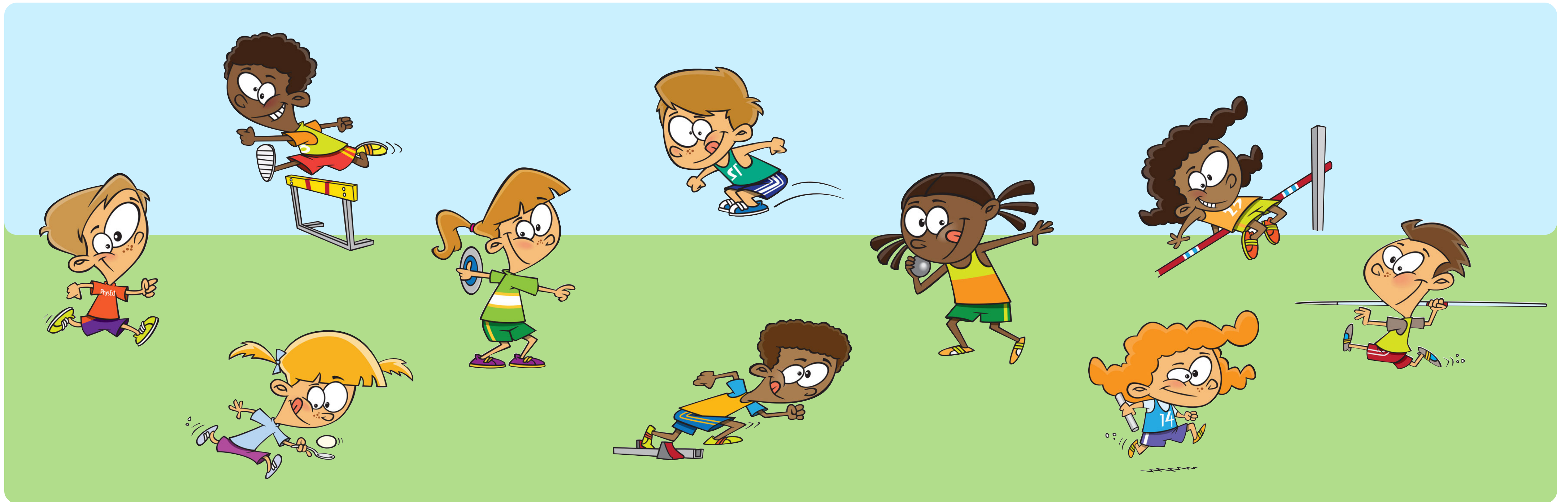


Using Addition and Subtraction 1



Learning Objective:

To recap on how to use the formal method for subtraction

$$687 - 416$$

How could we estimate the answer to this number sentence before working it out?



Think, pair then share your ideas.

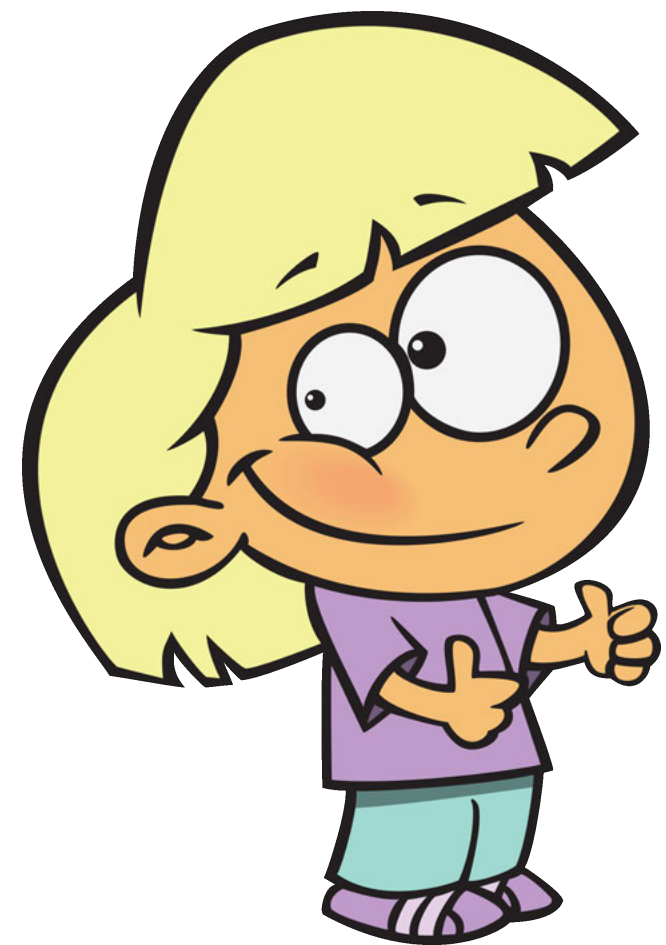
Back

Next

One method of estimating the answer is to round each number to the nearest hundred and then subtract the smaller number from the larger number.

