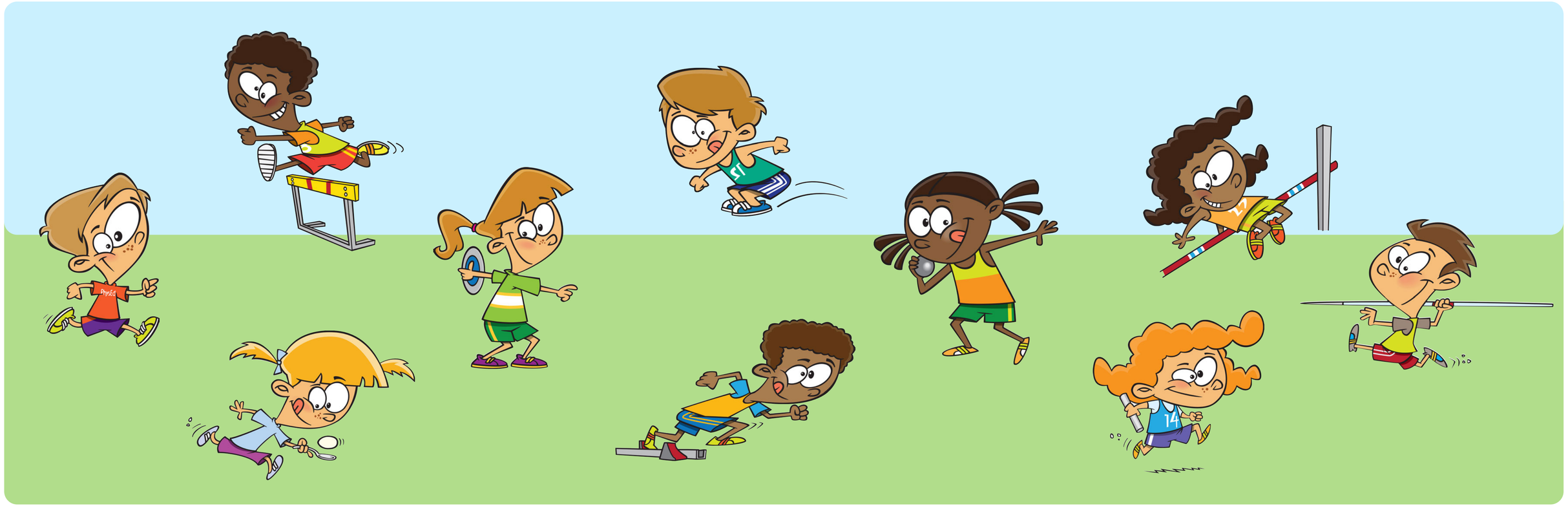
# Using Addition and Subtraction 1



## Learning Objective:

To recap on how to use the formal method for addition

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# 553 + 224

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

Think, pair then share your ideas.

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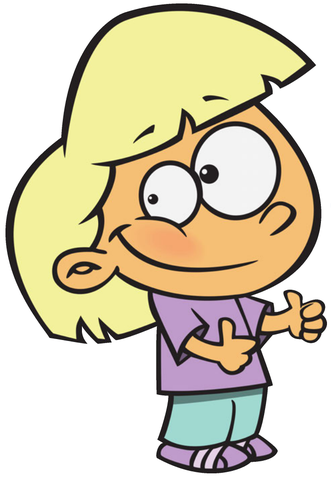
One method of **estimating** the answer is to **round** each number to the nearest hundred and then add them together.

# 553 + 224

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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The **tens** digit in 553 is 5, so we round **up** to the nearest multiple of 100.

# 553 + 224

# 600 + 200 = 800

The **tens** digit in 204 is less than 5, so we round **down** to the nearest multiple of 100.

