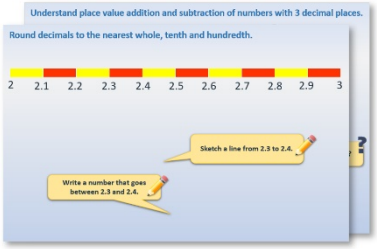
Week 12, Day 5
Sequences (2)

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

1. Start by carefully reading through the **Learning Reminders**.



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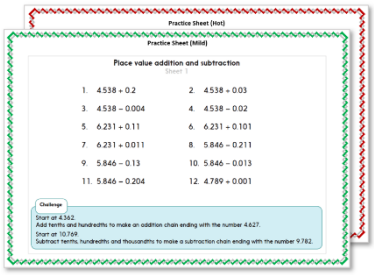
2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.



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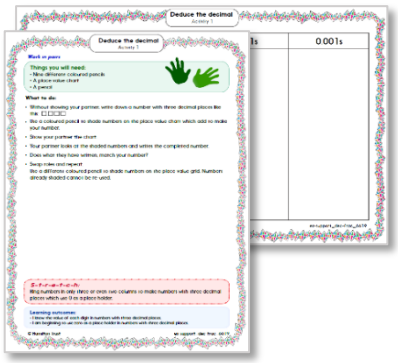
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**



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

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Learning Reminders

!

Generate and describe linear number sequences.

2, 4, 6, 8 …

- What is the next 'term' in this sequence?
- What is the 10th term?
- And the 100th? How did you work it out? You did not have time to count on in 2s to 200!

We can double 10 to find the 10th term or double 100 to find the 100th term.

- So how can we find the nth term?

The nth term is 2n: double the number of the term.

!

! !

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Learning Reminders

Generate and describe linear number sequences.

3, 6, 9, 12 …

- What is the next term in this sequence?
- What is the 10th term?
- And the 100th? How did you work it out?

We can multiply 10 by 3 to find the 10th term and multiply 100 by 3 to find the 100th term.

- So how can we find the nth term?

The nth term is 3n: three times the number of the term.

!
!

! !

Generate and describe linear number sequences.

4, 7, 10, 13, 16 …

- What do you think the 10th term will be? This sequence is a little more difficult.

It is 1 more than the 10th term in the last sequence, i.e. 31.

- What do you think 100th term will be?

3 x 100, + 1, i.e. 301

- How could you find any term in this sequence?

We can multiply the number of the term by 3 and then add 1.

- How can we write this using n?

3n + 1 This is a short way of recording how to find any term.

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Learning Reminders

Generate and describe linear number sequences.

5, 9, 13, 17, 21…

- What do you think the 10th term will be?

It is 1 more than the 10th term in the sequence of multiples of 4, i.e.. 41.

- What do you think 100th term will be?

4 x 100, + 1, i.e. 401

- How could you find any term in this sequence?

We can multiply the number of the term by 4 and then add 1.

- How can we write this using n?

4n + 1 This is a short way of recording how to find any term.

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Practice Sheet Mild

Sequences

Calculate the 10th, 100th and nth term in each sequence. Some have been done for you to get you started.

1.	2, 4, 6, 8, 10	The 10th term is ____	The 100th term is 200	The nth term is 2n
2.	3, 5, 7, 9, 11	The 10th term is ____	The 100th term is 201	The nth term is 2n + 1
3.	1, 3, 5, 7, 9	The 10th term is ____	The 100th term is ____	The nth term is ____
4.	3, 6, 9, 12, 15	The 10th term is ____	The 100th term is 300	The nth term is 3n
5.	4, 7, 10, 13, 16	The 10th term is ____	The 100th term is ____	The nth term is ____
6.	2, 5, 8, 11, 14	The 10th term is ____	The 100th term is ____	The nth term is ____
7.	10, 20, 30, 40, 50	The 10th term is 100	The 100th term is ____	The nth term is 10n
8.	11, 21, 31, 41, 51	The 10th term is ____	The 100th term is ____	The nth term is ____
9.	9, 19, 29, 39, 49	The 10th term is ____	The 100th term is ____	The nth term is ____
10.	15, 25, 35, 45, 55	The 10th term is ____	The 100th term is ____	The nth term is 10n + 5

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Practice Sheet Hot

Sequences

Find the 10th, 100th, then the nth term for each sequence.

1. 4, 8, 12, 16, 20...
2. 5, 9, 13, 17, 21...
3. 5, 10, 15, 20, 25...
4. 4, 9, 14, 19, 24...
5. 6, 11, 16, 21, 26...
6. 10, 20, 30, 40, 50...
7. 12, 22, 32, 42, 52...
8. 8, 18, 28, 38, 48...

Challenge

Create your own sequence writing down the first 5 terms. Work out and write down the 10th, 100th and the nth term in the sequence. Challenge someone – give them the first 5 terms of the sequence, can they find the 10th, 100th and the nth term?

