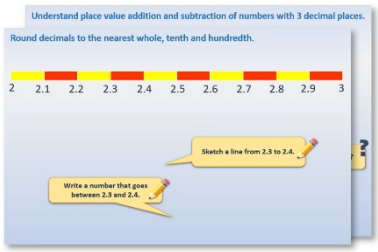
Year 5: Week 1, Day 2

Written (vertical) subtraction: decomposition

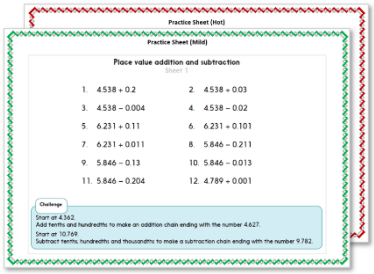
Each day covers one maths topic. It should take you about 1 hour or just a little more.

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



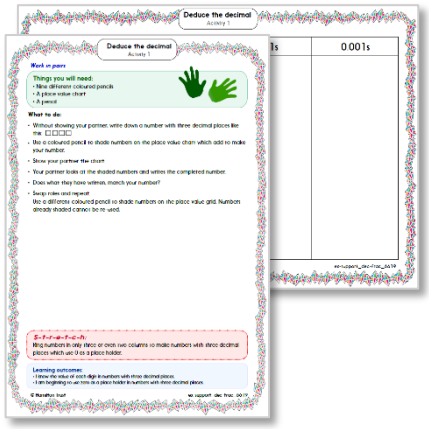
---

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



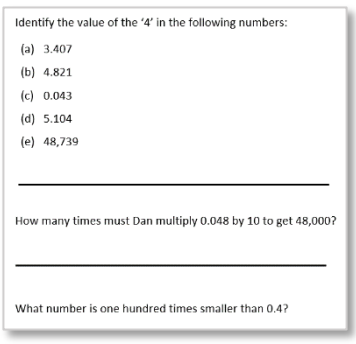
---

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

Use decomposition to subtract pairs of 5-digit numbers.

Find **64,783 – 35,327**

Let's remind ourselves how to use both expanded and compact column subtraction (decomposition)...
First subtract the 1s, then 10s, then 100s, then 1000s, then 10,000s.

50,000	14,000		70	13
~~60,000~~	~~4000~~	700	~~80~~	~~3~~
- 30,000	5000	300	20	7
20,000	9000	400	50	6

29,456

5	14		7	13
~~6~~	~~4~~	7	~~8~~	~~3~~
- 3	5	3	2	7
2	9	4	5	6

Learning Reminders

Use decomposition to subtract pairs of 5-digit numbers.

Have a go at using either expanded or compact decomposition to calculate 72,846 – 47,063.

70,000	2000	800	40	6
- 40,000	7000	0	60	3

7	2	8	4	6
- 4	7	0	6	3

Answers

60,000	12,000	700	140	
~~70,000~~	~~2000~~	~~800~~	~~40~~	6
- 40,000	7000	0	60	3
20,000	5000	700	80	3

25,783

	6	12	7	14
	~~7~~	~~2~~	~~8~~	~~4~~ 6
-	4	7	0	6 3
	2	5	7	8 3

Practice Sheet Mild

Subtracting 4-digit numbers

Complete each subtraction.

1. 4582 – 2317
2. 9635 – 2381
3. 5056 – 3214
4. 8264 – 2327
5. 6523 – 3289
6. 8236 – 5460
7. 4562 – 1684
8. 9450 – 5728

Choose two of your subtractions to check with addition.

Challenge

Find the missing digits in this subtraction:

□41□ - 1□36 = 70□7

Practice Sheet Hot

Subtracting 5-digit numbers

Complete each subtraction.

1. 86,541 – 23,016
2. 72,438 – 51,274
3. 65,056 – 23,432
4. 91,786 – 34,235
5. 72,872 – 25,348
6. 56,284 – 32,518
7. 92,628 – 45,371
8. 56,723 – 21,575
9. 45,842 – 27,486

Choose two of your subtractions to check with addition.

Challenge

Write a 5-digit – 5-digit subtraction where you will have to move numbers from four columns!

Extra Practice for All

Subtracting 5-digit numbers

1. 43,972 - 37,439
2. 56,382 - 22,936
3. 85,604 - 42,367
4. 74,083 - 41,448
5. 93,487 - 38,124
6. 83,572 - 47,429
7. 82,005 - 79,876
8. 45,321 - 24,756
9. 92,467 - 36,871
10. 40,625 - 23,478
11. 63,724 - 38,474
12. 83,074 - 48,238
13. 72,380 - 56,524
14. 92,412 - 67,845
15. 90,401 - 78,832

Challenge

Write a subtraction which has an answer of 12,345.
The subtraction must require you to move a ten and a hundred.