So, our estimated answer to 553 + 224 is **800**.
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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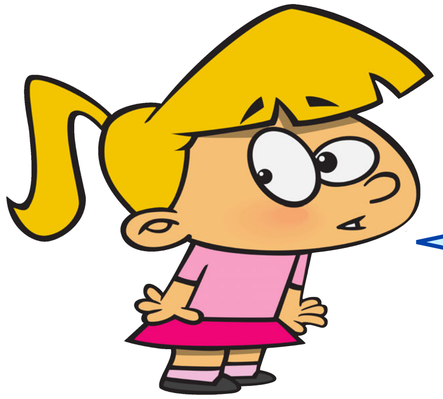
We can use our **estimated** answer to check our **actual** answer - if it is close to it then our working out is more likely to be correct.

# 553 + 224



Would it be a more accurate estimate if we rounded the numbers to the nearest 100, or the nearest 10? Why?

Think, pair then share your ideas.

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# Let's see...

# 553 + 224

To round to the nearest ten, look at the **ones** digit.

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

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

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

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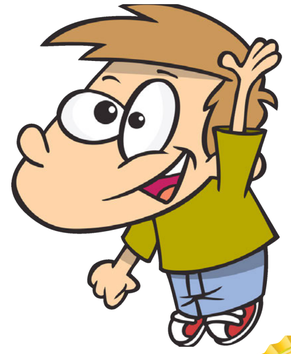
The **ones** digit in 553 is less than 5, so we round **down** to the nearest multiple of ten.

# 553 + 224

# 550 + 220 = 770

The **ones** digit in 224 is less than 5, so we round **down** to the nearest multiple of ten.

So, our estimated answer to 553 + 224 is now **770**.



Now let's work out the actual answer to the number sentence to see which estimate is more accurate...

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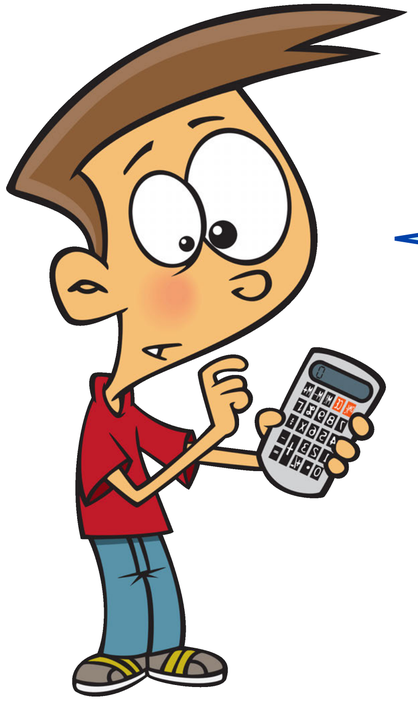
There are lots of different ways we could work out the answer to this number sentence, but today we are going to focus on the **formal column method** for addition.

$$\begin{array}{r} 553 \\ +\ 224 \\ \hline \\ \hline \end{array}$$



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

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| | H | T | O |
|---|---|---|---|
| | 5 | 5 | 3 |
| + | 2 | 2 | 4 |
| | | | 7 |

With a column addition, we always start by adding the **ones** digits together, and writing the answer between the lines directly in the **ones** column.

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

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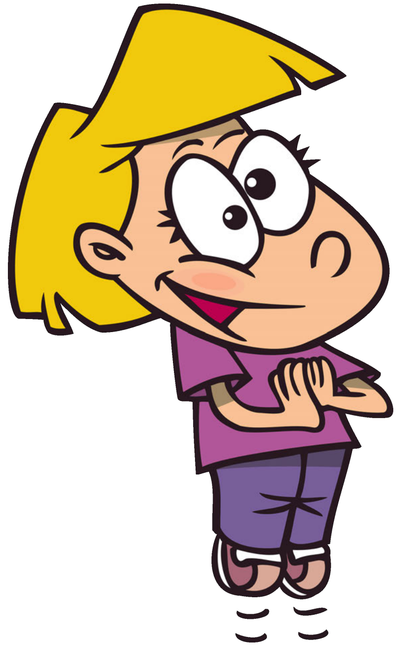
| | H | T | O |
|---|---|---|---|
| | 5 | 5 | 3 |
| + | 2 | 2 | 4 |
| | | 7 | 7 |



The second step is to add the **tens** digits together, and write this answer between the lines directly in the **tens** column.

