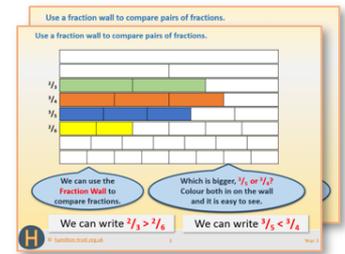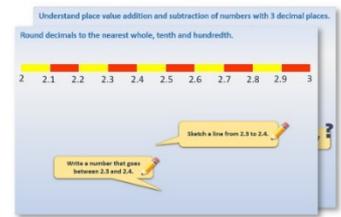# Year 5: Week 4, Day 2
Written subtraction (1)

Each day covers one maths topic. It should take you about 1 hour or just a little more.
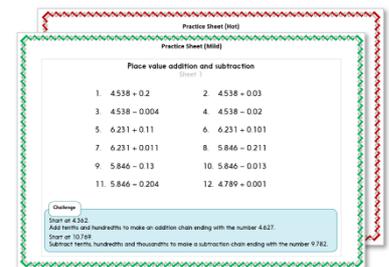
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.

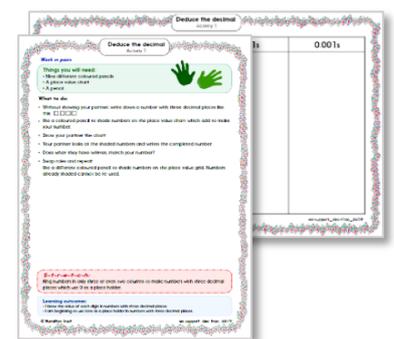   OR start by carefully reading through the **Learning Reminders**.

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 decomposition to subtract pairs of 5-digit numbers.

8 6 0 7 2
- 3 2 5 3 7

Can you spot where a 10, 100, 1000 or 10,000 will have to be moved?

The 'top' number has a zero so we will definitely have to move a 1000 to the 100s column. A 10 will also need to be moved into the ones column as 2 is less than 7.

	5000		1000	60	12
80,000	6000		0	70	2
- 30,000	2000		500	30	7
50,000	3000		500	30	5

53,535

	5	10	6	12
8	6	0	7	2
- 3	2	5	3	7
5	3	5	3	5

Learning Reminders

Use decomposition to subtract pairs of 5-digit numbers.

Use either expanded or compact decomposition to calculate 40,178 – 35,423.

$40,178 - 35,423 = 4755$

40,178 – 35,423

We have 100 – 400 but don't have any 1000s that we can move! We first need to move 10,000 from the 10,000s column…

```
                9000
30,000   10,000 1100
40,000      0    100  70  8
-30,000   5000   400  20  3
    0     4000   700  50  5
```

4755

```
              9
         3   10  11
    4     0    1   7  8
-   3     5    4   2  3
          4    7   5  5
```

Learning Reminders

Use decomposition or counting up to subtract pairs of 5-digit numbers.

```
  3 0 0 0 8
- 2 5 7 8 3
```

What moves would be necessary for this subtraction?

We would have to move a 10,000 to the 1000s, then a 1000 to the 100s and then a 100 to the 10s!
When we have this many moves to make, using Frog (counting up) would probably be a less error-prone strategy!

Frog is using the pair to 1000 to make the first hop.

Where will Maths Frog hop to next?

217   4000   8

25,783   26,000   **30,008 – 25,783 = 4225**   30,000   30,008
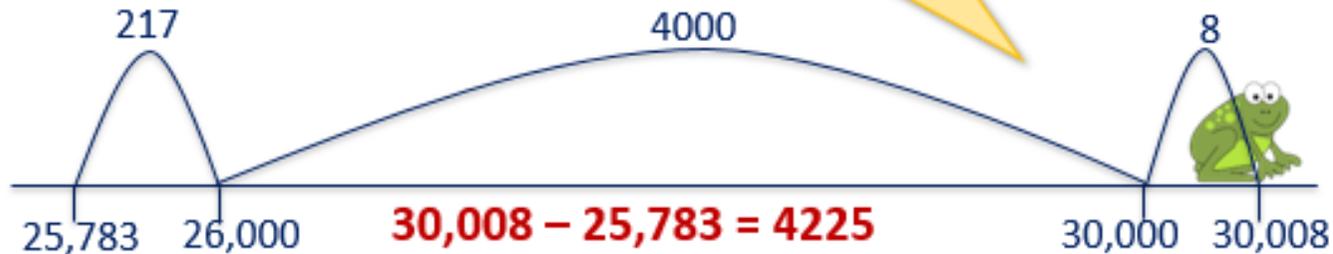
Much quicker with Frog!

