# Year 5: Week 5, Day 2
Use written addition to add decimals
Use rounding to estimate totals
Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.
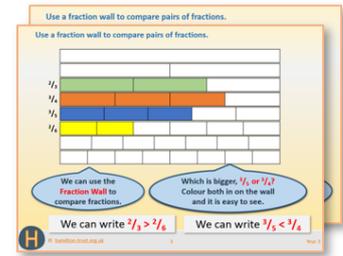
   OR start by carefully reading through the **Learning Reminders**.
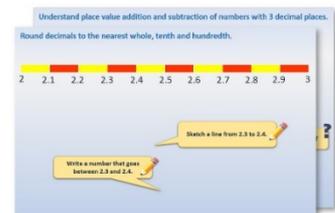
2. Tackle the questions on the **Practice Sheet**. There might be a choice of either Mild (easier) or Hot (harder)! Check the answers.
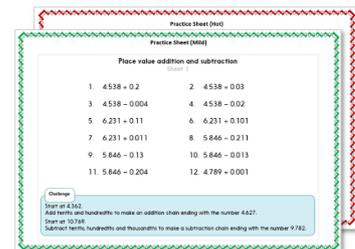
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**
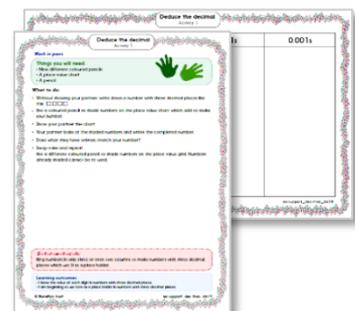
4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation**…

Learning Reminders

Use written addition to add decimals; use rounding to estimate totals.

Round each number to the nearest whole and add to estimate the total.

$2.68 + 6.25$

$3 + 6 = 9$

Now let's find the exact total using column addition; or the 'expanded' method.

Remember to leave a blank row above the answer line.

Add the 0.01s, then the 0.1s, then the 1s.

```
   2   0.6  0.08
+  6   0.2  0.05
       0.1
_____
   8   0.9  0.03

   8.93
```

```
   2 . 6 8
 + 6 . 2 5
         1
_____
   8 . 9 3
```

Close to our estimate!

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Learning Reminders

Use written addition to add decimals; use rounding to estimate totals.

Round each number to the nearest whole and add to estimate the total.

$22.3 + 6.83$

$22 + 7 = 29$

Now let's find the exact total using compact column addition.

Are you happy with this layout?

The columns need to be aligned correctly.
We need to align tenths with tenths, etc. The easy way to do this is to align the decimal point in each number.

```
  2 2 . 3
+ 6 . 8 3
_____
```

```
  2 2 . 3
+   6 . 8 3
      1
_____
  2 9 . 1 5
```

Learning Reminders

Use written addition to add decimals; use rounding to estimate totals.

Red ribbon: 2.23m
Green ribbon: 3.71m
Blue ribbon: 4.84m

Estimate the total length of the three ribbons by rounding each number to the nearest whole..

$$2 + 4 + 5 = 11$$

$$
\begin{array}{r}
2\,.\,2\ 3\ \text{m} \\
3\,.\,7\ 1\ \text{m} \\
+\quad 4\,.\,8\ 4\ \text{m} \\
1 \\
\hline
1\ 0\,.\,7\ 8\ \text{m}
\end{array}
$$

It's just like adding two numbers but we just have a few more digits to add!

Practice Sheet Mild
Ribbon decimals

Ribbon lengths:

Red	2.23m
Orange	2.3m
Yellow	1.72m
Green	3.71m
Blue	4.84m
Indigo	1.25m
Violet	3.02m

Estimate first!

1. Find the total length of the red and yellow ribbons.

2. Find the total length of the green and blue ribbons.

3. Find the total length of the indigo and violet ribbons.

4. Find the total length of the orange and indigo ribbons.

5. Find the total length of the indigo, red and yellow ribbons.

6. Find the total length of the green, blue and violet ribbons.

Challenge

Find the two ribbons whose total length is the closest to 5m.

Practice Sheet Hot
Ribbon decimals

Ribbon lengths:

Red	2.23m
Orange	2.3m
Yellow	1.72m
Green	3.71m
Blue	4.84m
Indigo	1.25m
Violet	3.02m

Estimate first!

1. Find the total length of the longest two ribbons.

2. Find the total length of the shortest two ribbons.

3. Find the total length of the indigo, red and yellow ribbons.

4. Find the total length of the gree, blue and violet ribbons.

5. Find the total length of the red, orange and yellow ribbons.

6. Find the total length of the blue, indigo and violet ribbons.

Challenge

Find the three ribbons whose total length is the closest to 8m.

Practice Sheets Answers

Ribbon decimals (mild)

1. 3.95m
2. 8.55m
3. 4.27m
4. 3.55m
5. 5.2m
6. 11.57m

Challenge

Green + Indigo = 3.71m + 1.25m = 4.96m   Can you go

closer?!

Ribbon decimals (hot)

1. 8.55m
2. 2.97m
3. 5.2m
4. 11.57m.

5. 6.25m

Challenge

Blue + Yellow + Indigo = 4.84m + 1.72m + 1.25m = 7.81m   Can you go

closer?!

What to do:

1.   Complete the answers for these additions:

      13.4 + 5.6
      16   + 7.6
      24.3 + 7.8
       5.25 + 14.7
      13.6 + 2.75

2.   Now lay out and solve these additions for yourself:

      15.8 + 6.5   2.7 + 1.25   16.4 + 5.8

S-t-r-e-t-c-h:
Without solving them, can you say which of these additions will have an answer closer to 5?

3.4 + 2.8 or 1.7 + 3.5

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Investigation
Four of the best

1. Copy this square.

+	0.7	0.2	1.1	1.8
1.3				
0.5				
0.6				
1				

2. Add the numbers in the top row and left column to complete the square.
3. Choose a number on the square and circle it.
4. Cross out all the numbers in the same row and column.
5. Choose another number – one that is not crossed out – and circle it.
6. Cross out all the numbers in the same row and column.
7. Repeat this for the third time.
8. Circle the remaining number.
9. Add the four circled numbers.
10. Now add the eight numbers round the outside of the square.
11. Finally add the numbers in each diagonal.

+	0.7	0.2	1.1	1.8
1.3	2	1.5		
0.5	1.2	0.7		
0.6	1.3			
1				

+	0.7	0.2	1.1	1.8
1.3	~~2~~	(1.5)	~~2.4~~	~~3.1~~
0.5	~~1.2~~	~~0.7~~	(1.6)	~~2.3~~
0.6	(1.3)	~~0.8~~	~~1.7~~	~~2.4~~
1	~~1.7~~	~~1.2~~	~~2.1~~	(2.8)

Try this again using the square below. What do you notice about the numbers here compared to those on the first square? Can you predict what may happen this time?

+	1.7	1.2	2.1	2.8
2.3				
1.5				
1.6				
2				

Try this again, starting with the original square, but this time adding $\frac{1}{10}$ to each number.

Challenge

Use the original square to invent a new square where the same thing happens.

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