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

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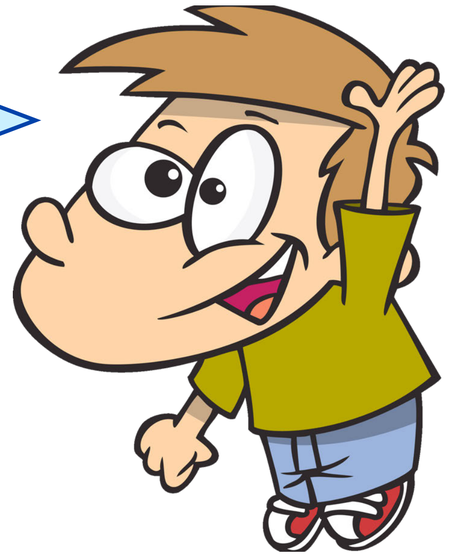
| | H | T | O |
|---|---|---|---|
| | 5 | 5 | 3 |
| + | 2 | 2 | 4 |
| | 7 | 7 | 7 |

The final step is to add the **hundreds** digits together, and write this answer between the lines directly in the **hundreds** column.



Which of our **estimated** answers was the most accurate?

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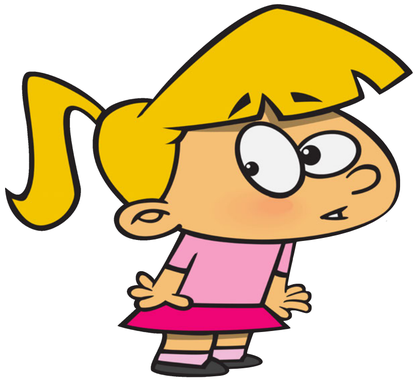
When we rounded the numbers in the sentence to the nearest **100**, our estimated answer was **800.**

When we rounded the numbers in the sentence to the nearest **10**, our estimated answer was **770.**



In most cases, rounding to the nearest **ten** will give you a more accurate estimate.

Let's look at some more number sentences...

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Next

With a partner, first **estimate** the answers by rounding (to the nearest 10 and 100), then work out the **actual** answer using the column method.

**Estimates**

To nearest 100:

To nearest 10:

$$\begin{array}{r} 352 \\ +\,515 \\ \hline \end{array}$$

**Estimates**

To nearest 100:

To nearest 10:

$$\begin{array}{r} 471 \\ +\,208 \\ \hline \end{array}$$

**Estimates**

To nearest 100:

To nearest 10:

$$\begin{array}{r} 656 \\ +\,142 \\ \hline \end{array}$$

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

**Estimates**

To nearest 100: 900

To nearest 10: 870

$$\begin{array}{r} 352 \\ +\,515 \\ \hline 867 \end{array}$$

**Estimates**

To nearest 100: 700

To nearest 10: 680

$$\begin{array}{r} 471 \\ +\,208 \\ \hline 679 \end{array}$$

**Estimates**

To nearest 100: 800

To nearest 10: 800

$$\begin{array}{r} 656 \\ +\,142 \\ \hline 798 \end{array}$$

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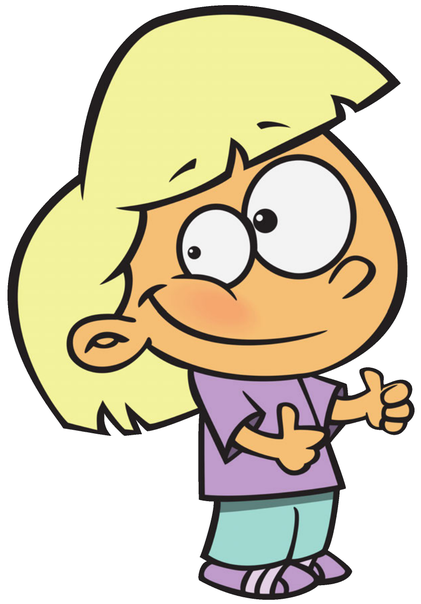
Next

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



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

| | H | T | O |
|---|---|---|---|
| | 6 | 5 | 8 |
| + | 2 | 2 | 6 |
| | | | |
| | | | |

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Next

Now let's begin to work it out...