Practice Sheet Mild
A table to show the numbers of hits on a website

Find the difference in numbers of website hits for each day.

Day of the week	am	pm	Difference in number of hits
Sunday	36,432	57,478	
Monday	19,758	24,642	
Tuesday	21,427	32,846	
Wednesday	16,375	25,342	
Thursday	18,631	26,492	
Friday	17,563	42,869	
Saturday	33,642	58,567	

Practice Sheet Hot
Subtracting pairs of 5-digit numbers

Choose the method of subtraction you use.

1.   75,369 - 35,826 =

2.   83,580 - 26,317 =

3.   64,329 - 32,876 =

4.   72,463 - 48,725 =

5.   50,756 - 38,249 =

6.   76,371 - 24,393 =

7.   62,341 - 46,586 =

8.   83,036 - 34,152 =

Challenge

Write two subtractions using 5-digit numbers. The first one should be one you would definitely do using Frog. The second should be one you would do using column subtraction. You must use all the digits 0-9 in each pair of subtractions, e.g. 71,820 - 65,349 which is a good one for Frog!

Practice Sheet Answers

A table to show the number of hits on a website (mild)

Sunday	21,046
Monday	4884
Tuesday	11,419
Wednesday	8967
Thursday	7861
Friday	25,306
Saturday	24,925

Subtracting pairs of 5-digit numbers (hot)

1. 75,369 – 35,826 = **39,543**
2. 83,580 – 26,317 = **57,263**
3. 64,329 – 32,876 = **31,453**
4. 72,463 – 48,725 = **23,738**
5. 50,756 – 38,249 = **12,507**
6. 76,371 – 24,393 = **51,978**
7. 62,341 – 46,586 = **15,755**
8. 83,036 – 34,152 = **48,884**

Challenge

Children will have a range of answers to this challenge. Ensure they have made their first calculation one which should be done using Frog. HINT it is usually easier to use Frog if the larger number has 2 or 3 zeros in it, or is close to a multiple of 1000, like 5013.

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.
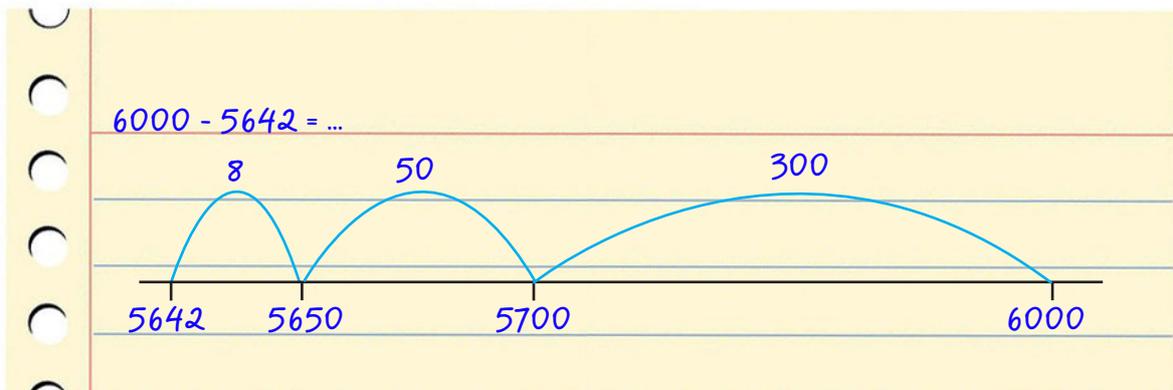• Remember to add up your hops and jumps at the end!

6000 – 5642	6002 – 6938	5000 – 3981
4005 – 3964	9000 – 4567	6001 – 4983
3004 – 2572		

6000 - 5642 = …

8   50   300

5642   5650   5700   6000

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.

Investigation
Mobile differences

1	2	3
4	5	6
7	8	9
	0	

1. Use the mobile phone digit display.
2. Create two five-digit numbers using these two rules:

Rules

1. The digits you choose must touch along a side. So you can choose 65214 because each digit touches the next one along a side.
2. You may not use any digit other than 5 more than once. So if 98547 is your first number, then 65214 cannot be your second number as 4 is used twice.
(NB. 5 may be used twice, even within the same number, e.g. 52145).

```
  74125
- 56980
  ─────
```

3. Find the difference between your two numbers.
4. Repeat, choosing two different numbers.
5. Find the largest possible difference that you can make, using two five-digit numbers generated according to the above rules.

    Can you demonstrate that this is the largest possible difference?

6. Find the smallest possible difference. (This is much harder!)

Challenge

Demonstrate that your smallest difference is indeed the smallest.

7. Find the difference nearest to 44,444.