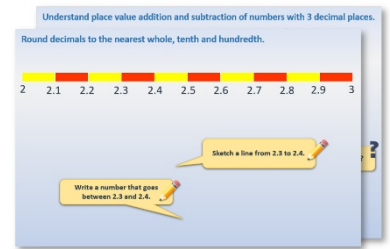


Week 9, Day 1

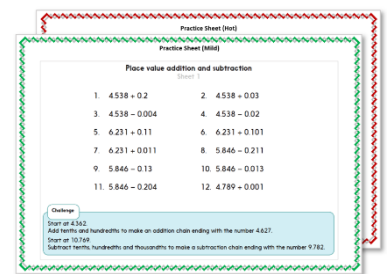
Use column addition to add three 3-digit numbers

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

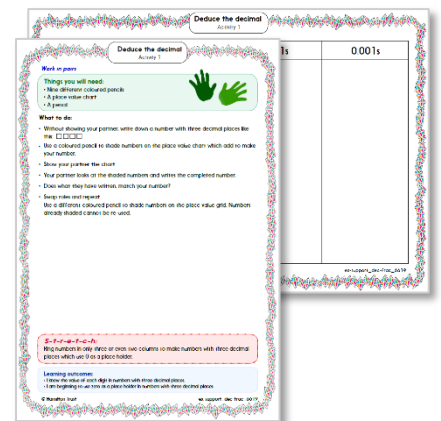
1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



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 $426 + 257 + 582$.

$$\begin{array}{r} 426 \\ 257 \\ + 582 \\ \hline 111 \\ \hline 1265 \end{array}$$

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

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

$$726 + 457 + 582$$

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?

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

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



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

$$\begin{array}{r} 726 \\ + 457 \\ + 582 \\ \hline 1765 \end{array}$$

$327 + 178 + 635$ 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 .

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. $421 + 358 + 332 = 1111$

A Bit Stuck?

Expanded sums

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.

Investigation

Target sums



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...

$$\begin{array}{r} 543 \\ 689 \\ + 271 \\ \hline \end{array}$$

but not this one because the digits 3 and 4 are used twice.

$$\begin{array}{r} 543 \\ 378 \\ + 246 \\ \hline \end{array}$$

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...