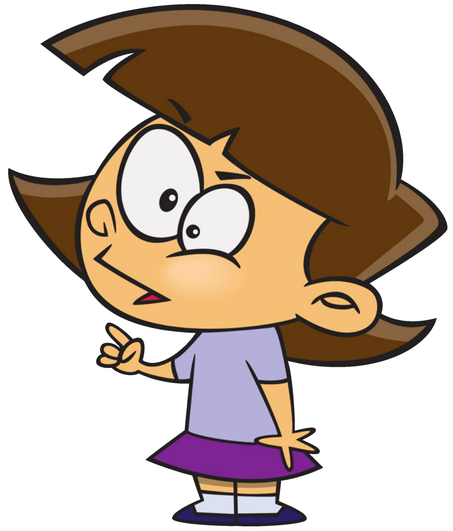
356 + 245 + 227

Or, we could add all **three numbers** up in a **single** column:

$$
\begin{array}{rrrr}
 & 3 & 5 & 6 \\
 & 2 & 4 & 5 \\
+ & 2 & 2 & 7 \\
\hline
 & 8 & 2 & 8 \\
\hline
 & 1 & 1 &
\end{array}
$$

Which method do you prefer?
Which do you think is easier and why?



Think, pair, then share your opinions.

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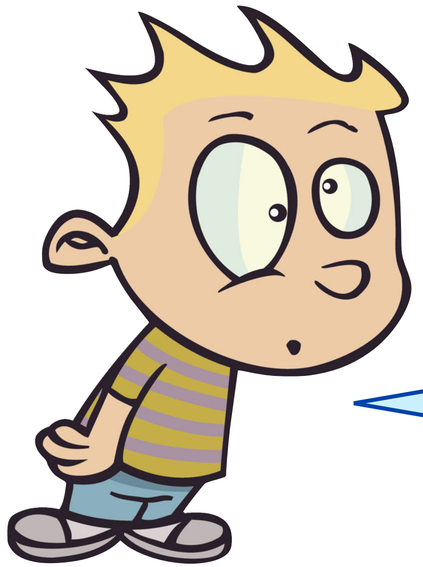

I've chosen to add all of my numbers up in a single column.

When I add the first column up, I get a total of 23!

What do I do with the ones and tens digits?

$$\begin{array}{r} 359 \\ 315 \\ +\ 249 \\ \hline \\ \hline \end{array}$$

Think, pair, then share your answers.

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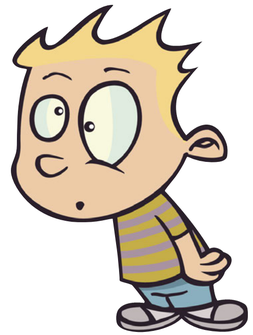
Because we are now adding three digits together in a column, sometimes the answer may have a tens digit of '2', instead of just '1'.

All we have to do is pass it on to the next column, putting it under the line, and remembering to add it on to the numbers in this column.

	3	5	9
	3	1	5
+	2	4	9
			3
		2	



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$$
\begin{array}{rrrr}
 & 3 & 5 & 9 \\
 & 3 & 1 & 5 \\
+ & 2 & 4 & 9 \\
\hline
 & 9 & 2 & 3 \\
\hline
 & 1 & 2 &
\end{array}
$$

Did you complete the calculation correctly?

Well done!

OK, now have a look at this next one...

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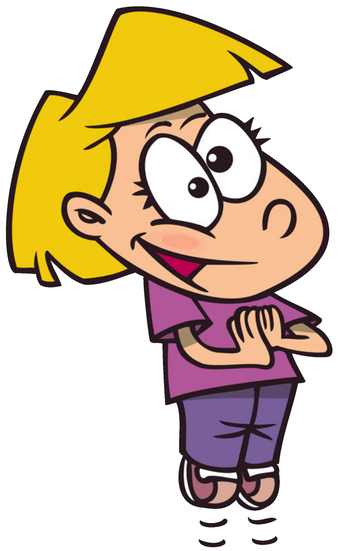

I have solved this number sentence!

Can you explain each of the steps I must have taken in order to solve it?

$$\begin{array}{r} 668 \\ 356 \\ +\ 292 \\ \hline 1316 \\ \hline 21 \end{array}$$

Now it's time for you to try a few questions yourselves...

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With a partner, work together to solve these column additions.

288	147	585
394	386	437
+ 175	+ 189	+ 369
_____	_____	_____
_____	_____	_____

Which was the most challenging one to solve and why?

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How did you do?

288	147	585
394	386	437
+ 175	+ 189	+ 369
857	722	1391
2 1	2 2	1 2

How confident do you feel about adding up three numbers using the column method?

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Now that you know how to solve problems involving carrying more than once, and adding up more than two numbers at a time, can you help out with some more sports day problems please?!

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Plenary:

Here are the times from an 800 metre race, given in seconds.

Choose three children whose times you would use the **column addition method** for.

Choose three children whose times you would use a **mental method** for.

Explain your choices.

Name:	Running time for 800m (in seconds)
Hanna	250
Sancho	193
Chen	200
Robert	246
Alison	223
Mia	230
Anish	184
Joanna	170

Do you always need to use the column method to add larger numbers together? When might you not need to use it?

Think, pair, then share your ideas.

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