Practice Sheets Answers

Subtracting 4-digit numbers (mild)

1. 4582 – 2317 = 2265
2. 9635 – 2381 = 7254
3. 5056 – 3214 = 1842
4. 8264 – 2327 = 5937
5. 6523 – 3289 = 3234
6. 8236 – 5460 = 2776
7. 4562 – 1684 = 2878
8. 9450 - 5728 = 3722

Challenge

8413 - 1336 = 7077

Subtracting 5-digit numbers (hot)

1. 86,541 – 23,016 = 63,525
2. 72,438 – 51,274 = 21,164
3. 65,056 – 23,432 = 41,624
4. 91,786 – 34,235 = 57,551
5. 72,872 – 25,348 = 47,524
6. 56,284 – 32,518 = 23,766
7. 92,628 – 45,371 = 47,257
8. 56,723 – 21,575 = 35,148
9. 45,842 – 27,486 = 18,356

Subtracting 5-digit numbers (extra practice for all)

1. 43,972 - 37,439 = 6533
2. 56,382 - 22,936 = 33,446
3. 85,604 - 42,367 = 43,237
4. 74,083 - 41,448 = 32,635
5. 93,487 - 38,124 = 55,363
6. 83,572 - 47,429 = 36,143
7. 82,005 - 79,876 = 2129
8. 45,321 - 24,756 = 20,565
9. 92,467 - 36,871 = 55,596
10. 40,625 - 23,478 = 17,147
11. 63,724 - 38,474 = 25,250
12. 83,074 - 48,238 = 34,836
13. 72,380 - 56,524 = 15,856
14. 92,412 - 67,845 = 24,567
15. 90,401 - 78,832 = 11,569

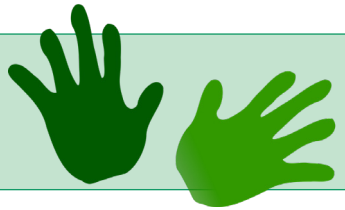
Challenge

There are many possible answers here, e.g. 65,228 - 52,883 = 12,345

A Bit Stuck?
Pick 'n' mix

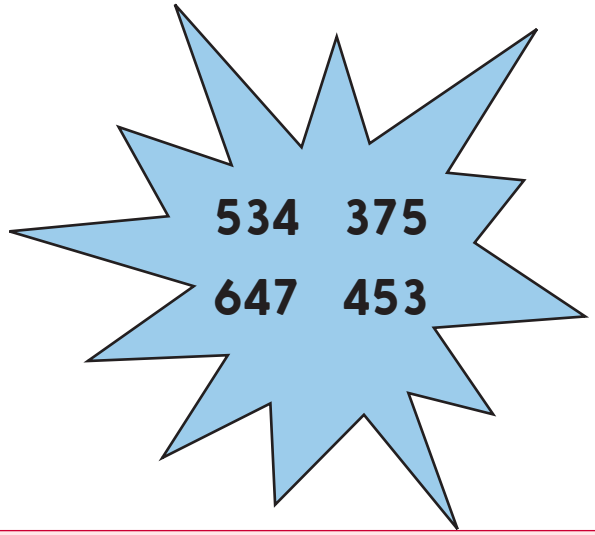
Work in pairs

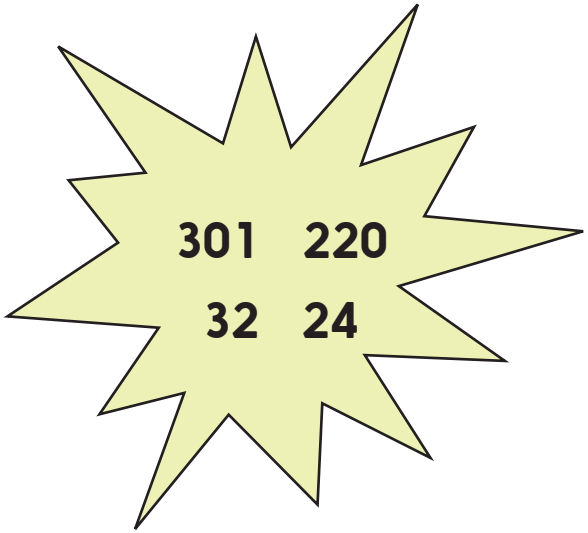
Things you will need:
- A pencil



What to do:

- Choose a pair of numbers to add together, one from each star, Write the sum and work out the answer.
- Repeat at least twice more.
- Now choose a pair of numbers which are easy to subtract. Work out the answer.
- Repeat at least twice more.
- How many additions and subtractions can you work out before time is up?





