Week 12, Day 1
Count in 4s and 8s

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.
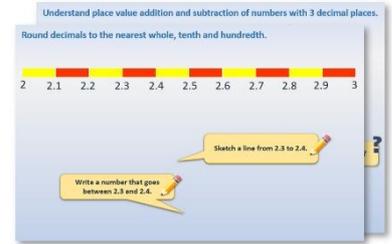
2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.
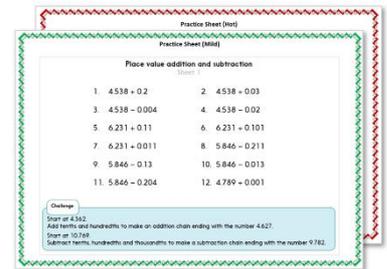
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**
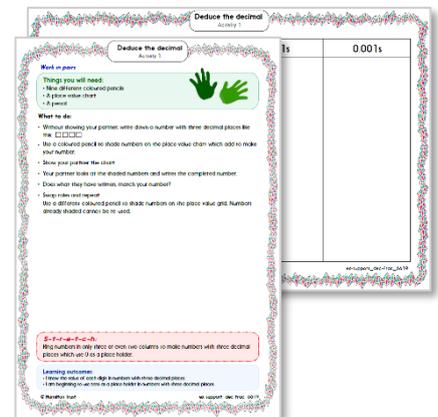
4. Think you've cracked it? Whizzed through the Practice Sheets?
   Have a go at the **Investigation**…

Learning Reminders

Count in 4s.

Your challenge is to count in steps of 4 from 4 to at least 100!

4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96 100!

What did you notice about all the numbers you said?

They were all **even**!

Learning Reminders

Count in 8s.

Join in with the counting song *Counting By Eights*.

Write the numbers in the count to 96, one underneath each other.

What did you notice about all of these numbers?

They are even too!

8
16
24
32
40
48
56
64
72
80
88
96

The *Counting By Eights Song* is at http://www.youtube.com/watch?v=3SwaOvWD-PY (starting at 1:27).

Practice Sheet Mild
Missing numbers

Copy these sequences and fill in the missing numbers.

4, 8, ☐, 16, ☐, ☐, 28, 32, ☐, 40, ☐, ☐, 52, ☐, ☐, 64, 68,

☐, ☐, ☐, 84, 88, ☐, 96, ☐

8, 16, ☐, 32, ☐, ☐, ☐, 64, 72, ☐, ☐, 96, ☐

Circle the numbers that appear in both sequences.
What do you notice?
How can you explain this?

Challenge

Complete this sequence:

6, 12, 18, ☐, 30, 36, ☐, 48, ☐, ☐, 66, 72, ☐, ☐, ☐, ☐, ☐.

Can you find any numbers that are in all three sequences?

Practice Sheet Hot
Count in 4s and 8s

Someone has counted in 4s from the bottom rung.
Fill in the missing numbers on these lladders.
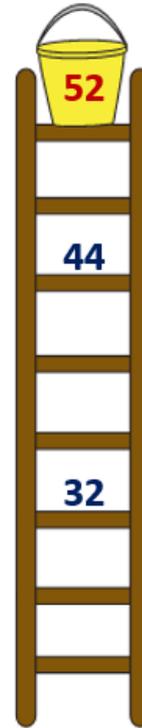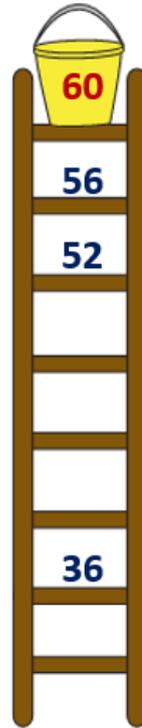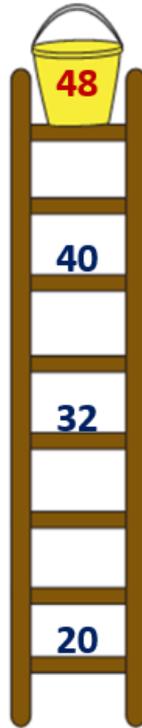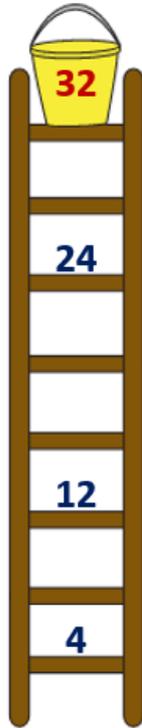
Ladder 1: 32 | | 24 | | | 12 | | 4