$$687 - 416$$

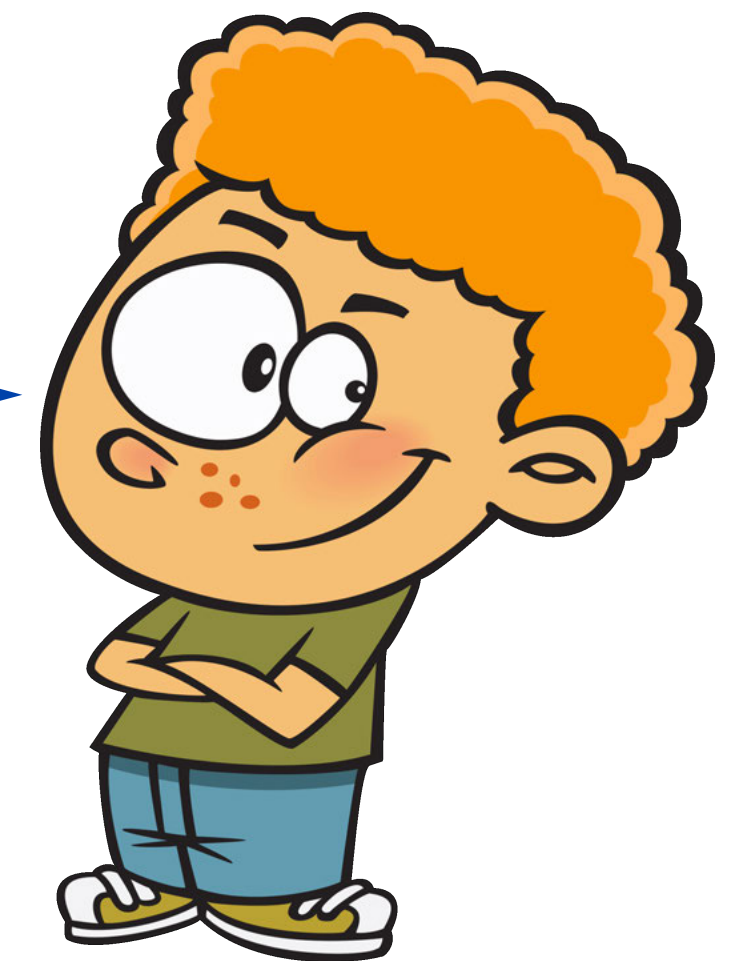
To round to the nearest 100, look at the tens digit.



If it is 5 or more,
round up to the
nearest multiple
of 100.



If it is 4 or less,
round down to
the nearest
multiple of 100.



What will the **estimated** answer be once we have rounded these numbers?

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Next

The tens digit in 687 is 8, so we round up to the nearest multiple of 100.



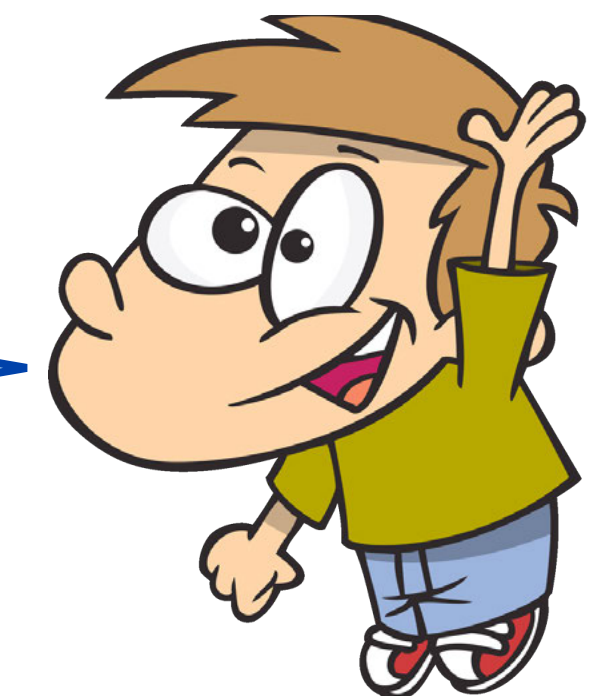
$$\begin{array}{r} 687 \\ - 416 \\ \hline \end{array}$$

The tens digit in 416 is less than 5, so we round down to the nearest multiple of 100.



$$700 - 400 = 300$$

So, our estimated answer to $687 - 416$ is 300. Why does it help us to know this before we work out the actual answer?

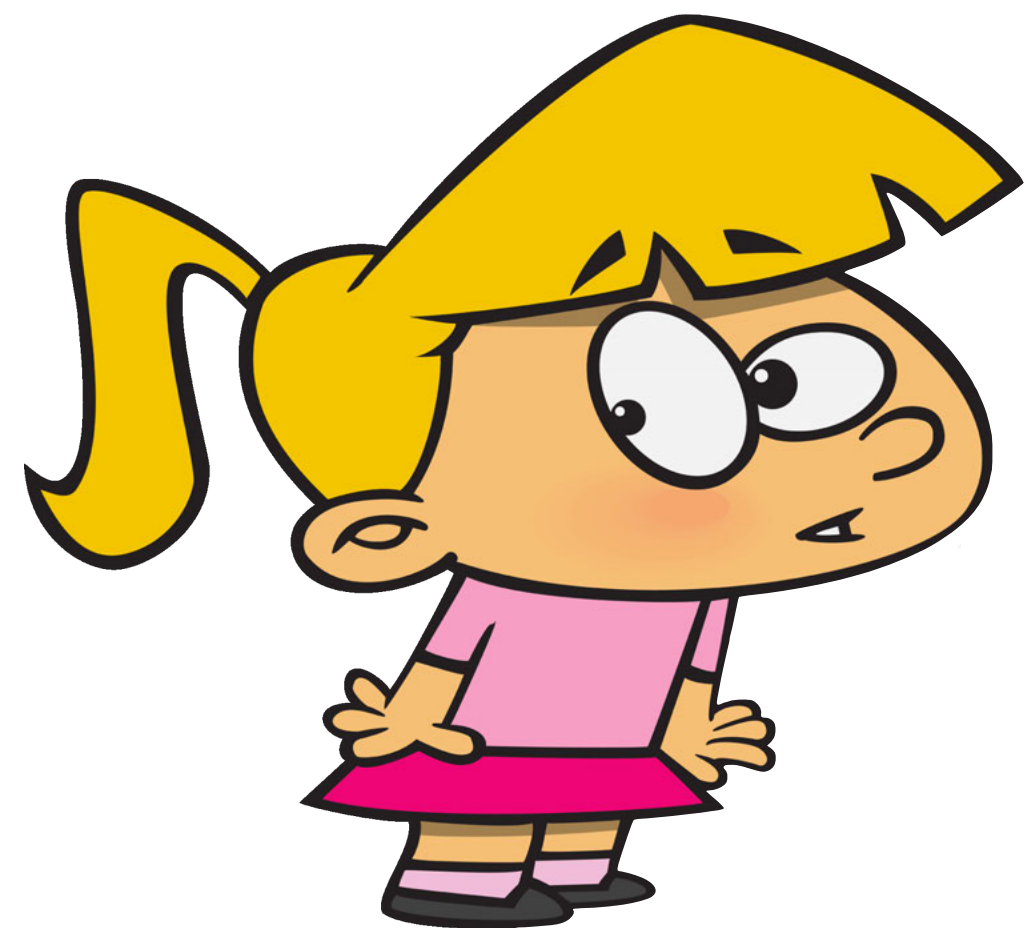


Think, pair, then share your ideas.