I've started with the digits in the ones column, but they add together to give a two-digit number! What do I do?

| | H | T | O |
|---|---|---|---|
| | 6 | 5 | 8 |
| + | 2 | 2 | 6 |

Think, pair, then share your ideas.

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Next

The numbers in the ones column add up to give a total of **14** (one ten and four ones).

We can only put the ones digit from 14 in the ones column.

We put the tens digit from 14 **under the line** in the tens column, to add to the other tens in the next step.

| | H | T | O |
|---|---|---|---|
| | 6 | 5 | 8 |
| + | 2 | 2 | 6 |
| | | | 4 |
| | | 1 | |

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Next

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

If the answer's **more than nine,**
Put the tens digit **under the line!**

Pass it on, but...
Don't forget to **add it on!**

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Next

Do I put seven or eight as the tens column total? Can you explain why?

| | H | T | O |
|---|---|---|---|
| | 6 | 5 | 8 |
| + | 2 | 2 | 6 |
| | | | 4 |
| | | 1 | |

Think, pair, then share your ideas.

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Next

The tens column total should be **eight,** as we need to add the **one** ten under the answer line to the **five** tens and **two** tens above the answer line.

$$1 + 5 + 2 = 8$$

| | H | T | O |
|---|---|---|---|
| | 6 | 5 | 8 |
| + | 2 | 2 | 6 |
| | 8 | 4 | |
| | | 1 | |

Got it! Can you help me complete the final part of the column addition?

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Next

# The final answer is 884.

Look back at your estimated answer - how close is it to the actual answer? Does this mean our working out is correct?

| | H | T | O |
|---|---|---|---|
| | 6 | 5 | 8 |
| + | 2 | 2 | 6 |
| | 8 | 8 | 4 |
| | | 1 | |

Let's look at some more addition number sentences...

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Next

With a partner, first **estimate** the answers to these two column additions, and then work out the **actual** answers.

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

Remember my helpful rhyme...

If the answer's more than nine,
Put the tens digit under the line!
Pass it on, but...
Don't forget to add it on!

| H | T | O |
|---|---|---|
| | 3 | 8 |
| + | 3 | 2 |
| | | 3 |

Use your estimated answer to check your result.



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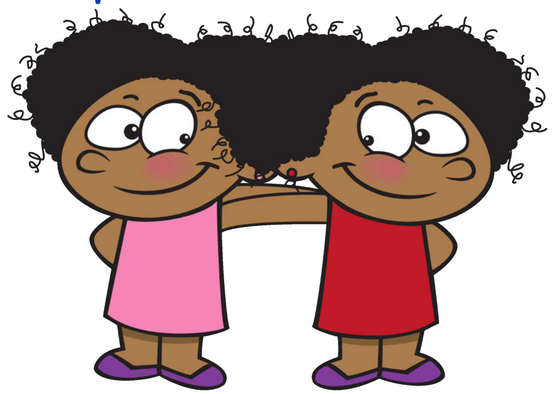
Next

# Did you get these answers? Well done!

| H | T | O |
|---|---|---|
| | 2 | 6 |
| + | 5 | 1 |
| | 7 | 8 |
| 1 | | |

Can you explain why the tens column total is eight?

