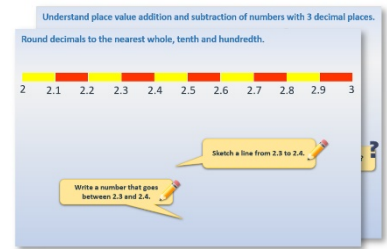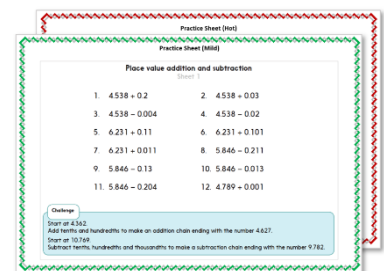# Week 9, Day 1
Use column addition to add three 3-digit numbers

Each day covers one maths topic. It should take you about 1 hour or just a little more.
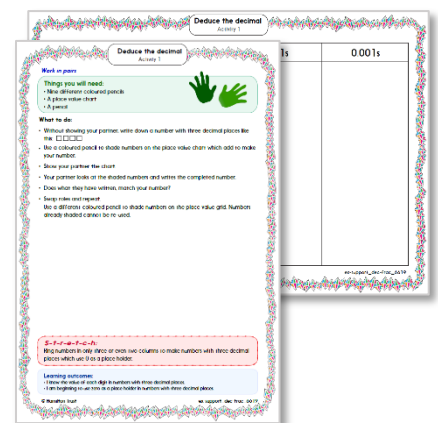
1. Start by reading through the **Learning Reminders**.
   They come from our *PowerPoint* slides.

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. Think you've cracked it? Whizzed through the Practice Sheets?
   Have a go at the **Investigation**…

Learning Reminders

Add three 3-digit numbers using compact addition; Use rounding to approximate.

426 + 257 + 582
275 + 446 + 385
Estimate the answer to each addition.

Estimate:
400 + 250 + 600 = 1250

Let's use **compact addition** to find the exact answer to 426 + 257 + 582.

$$
\begin{array}{r}
4\,2\,6 \\
2\,5\,7 \\
+\ 5\,8\,2 \\
1\ 1 \\
\hline
1\,2\,6\,5
\end{array}
$$

How does the answer compare with your **estimate?**

Now work out the exact answer to **275 + 446 + 385**
Compare the answer with your **estimate**. (275 + 446 + 385 = **1106**)

Learning Reminders

726 + 457 + 582

Round to the nearest 100 to estimate the answer and then find the exact total.

327 + 178 + 635

425 + 217 + 334

Which will have a total more than 1000?

How can you tell?

327 + 178 + 635 The 100s come to 1000 so the answer will be >1000.

425 + 217 + 334 The 100s come to 900 and the 2-digit parts of each number come to <100 so the answer will be < 1000.

Which will have a total more than 1000?
How can you tell?

327 + 178 + 635
425 + 217 + 334

Round to the nearest 100 to estimate the answer and then find the exact total.

726 + 457 + 582

```
  726
  457
+ 582
  1 1
 1765
```

Practice Sheet Mild
Adding three 3-digit numbers

Use compact column addition to calculate each total. Use rounding to the nearest 50 or 100 to approximate each answer first.

1.   428 + 347 + 121

2.   539 + 218 + 203

3.   482 + 396 + 152

4.   518 + 284 + 224

5.   493 + 267 + 306

6.   826 + 715 + 234

7.   724 + 693 + 405

8.   685 + 496 + 517

Challenge

Write three 3-digit numbers with a total of exactly 1000. No zeros allowed!

Practice Sheet Hot
Adding three 3-digit numbers

Use compact column addition to calculate each total. Use rounding to the nearest 10 or 100 to approximate each answer first.

1. 235 + 419 + 317

2. 463 + 182 + 323

3. 478 + 396 + 314

4. 546 + 279 + 384

5. 821 + 431 + 218

6. 739 + 218 + 426

7. 863 + 471 + 352

8. 876 + 485 + 567

Challenge

Write three 3-digit numbers with a total of exactly 1111. No zeros allowed!

Practice Sheets Answers

Adding three 3-digit numbers (mild)

1.	428 + 347 + 121	(400 + 350 + 100 = 850)	= 896
2.	539 + 218 + 203	(550 + 200 + 200 = 950)	= 960
3.	482 + 396 + 152	(500 + 400 + 150 = 1050)	= 1030
4.	518 + 284 + 224	(500 + 300 + 200 = 1000)	= 1026
5.	493 + 267 + 306	(500 + 250 + 300 = 1050)	= 1066
6.	826 + 715 + 234	(850 + 700 + 250 = 1800)	= 1775
7.	724 + 693 + 405	(700 + 700 + 400 = 1800)	= 1822
8.	685 + 496 + 517	(700 + 500 + 500 = 1700)	= 1698

Challenge

Write three 3-digit numbers with a total of exactly 1000. No zeros allowed!
e.g. 421 + 358 + 221 = 1000

Adding three 3-digit numbers (hot)

1.	235 + 419 + 317	(240 + 420 + 320 = 980)	= 971
2.	463 + 182 + 323	(460 + 180 + 320 = 960)	= 968
3.	478 + 396 + 314	(480 + 400 + 310 = 1190)	= 1188
4.	546 + 279 + 384	(550 + 280 + 380 = 1210)	= 1209
5.	821 + 431 + 218	(820 + 430 + 220 = 1470)	= 1470
6.	739 + 218 + 426	(740 + 220 + 430 = 1390)	= 1383
7.	863 + 471 + 352	(860 + 470 + 350 = 1680)	= 1686
8.	876 + 485 + 567	(880 + 490 + 570 = 1940)	= 1928

Challenge

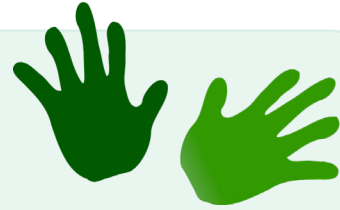Write three 3-digit numbers with a total of exactly 1111. No zeros allowed!
e.g. 421 + 358 + 332 = 1111

Work in pairs

Things you will need:
• A pencil

What to do:

• Use expanded column addition to calculate the answers to at least two additions in each column.

358 + 225	482 + 241
517 + 234	565 + 253
625 + 247	372 + 281
549 + 126	293 + 174

```
    300   50   8
 +  200   20   5
 _____
         10
              3
```

S-t-r-e-t-c-h:
Work out the answer to 367 + 275. This time the 1s come to more than 10 and the 10s come to more than 100.

Learning outcomes:
• I can use expanded column addition to add pairs of three-digit numbers where the 1s are greater than 10, or the 10s are greater than 100.
• I am beginning to use expanded column addition to add pairs of three-digit numbers where the 1s are greater than 10 and the 10s are greater than 100.

1 2 3 4 5 6 7 8 9

Use the digits 1 to 9 to make additions of three 3-digit numbers.
You can only use each digit once in each addition.

E.g. this addition is ok...   but not this one because the digits 3 and
                                      4 are used twice.

```
   5 4 3              5 4 3
   6 8 9              3 7 8
 + 2 7 1            + 2 4 6
 _____            _____
```

Become a superhero!

Aim to make:
- the biggest total possible.
- the smallest total possible.
- a total as close to 1500 as you can.

Challenge

What were your *strategies* to tackle these three challenges?
Write a couple of detailed sentences to *explain* how you solved one...