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Next

We can use our **estimated** answer to check our **actual** answer
- if it is close to it then our working out is more likely to be
correct.



Let's work out the actual answer so
we can check it with our estimate!

What methods could we use?

Think, pair, then share your ideas.

Back

Next

There are lots of different ways we could work out the answer to this number sentence, but today we are going to focus on the **formal column method** for subtraction.

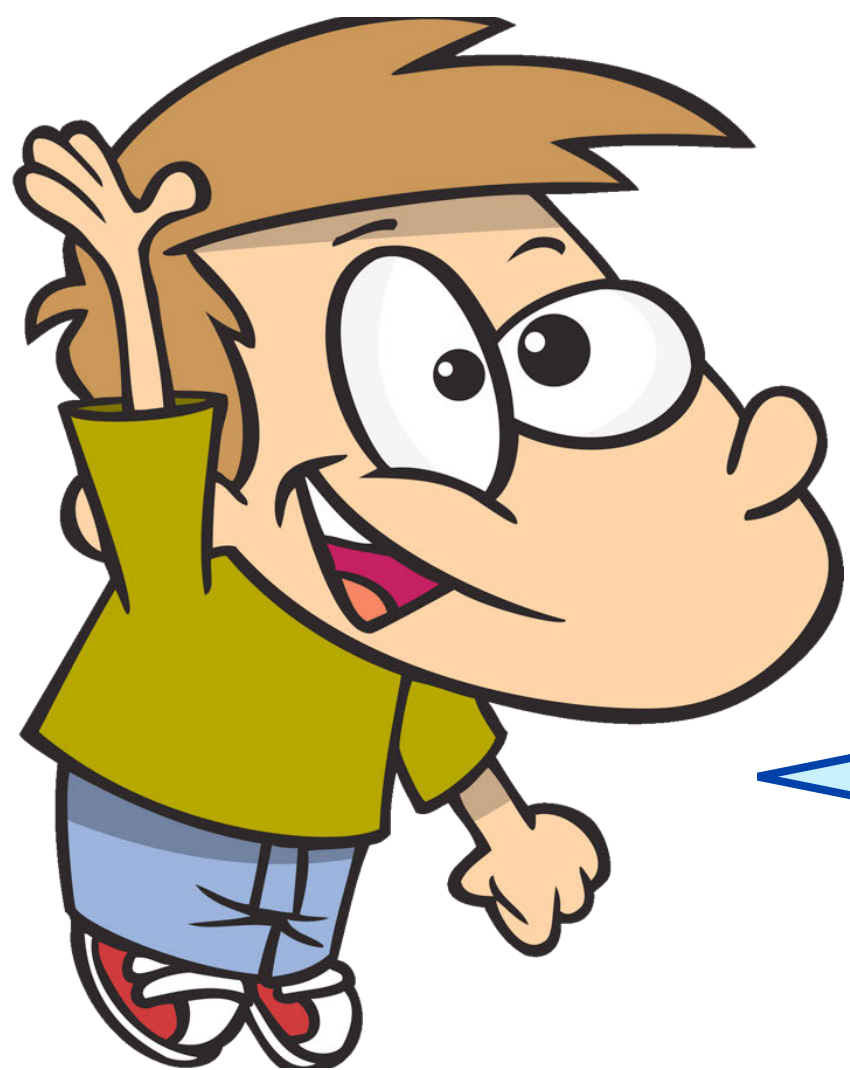
With a partner, remind yourself of this method, and talk through the steps needed to solve this column subtraction...



$$\begin{array}{r} 687 \\ - 416 \\ \hline \\ \hline \end{array}$$

Back

Next



With a column subtraction, we always start with the ones column. We need to take away the bottom number from the top number. (It's important we do this the right way round!)