S-t-r-e-t-c-h:

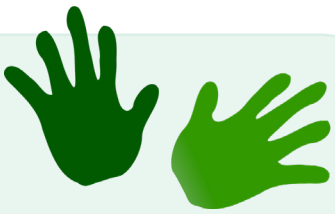
Sort these four additions into those you would calculate using a written method and those you would calculate mentally: 635 + 287, 734 + 203, 527 + 310 and 478 + 259. For one of each, tell someone why you made those choices.

Learning outcomes:

- I can use place value to add and subtract to/from 3-digit numbers (changing two digits).
- I am beginning to choose mental or written methods.

A Bit Stuck?
Hops, skips and jumps

Things you will need:
- A pencil



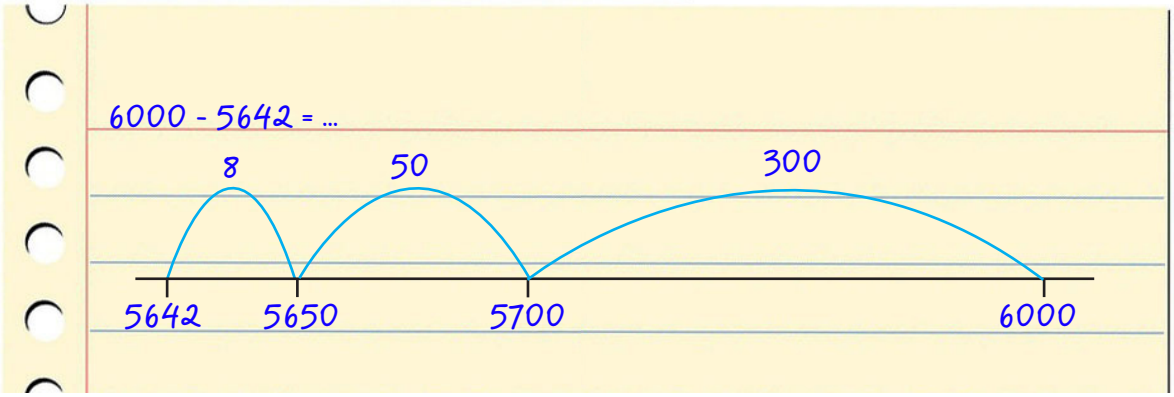
What to do:

- Choose at least four subtractions to work out.
  Draw a line from the smaller number to the bigger number.
  Use Frog to work out the difference between the two numbers.
- Remember to add up your hops and jumps at the end!

6000 – 5642 **6002 – 6938** **5000 – 3981**

4005 – 3964 **9000 – 4567** **6001 – 4983**

3004 – 2572



S-t-r-e-t-c-h:

Work out the answers to 6003 – 4579 and 5010 – 3678.
Frog needs to work a bit harder for these!

Learning outcomes:
- I can use Frog to subtract 4-digit numbers from multiples of 1000 (e.g. 4000 – 3786).
- I can use Frog to subtract 4-digit numbers when the larger number has zeros (e.g. 4002 – 3987).
- I am beginning to use Frog to subtract pairs of 4-digit numbers which are further apart from each other.

Check your understanding

Questions

Use just the digits 4 and 5 to create a 5-digit – 5-digit subtraction to give an answer with at least two 9s.
Can you get 9091?
What is the smallest answer you can get?
What is the largest?

Solve both these subtractions using vertical decomposition (expanded or compact – you choose).
(a) 67,493 – 21,561
(b) 50,005 – 44,878
Did you find one more straightforward than the other? Explain your thoughts…

Find the missing numbers in this subtraction:

$$\begin{array}{r} 12\bigstar62 \\ -\ 93\blacksquare8 \\ \hline 311\blacktriangle \end{array}$$

Fold here to hide answers:

Check your understanding

Answers

Use just the digits 4 and 5 to create a 5-digit – 5-digit subtraction to give an answer with at least two 9s. e.g. 55,544 – 44,555. Other answers are possible; the key is to have 4s in the first number in the same place as 5s in the second.
Can you get 9091? 54,545 – 45,454
What is the smallest answer you can get? 55,555 – 55,554 = 1
What is the largest? 55,555 – 44,444 = 11,111

Solve both these subtractions using vertical decomposition (expanded or compact – you choose).
(a) 67,493 – 21,561 = 45,932 (b) 50,005 – 44,878 = 5127
Did you find one more straightforward than the other? Explain your thoughts… The first calculation is probably best-done using column subtraction, since neither number is close to 10,000s and exchanges between columns are needed.
Since 50,005 is just over 50,000 the second can quickly be solved by counting up (Frog) from 44,878.

Find the missing numbers in this subtraction:
Note the need to decompose the 60.

$$\begin{array}{r} 5\,12 \\ 12462 \\ -\ 9348 \\ \hline 3114 \end{array}$$