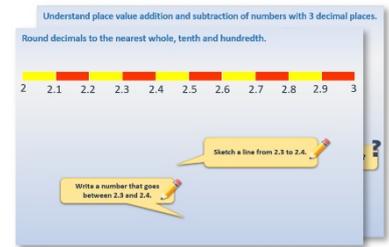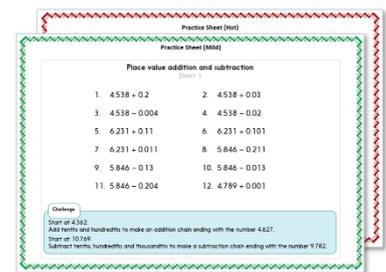# Week 12, Day 4
Sequences (1)

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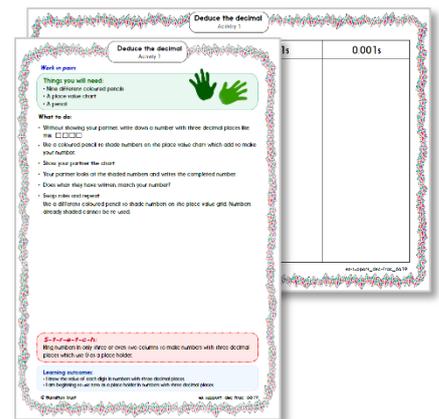
1. Start by reading through the **Learning Reminders**.
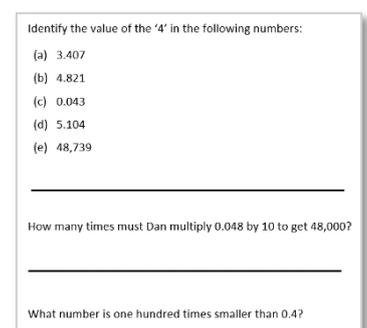They come from our *PowerPoint* slides.

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

Generate and describe linear number sequences.

_ , _ , _ , 24, _ , 36, _ , _ , _ , _

In this sequence the numbers go up by the same number each time.

? How can you figure out the steps and the missing numbers? What clues do you have? How many steps are between 24 and 36 in the sequence?
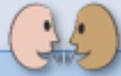
Find the missing numbers. What is each step worth? Count up, then down to check. Write the complete sequence.

Each step is worth 6.
6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Learning Reminders

Generate and describe linear number sequences.

$$\_\,,\,\_\,,\,16,\,\_\,,\,30,\,\_\,,\,\_\,,\,\_\,,\,\_\,,\,\_$$

Find the missing numbers.
What is each step worth? Count up, then down to check.
Write the complete sequence.

Each step is worth 7.
2, 9, 16, 23, 30, 37, 44, 51, 58, 65

Learning Reminders

Generate and describe linear number sequences.

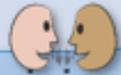_ , _ , _ , 21, _ , 15, _ , _ , _ , _

This time the sequence is decreasing rather than increasing.

Find the missing numbers.
What is each step worth? Count up, then down to check.
Write the complete sequence.
Describe the sequence.

The sequence is decreasing by 3 each time.
30, 27, 24, 21, 18, 15, 12, 9, 6, 3

_ , _ , _ , _ , 26 , _ , 16, _ , _

Find the missing numbers.
What is each step worth? Count up, then down to check.
Write the complete sequence.
Describe the sequence.

The sequence is decreasing by 5 each time.
46, 41, 36, 31, 26, 21, 16, 11, 6

Explore more Hamilton Trust Learning Materials at https://wrht.org.uk/hamilton

Practice Sheet Mild
Complete the sequence

Calculate the step increase or decrease in each sequence. Then write in the missing numbers.

1. 7, ___, 17, ___, ___, ___, 37, ___

2. 7, ___, 21, ___, ___, ___, 49, ___

3. 72, ___, ___, ___, 40, ___, ___, 16

4. 99, ___, ___, ___, 55, ___, ___, 22

5. 3, ___, 17, ___, ___, 38, ___, ___

6. 50, ___, ___, ___, ___, 30, ___, 22

7. 20, ___, 10, ___, 0, -5, ___, -15, ___

8. -8, ___, ___, 4, ___, ___, ___, 20

9. 1, ___, 1.4, ___, ___, 2, ___, 2.4

10. 10, ___, 9, ___, ___, 7.5, ___, ___

Complete the sequence

Calculate the step increase or decrease in each sequence. Then write in the missing numbers.