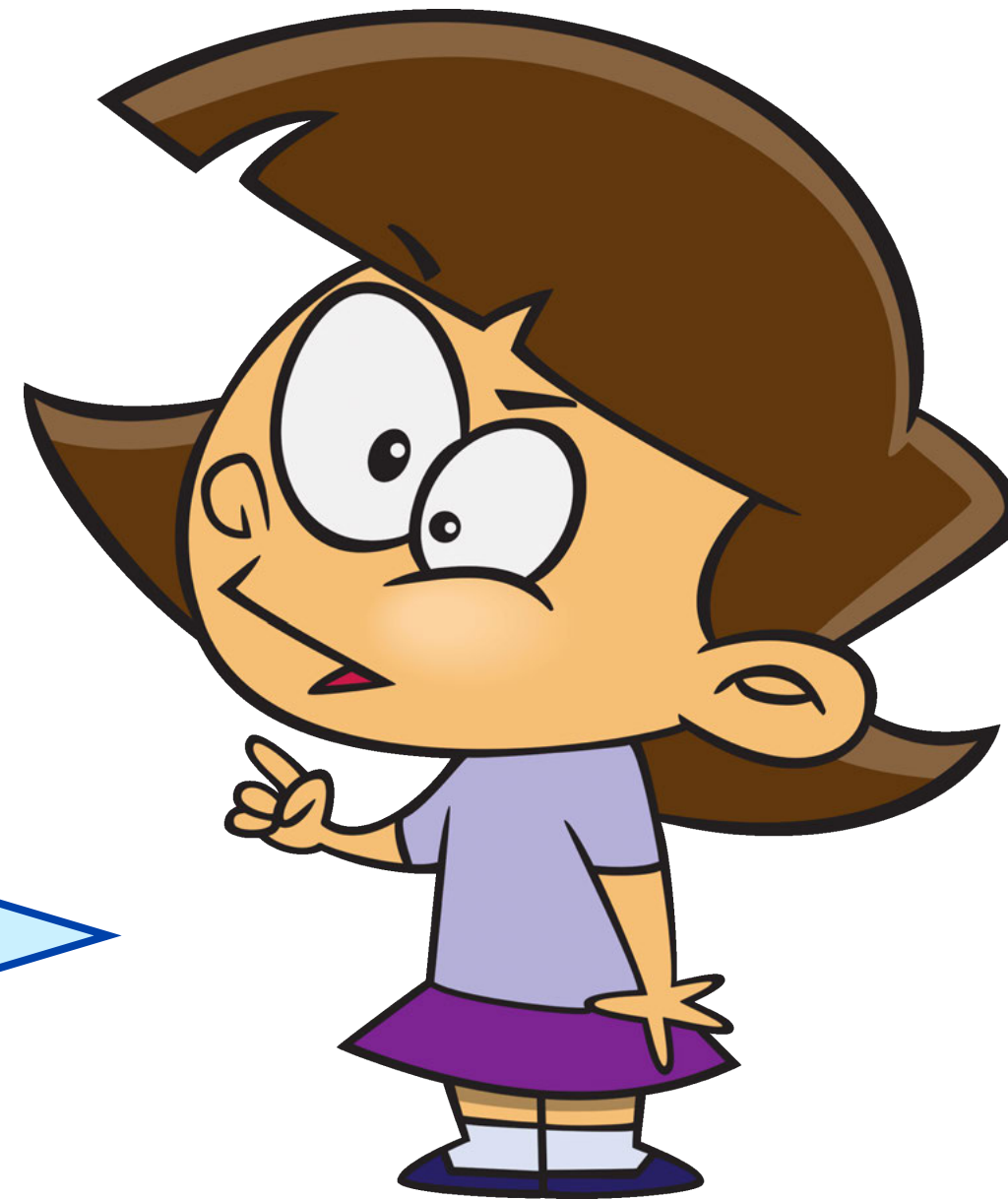
	H	T	O
	6	8	7
-	4	1	6
<hr/>			
			1
<hr/>			

What will the next step be? Think, pair, then share your ideas.

Back

Next

The second step is to look at the tens column. Again, we need to take away the bottom number from the top number.



	H	T	O
	6	8	7
-	4	1	6
<hr/>			
		7	1
<hr/>			

What will the next step be? Think, pair, then share your ideas.

Back

Next



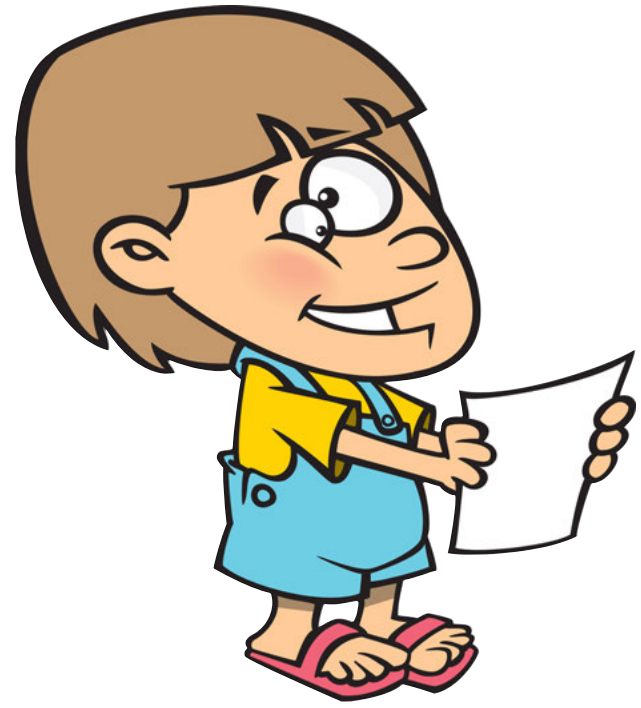
The final step is to look at the hundreds column, and take away the bottom number from the top number.

	H	T	O
	6	8	7
-	4	1	6
<hr/>			
	2	7	1
<hr/>			

Does our estimated answer of 300 help us to be more certain that this answer is correct?

Back

Next



With a partner, first **estimate** the answers by rounding (to the nearest 100), then work out the **actual** answer using the column method.

Estimate

To nearest 100:

$$\begin{array}{r} 545 \\ - 312 \\ \hline \end{array}$$

Estimate

To nearest 100:

$$\begin{array}{r} 479 \\ - 206 \\ \hline \end{array}$$

Estimate

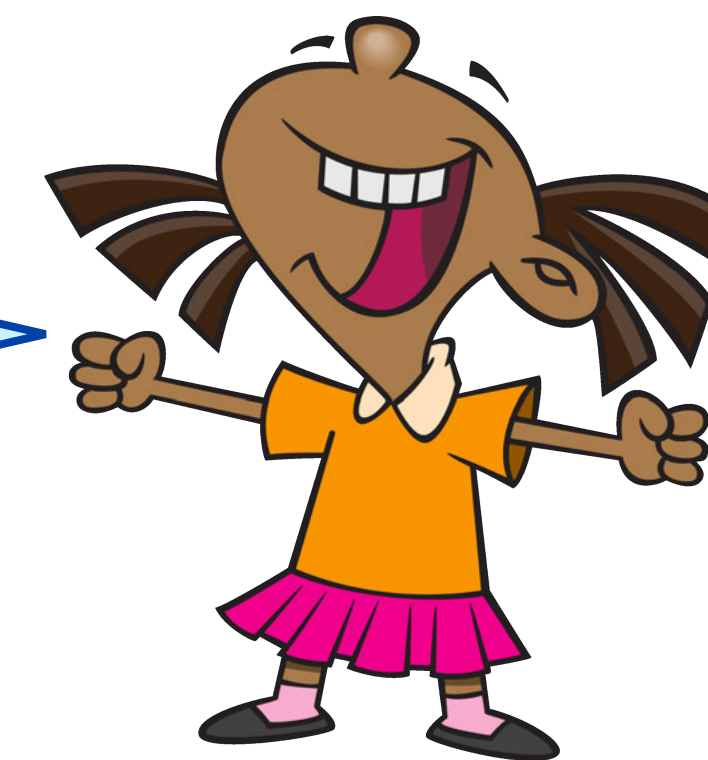
To nearest 100:

$$\begin{array}{r} 456 \\ - 252 \\ \hline \end{array}$$

Back

Next

Did you work them out correctly? Did your estimates help you to make sure your answer was right?



