Year 4: Week 2, Day 5

Column subtraction

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.

2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)!
   Check the answers.

3. Finding it tricky? That’s OK... have a go with a grown-up at **A Bit Stuck**?

4. Have I mastered the topic? A few questions to **Check your understanding**.
   Fold the page to hide the answers!
Learning Reminders

Subtract 3-digit numbers using expanded column subtraction.

Let’s work out 725 - 462 using column subtraction.

First partition the numbers and set them out neatly.

Subtract the 1s.
5 - 2 = ?

60 is bigger than 20 so take 100 from the 700 and add it to the 10s.

Now subtract the 10s.
120 - 60 = ?

Subtract the 100s.
600 - 400 = ?

Finally recombine 200, 60 and 3.

725 - 462 = 263

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Learning Reminders

Subtract 3-digit numbers using expanded column subtraction.

Now let’s try 745 - 367. How many moves across columns will we need this time?

7 is bigger than 5 so take 10 from the 40 and add it to the 1s.

15 - 7 = ?

60 is bigger than 30 so take 100 from the 700 and add it to the 10s.

130 - 60 = ?

Subtract the 100s.

600 - 300 = ?

Finally recombine 300, 70 and 8.

745 - 367 = 378
Practice Sheet Mild
Expanded subtraction

Use expanded column subtraction to solve these calculations.

1. $265 - 134$
2. $598 - 372$

3. $682 - 456$
4. $364 - 149$

5. $472 - 253$
6. $745 - 561$

7. $874 - 246$
8. $855 - 278$

9. $952 - 685$
10. $344 - 175$

11. $535 - 488$
12. $746 - 467$

Challenge
Write a 3-digit number. Subtract it from 999. Now say the answer if you were to subtract it from 1000. Check using Frog to subtract it from 1000. Repeat with another 3-digit number.
Practice Sheet Hot
Subtraction

Choose whether to use counting up (Frog) or expanded column subtraction.

453 - 348 =  
958 - 482 =  
674 - 427 =  
607 - 572 =  
826 - 645 =  
803 - 641 =  
725 - 532 =  
520 - 315 =  
847 - 673 =  
630 - 527 =  

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Practice Sheet Answers

**Expanded subtraction (mild)**
1. $265 - 134 = 131$
2. $598 - 372 = 226$
3. $682 - 456 = 226$
4. $364 - 149 = 215$
5. $472 - 253 = 219$
6. $745 - 561 = 184$
7. $874 - 246 = 628$
8. $855 - 278 = 577$
9. $952 - 685 = 267$
10. $344 - 175 = 169$
11. $535 - 488 = 47$
12. $746 - 467 = 279$

**Subtraction (hot)**

<table>
<thead>
<tr>
<th>Hot Subtraction</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>$453 - 348$</td>
<td>$105$</td>
</tr>
<tr>
<td>$674 - 427$</td>
<td>$247$</td>
</tr>
<tr>
<td>$826 - 645$</td>
<td>$181$</td>
</tr>
<tr>
<td>$725 - 532$</td>
<td>$193$</td>
</tr>
<tr>
<td>$847 - 673$</td>
<td>$174$</td>
</tr>
<tr>
<td>$958 - 482$</td>
<td>$476$</td>
</tr>
<tr>
<td>$607 - 572$</td>
<td>$35$</td>
</tr>
<tr>
<td>$803 - 641$</td>
<td>$162$</td>
</tr>
<tr>
<td>$520 - 315$</td>
<td>$205$</td>
</tr>
<tr>
<td>$630 - 527$</td>
<td>$103$</td>
</tr>
</tbody>
</table>
A Bit Stuck?

Parent or carer

Many children at this age find column subtraction very tricky. In this case, we give them more practice on subtracting using the strategy of counting up on a number line. This is the method that we all use when finding our change!

Pay £10  Spend £7.25  Count up from £7.25 to £10

\[
\begin{array}{ccc}
\text{£7.25} & \rightarrow & 75p \\
\rightarrow & \rightarrow & \rightarrow \\
\text{£8} & \rightarrow & £2 \\
\rightarrow & \rightarrow & \rightarrow \\
\text{£10} & \\
\end{array}
\]

So, help your child to do the calculations below by counting up. Here’s the second one. 192 – 167

\[
\begin{array}{ccc}
\text{167} & \rightarrow & 3 \\
\rightarrow & \rightarrow & \rightarrow \\
\text{170} & \rightarrow & 22 \\
\rightarrow & \rightarrow & \rightarrow \\
\text{192} & \text{Answer is } 3 + 22 = 25 \\
\end{array}
\]

You can do every one on the sheet below like this.

This achieves a lot of good things!
- They rehearse the skill of adding to the next multiple of 10 – an absolutely essential skill for numerical fluency.
- They consolidate their understanding of how numbers work – counting from the multiple of 10 to the next number (This is the second hop.)
- They gain confidence, because you can do ANY subtraction this way
- It is a method which is particularly useful for money calculations.

GOOD LUCK!

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**Work in pairs**

**What to do:**
- Take it in turns to be the teacher and to be the Frog.
- Tell your partner, one step at a time, how to work out the answer to each subtraction.
- Remember to use your skills in subtracting 2-digit numbers to help you to subtract 3-digit numbers.

1. $92 - 67 = $

2. $192 - 167 = $

3. $83 - 45 = $
Learning outcomes:

- I can use Frog to subtract pairs of 2-digit numbers, using a landmarked line to help.
- I can use Frog to subtract pairs of 3-digit numbers, within the same century, using a landmarked line to help.
- I am beginning to sketch my own number line jottings when using Frog.

**S-t-r-e-t-c-h:**
Draw your own number line jottings to work out 354 – 337 and 572 – 549.

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A Bit Stuck?
Teach the frog
Check your understanding

Questions

Complete this calculation that uses ‘column subtraction’:

\[
\begin{array}{c}
700 \\
\hline
- 300
\end{array}
\begin{array}{c}
30 \\
\hline
5
\end{array}
\]

_____  

Fill the gaps in this subtraction:

\[81\square - 4\square 7 = \square 46\]

Fold here to hide answers

Check your understanding

Answers

Complete this calculation that uses ‘column subtraction’:

\[
\begin{array}{c}
\begin{array}{c}
600 \\
700
\end{array}
\end{array}
\begin{array}{c}
\begin{array}{c}
130 \\
30
\end{array}
\end{array}
\begin{array}{c}
7
\hline
- 300
\end{array}
\begin{array}{c}
60 \\
\hline
5
\end{array}
\]

\[
\begin{array}{c}
300 \\
\hline
70
\end{array}2
\]

Fill the gaps in this subtraction:

\[813 - 467 = 346\]

Probably best-solved by setting out as a column subtraction.