1. 20, ___, 10, ___, 0, -5, ___, -15, ___

2. -8, ___, ___, 4, ___, ___, ___, 20

3. 1, ___, 1.4, ___, ___, 2, ___, 2.4

4. 1.1, ___, ___, 4.4, ___, ___, 7.7, ___

5. $\frac{1}{2}$, ___, 1, ___, ___, 1$\frac{3}{4}$, ___, ___

6. 7, ___ , ___ , ___ , ___ , ___ , ___ , 56

7. 8, ___ , ___ , ___ , ___ , ___ , ___ , 36

8. 40, ___ , ___ , ___ , ___ , ___ , ___ , 19

9. 10, ___ , ___ , ___ , ___ , ___ , ___ , ___ , −6

10. 0.4, ___, 1.2, ___, 2, ___, 2.8

Challenge

Create a number sequence going up and down in equal steps. Write it again with some numbers missing. Challenge someone to find the missing numbers.

Practice Sheets Answers

Complete the sequence (mild)

1.   7, 12, 17, 22, 27, 32, 37, 42
2.   7, 14, 21, 28, 35, 42, 49, 56
3.   72, 64, 56, 48, 40, 32, 24, 16
4.   99, 88, 77, 66, 55, 44, 33, 22
5.   3, 10, 17, 24, 31, 38, 45, 52
6.   50, 46, 42, 38, 34, 30, 26, 22
7.   20, 15, 10, 5, 0, -5, -10, -15, -20
8.   -8, -4, 0, 4, 8, 12, 16, 20
9.   1, 1.2, 1.4, 1.6, 1.8, 2, 2.2, 2.4
10. 10, 9.5, 9, 8.5, 8, 7.5, 7, 6.5

Complete the sequence (hot)

1.   20, 15, 10, 5, 0, -5, -10, -15, -20
2.   -8, -4, 0, 4, 8, 12, 16, 20
3.   1, 1.2, 1.4, 1.6, 1.8, 2, 2.2, 2.4
4.   1.1, 2.2, 3.3, 4.4, 5.5, 6.6. 7.7, 8.8
5. $\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}, 1\frac{3}{4}, 2, 2\frac{1}{4}$
6.   7, 14, 21, 28, 35, 42, 49, 56
7.   8, 12, 16, 20, 24, 28, 32, 36
8.   40, 37, 34, 31, 28, 25, 22, 19
9.   10, 8, 6, 4, 2, 0, -2, -4, -6
10. 0.4, 0.8, 1.2, 1.6, 2, 2.4, 2.8

Work in pairs, but write on your own sheet.

Things you will need:
• A pencil

What to do:

Spot the rule for each sequence. Use this to work out the missing numbers.

2, 7, 12, 17, ____, ____, ____   The rule is _____

1, 5, 9, 13, ____, ____, ____   The rule is _____

3, 10, 17, 24, ____, ____, ____   The rule is _____

____, ____, 23, 26, 29, 32, 35   The rule is _____

4, 14, ____, ____, ____, 54, 64   The rule is _____

20, 26, ____, 38, ____, 50, 56   The rule is _____

S-t-r-e-t-c-h:
Make up your own rule. Use this to write a sequence of seven numbers.
Can your partner work out your rule?

Learning outcomes:
• I can spot the rule of sequences and use it to work out missing numbers.
• I am beginning to use my own rules to generate sequences.

The fourth term of a sequence is 17, the fifth is 21 and the sixth is 25.

Write the next four terms.

Then write the first three terms.

What is the general rule?

Write the 10th term in this sequence: 1.5, 4.5, 7.5, 10.5 …

Three matches are arranged to make a triangle. How many more need to be added to make 2 triangles?

How many more to make 3 triangles?

Continue this sequence for 6 triangles.

Write the number of matches that it takes to have 12 triangles.

Fold here to hide answers

Check your understanding
Answers

The fourth term of a sequence is 17, the fifth is 21 and the sixth is 25.

Write the next four terms. 29, 33, 37, 41.

Then write the first three terms. 5, 9, 13.

What is the general rule? It increases by 4 each time. Children may notice that it is the sequence of numbers is 1 more than the 4 times table.

Write the 10th term in this sequence: 1.5, 4.5, 7.5, 10.5 … 28.5.

Three matches are arranged to make a triangle. How many more need to be added to make 2 triangles? 2 more (5 in total).

How many more to make 3 triangles? 2 more (7 in total).

Continue this sequence for 6 triangles. Will need another 6 matches (13 in total).

Write the number of matches that it takes to have 12 triangles. 25.