Estimate

To nearest 100:

$$500 - 300 = 200$$

545

- 312

233

Estimate

To nearest 100:

$$500 - 200 = 300$$

479

- 206

273

Estimate

To nearest 100:

$$800 - 300 = 500$$

756

- 252

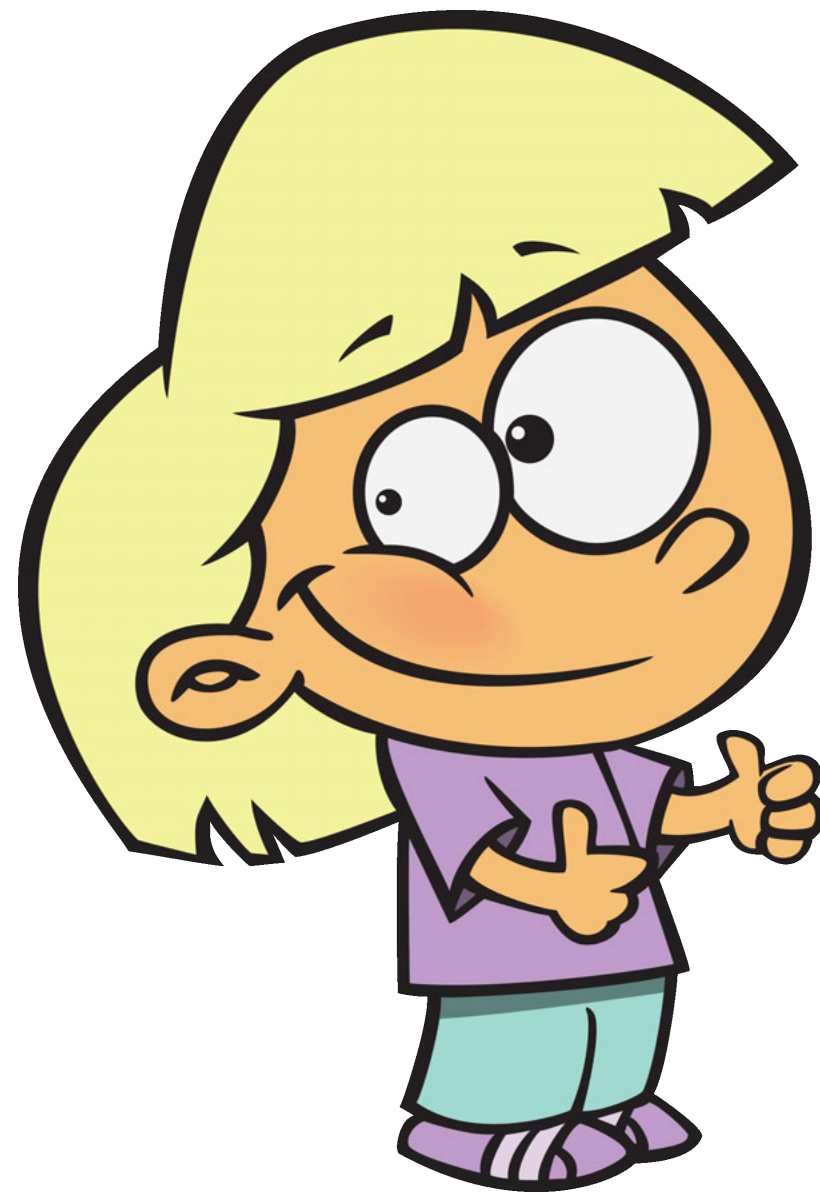
504

Back

Next

Now we are going to look at some slightly trickier subtraction number sentences using the formal column method. Look at this one:

	H	T	O
	4	5	5
-	1	2	8
<hr/>			
<hr/>			



First, **estimate** the answer by rounding to the nearest hundred, and remember your answer or jot it down somewhere.

Back

Next

Now let's begin to work it out..

	H	T	O
	4	5	5
-	1	2	8
<hr/>			
<hr/>			

I've started by looking at the ones column. I know I have to take away the bottom number from the top number, but I can't subtract eight from five. What do I do? Can I just subtract five from eight instead?

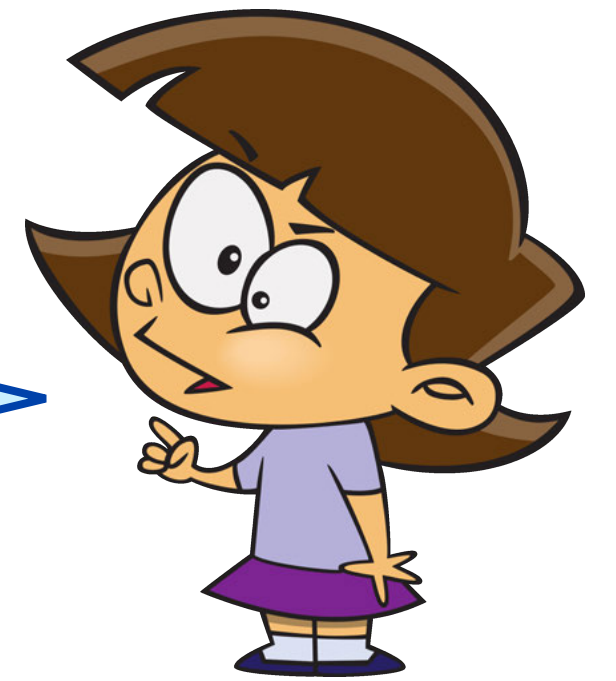


Think, pair, then share your ideas.