Can you explain why there is a zero in the tens column answer?



| H | T | O |
|---|---|---|
| | 3 | 8 |
| + | 3 | 2 |
| | 7 | 0 |
| 1 | | |

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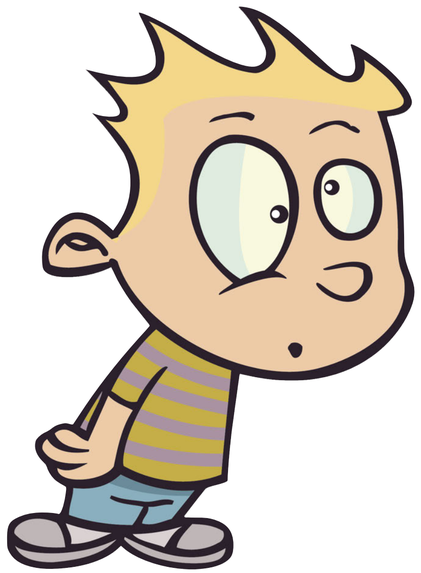
# Let's have a look at this column addition...



I don't understand how to complete my answer!

I added the hundreds column which gave me a number bigger than nine, so I put the ones digit from this answer in the hundreds column, and put the tens digit from this answer under the line.

But... there is nothing to add it to! What do I do?

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

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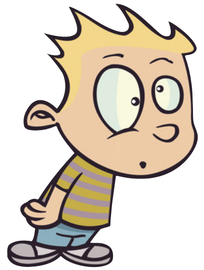
Next

When the numbers in the **final** column add up to more than nine, there is no need to follow the rhyme by putting the tens digit under the line!

Oh dear! Maybe I should write a new rhyme...

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

All you need to do is put the digit in the column to the left of the hundreds answer. In this case, this is the **thousands** column.



Now I understand!

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

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# Let's check your understanding of this by looking at some more examples...

| Th | H | T | O |
|---|---|---|---|
| | 7 | 2 | 3 |
| + | 9 | 6 | 5 |

| Th | H | T | O |
|---|---|---|---|
| | 5 | 0 | 1 |
| + | 8 | 6 | 4 |

| Th | H | T | O |
|---|---|---|---|
| | 5 | 4 | 2 |
| + | 6 | 4 | 7 |

Can you solve these column additions with a partner?

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Next

For the final step of each of these column additions, no numbers need to be put under the line - they can each be placed to the left of the hundreds answer, in the thousands column.

| Th | H | T | O |
|---|---|---|---|
| | 7 | 2 | 3 |
| + | 9 | 6 | 5 |
| 1 | 6 | 8 | 8 |

| Th | H | T | O |
|---|---|---|---|
| | 5 | 0 | 1 |
| + | 8 | 6 | 4 |
| 1 | 3 | 6 | 5 |

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

Did you get them all correct? Excellent work!

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Now that you have refreshed your memory of using the formal column method for addition, you are going to help work out some points from a school sports day!

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# Plenary:

All of these answers are incorrect, as an error has been made somewhere in the working out. Can you find where the mistake has been made in each one?

$$\begin{array}{r} 429 \\ +\ 366 \\ \hline 7815 \end{array}$$

$$\begin{array}{r} 238 \\ +\ 545 \\ \hline 773 \\ 1 \end{array}$$

$$\begin{array}{r} 394 \\ +\ 482 \\ \hline 776 \\ 1 \end{array}$$

**What should the answers be?**

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$$\begin{array}{r} 429 \\ +\ 366 \\ \hline 7815 \end{array}$$

The tens digit should have been put under the next column to the left.

$$\begin{array}{r} 429 \\ +\ 366 \\ \hline 795 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 238 \\ +\ 545 \\ \hline 773 \\ \hline 1 \end{array}$$

The one ten under the line should have been added to the rest of the column.

$$\begin{array}{r} 238 \\ +\ 545 \\ \hline 783 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 394 \\ +\ 482 \\ \hline 776 \\ \hline 1 \end{array}$$

The one ten has been put under the incorrect column, and so it has not been included in the addition.

$$\begin{array}{r} 394 \\ +\ 482 \\ \hline 876 \\ \hline 1 \end{array}$$

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