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Practice Sheets Answers

Sequences (mild)

1.	2, 4, 6, 8, 10	The 10th term is 20 The nth term is 2n	The 100th term is 200
2.	3, 5, 7, 9, 11	The 10th term is 21 The nth term is 2n + 1	The 100th term is 201
3.	1, 3, 5, 7, 9	The 10th term is 19 The nth term is 2n – 1	The 100th term is 199
4.	3, 6, 9, 12, 15	The 10th term is 30 The nth term is 3n	The 100th term is 300
5.	4, 7, 10, 13, 16	The 10th term is 31 The nth term is 3n + 1	The 100th term is 301
6.	2, 5, 8, 11, 14	The 10th term is 29 The nth term is 3n – 1	The 100th term is 299
7.	10, 20, 30, 40, 50	The 10th term is 100 The nth term is 10n	The 100th term is 1000
8.	11, 21, 31, 41, 51	The 10th term is 101 The nth term is 10n + 1	The 100th term is 1001
9.	9, 19, 29, 39, 49	The 10th term is 99 The nth term is 10n – 1	The 100th term is 999
10.	15, 25, 35, 45, 55	The 10th term is 105 The nth term is 10n + 5	The 100th term is 1005

Sequences (hot)

1. 40, 400, 4n
2. 41, 401, 4n + 1
3. 50, 500, 5n
4. 49, 499, 5n - 1
5. 51, 501, 5n + 1
6. 100, 1000, 10n
7. 102, 1002, 20n + 2
8. 98, 998, 10n – 2

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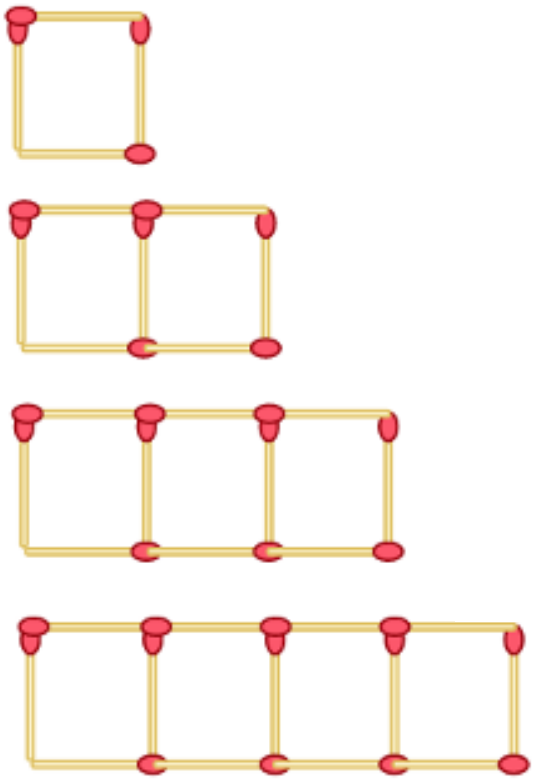
A Bit Stuck?
Matchsticks

1. Here is a sequence made from matchsticks.
   How would you describe it?



☐ matchsticks

☐ matchsticks

☐ matchsticks

☐ matchsticks

2. Look at the numbers of matchsticks in each chain of squares.
   Can you estimate how many matchsticks might be in the next chain?
   Sketch it to find out.

3. How many matchsticks do you think might be in the next chain?
   And the next?

S-t-r-e-t-c-h:
Can you say how many matchsticks might be in the 10th chain?
Sketch it to see if you calculated correctly!

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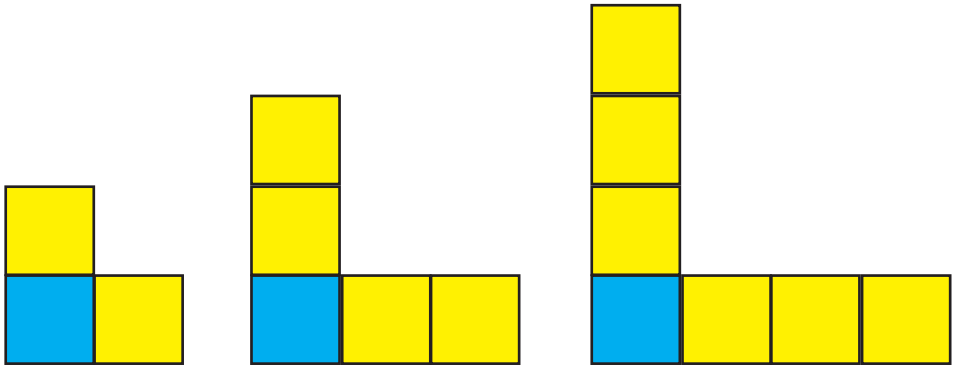
Investigation
LOL - lots of Ls



- Look at this sequence of shapes made by colouring squares.
  Can you describe how the number of squares is growing?

- How many squares are in the 3rd shape? The 10th shape?

- Draw a table to show the number of squares in each of the first 10 shapes.

- Can you see a pattern in the numbers?

- What would the 20th shape look like?
  How many blue squares would it have?
  How many yellow squares in each 'arm'?
  So how many squares altogether would be in it?

- How many squares would be in the 100th shape?
  The 1000th shape?

- So how many are in the ***n***th shape?

- Check this with several shapes, e.g. where ***n*** is 5 and 10, the 5th and 10th shapes in the sequence.

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