Back

Next

No! You can't just subtract five from eight instead, as this would change the number sentence to $458 - 125$, and give us a different answer.



	H	T	O
	4	5	5
-	1	2	8

When the number on top is smaller than the number on the bottom, we need to **exchange** numbers from one column to the other.

Can you remember how to do this?
Think, pair, then share your ideas.

Back

Next

H T O

4 ⁴~~5~~ 5

- 1 2 8

In this column subtraction, we need to **exchange one lot of ten for ten ones.**

We put a cross through the tens number that we are exchanging with, and write one less than that number next to it, as we have taken one 'ten'.

In this case, five tens has been turned into four tens.

 Back

 Next

H T O

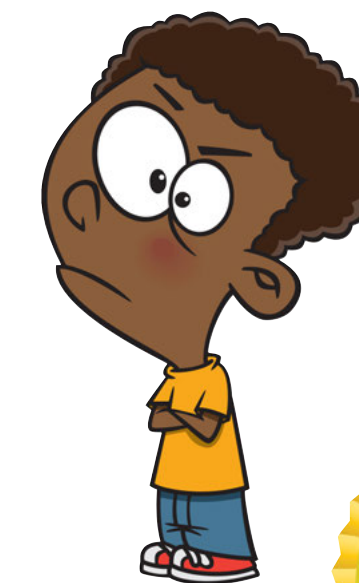
4 ~~5~~ 15

- 1 2 8

We then put the one 'ten' we have exchanged next to the number in the ones column. In this case it is five. This means we now have fifteen ones in the ones column.

We can now subtract eight from fifteen.

OK, I see! Can you help me complete the subtraction now?

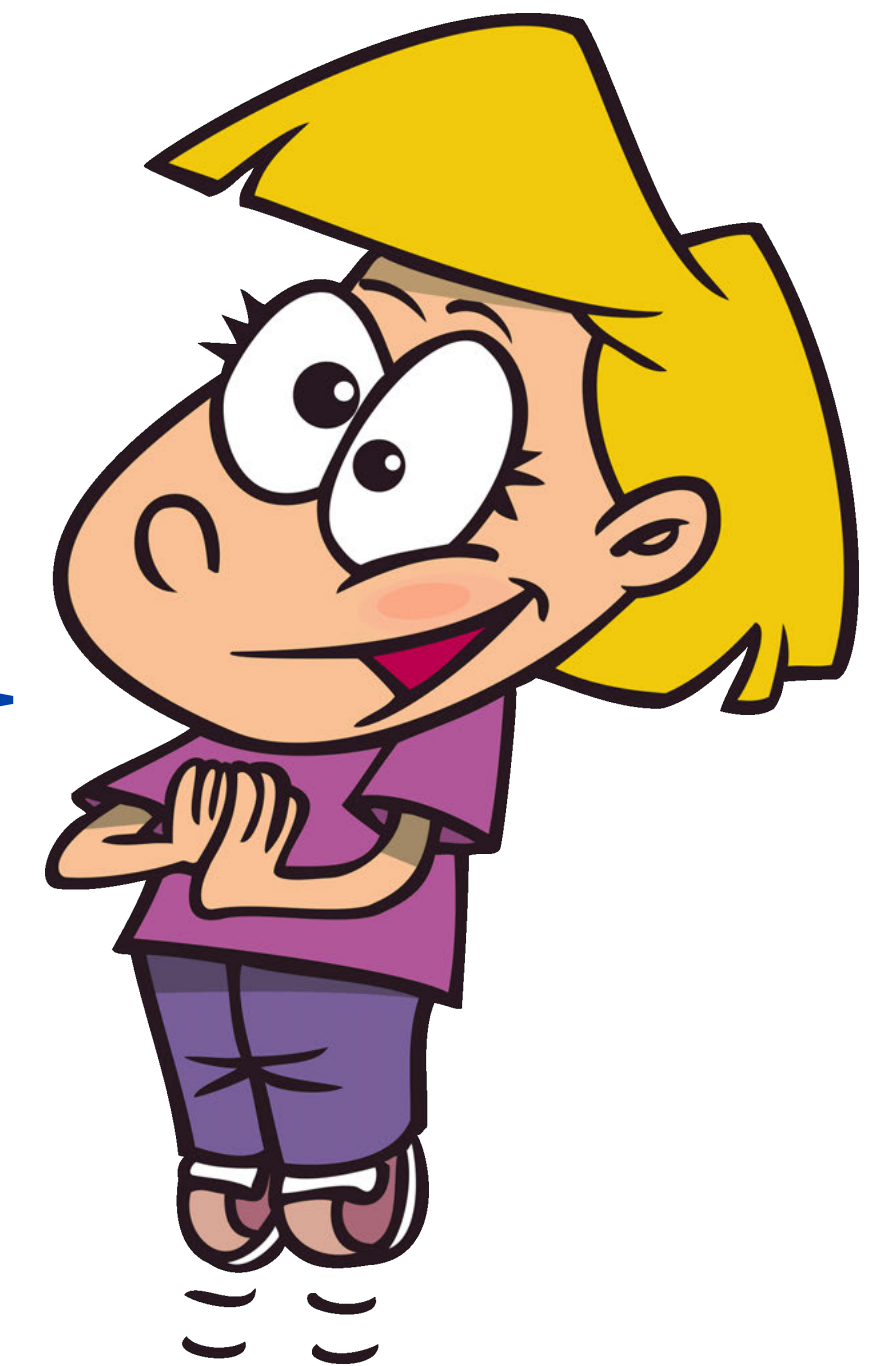


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Next

H	T	O	
4	5	5	
⁴	¹		
-	1	2	8
3	2	7	

Did you get this right?
 Can you explain why the
 calculation for the tens
 column is now $4 - 2$,
 instead of $5 - 2$?



Does your estimated answer help us to be more certain
 that this answer is correct?

Back

Next

Here's a rhyme that might help you remember what to do for other similar column subtractions:



More on top? No need to stop!
More on the floor? Go next door
and get some more!

Can you explain what this rhyme means and how it could help?
Think, pair, then share your ideas.

Back

Next

With a partner, choose one of these completed subtraction column methods each. Take it in turns to explain to each other how the problems you have chosen have been solved.

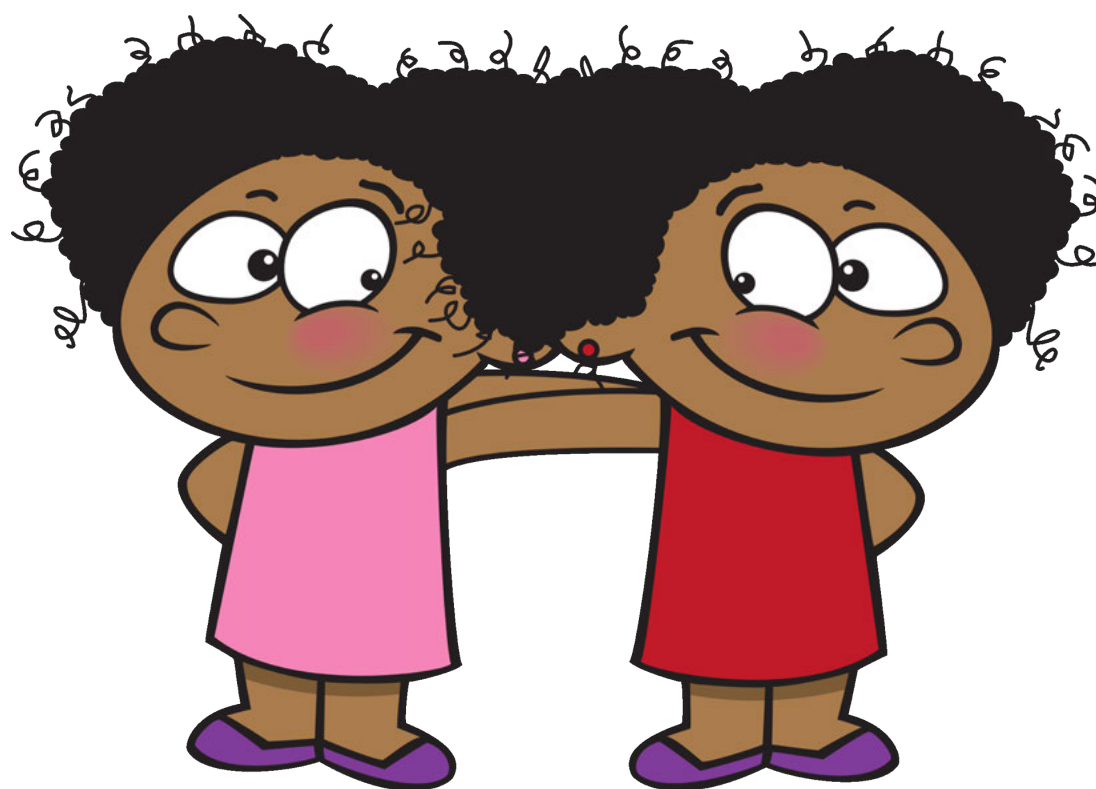
H T O

7 ⁵~~6~~ ¹2

- 3 4 9

4 1 3

Make sure you explain each step, including the exchanging, clearly!



H T O

8 ²~~3~~ ¹1

- 2 2 2

6 0 9

Back

Next

Now it's time for you to solve some subtractions using exchanging!
Choose **one** of these to answer with a **partner**, and **one** to answer by **yourself**.
Remember to estimate the answer first.

Remember my helpful rhyme...

More on top? No need to stop! More on the floor? Go next door and get some more!



H T O

2 6 8

- 1 2 9

H T O

6 4 3

- 4 0 7

H T O

9 2 4

- 5 1 8

Back

Next



Did you solve them correctly? Excellent work!

H T O

2⁵ ~~6~~¹ 8

- 1 2 9

1 3 9

H T O

6³ ~~4~~¹ 3

- 4 0 7

2 3 6

H T O

9¹ ~~2~~¹ 4

- 5 1 8

4 0 6

Back

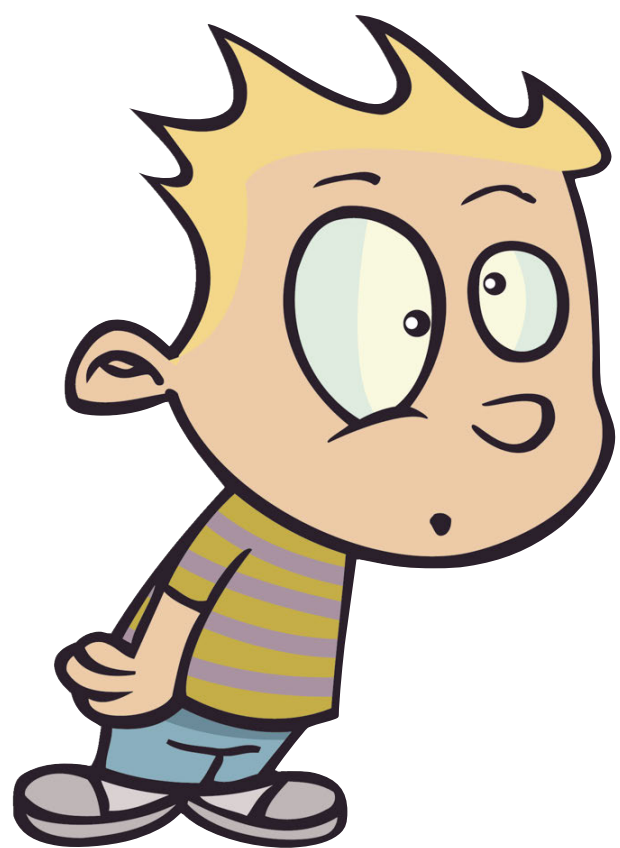
Next

Look at this column subtraction:

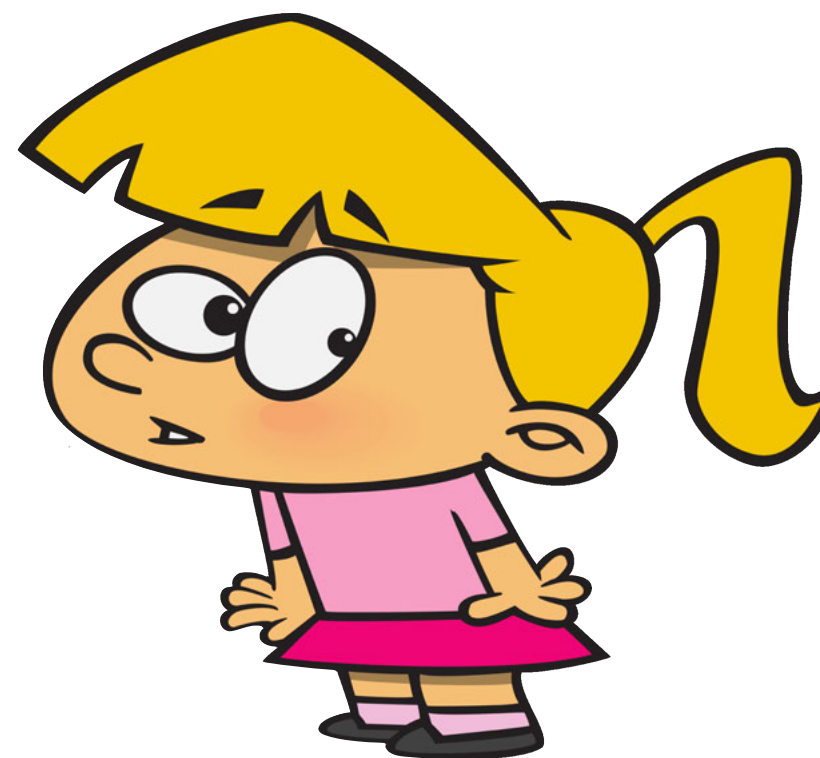
	H	T	O
	5	7	6
-	2	9	3
<hr/>			
<hr/>			

What is different about this one?

What needs to be exchanged this time?



Think, pair, then share your ideas.



Back

Next

In this column subtraction, we need to **exchange one lot of hundred for ten tens.**

We put a cross through the hundreds number that we are exchanging with, and write one less than that number next to it, as we have taken one 'hundred'.

In this case, five hundreds have been turned into four hundreds.

	H	T	O
	5	7	6
-	2	9	3
<hr/>			
<hr/>			

Back

Next

We then put the one 'hundred' (or ten 'tens') we have exchanged next to the number in the tens column. In this case it is seven. This means we now have 17 tens in the tens column.

	H	T	O
	⁴ 5	¹ 7	6
-	2	9	3
<hr/>			
<hr/>			

We can now subtract nine from seventeen.



Can you complete the calculation?

Back

Next

Did you solve it
correctly?

Great work!

Now let's see if you can
solve some more on
your own... don't forget
to estimate the answer
first.



	H	T	O
	⁴ 5	¹ 7	6
-	2	9	3
<hr/>			
	2	8	3
<hr/>			

Back

Next

H T O

7 2 5

- 4 6 2

H T O

9 4 8

- 2 5 7

H T O

2 0 9

- 1 3 4

Which was the most challenging one to solve and why?



Back

Next

H T O

⁶~~7~~ ¹2 5

- 4 6 2

2 6 3

H T O

⁸~~9~~ ¹4 8

- 2 5 7

6 9 1

H T O

¹~~2~~ ¹0 9

- 1 3 4

7 5



How confident do you feel about using the column method for subtraction?

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Next

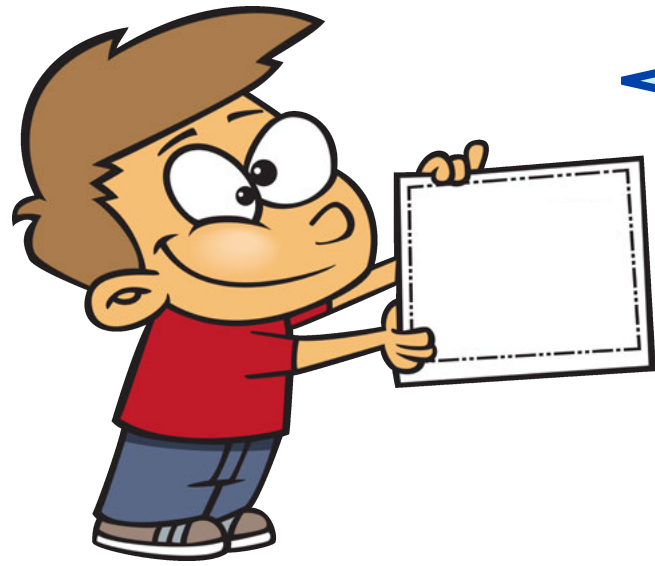


Now it's time to get
back to our sports
day problems!

Back

Next

Plenary:



Can you work out what the missing digits are in these column subtractions?

$$\begin{array}{r} 695 \\ - 24\star \\ \hline 451 \end{array}$$

$$\begin{array}{r} 382 \\ - 1\star7 \\ \hline 235 \end{array}$$

$$\begin{array}{r} 425 \\ - \star81 \\ \hline 344 \end{array}$$

Think, pair, then share your answers.

Back

Next

Plenary:

Did you calculate each missing digit correctly?



6 9 5

- 2 4 4

4 5 1

3 ⁷/~~8~~ ¹2

- 1 4 7

2 3 5

³/~~4~~ ¹2 5

- 0 8 1

3 4 4

Great work!

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