Ladder 2: 48 | | 40 | | 32 | | | 20

Ladder 3: 60 | 56 | 52 | | | | 36 |

Ladder 4: 52 | | 44 | | | 32 | |

Someone has counted in 8s from the bottom rung.
Fill in the missing numbers on these ladders.

Ladder 5: 64 | | 48 | | 24 | | 8

Ladder 6: 80 | | 64 | | 48 | | | 24

Ladder 7: 88 | 80 | 72 | | | | 40 |

Ladder 8: 96 | | | | 64 | 56 | |
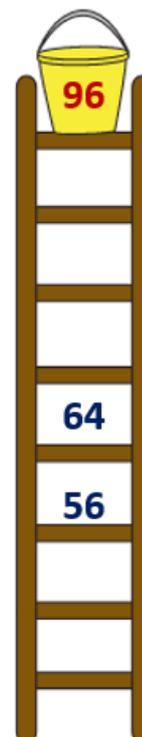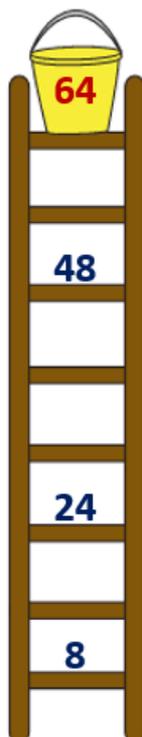
Practice Sheets Answers

Missing numbers (mild)

4, (8), 12, (16), 20, (24), 28, (32), 36, (40), 44, (48), 52, (56), 60, (64), 68, (72), 76, (80), 84, (88), 92, (96), 100

(8), (16), (24), 32, (40), (48), (56), 64, (72), (80), (88), (96), 104

The circled numbers are all multiples of 8.

Challenge

6, 12, 18, (24), 30, 36, 42, (48), 54, 60, 66, (72), 78, 84, 90, (96), 102

Can you find any numbers that are in all three sequences?   24, 48, 72 and 96.

Count in 4s and 8s (hot)

Someone has counted in 4s from the bottom rung. Fill in the missing numbers on these ladders.
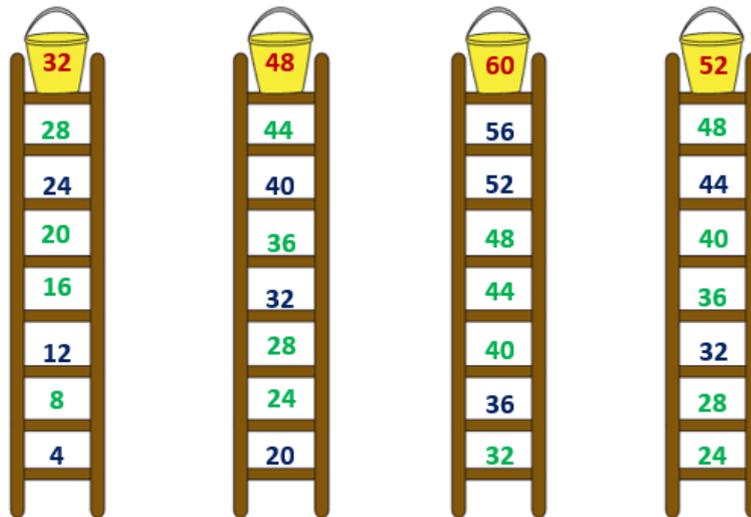
32	48	60	52
28	44	56	48
24	40	52	44
20	36	48	40
16	32	44	36
12	28	40	32
8	24	36	28
4	20	32	24

Someone has counted in 8s from the bottom rung. Fill in the missing numbers on these ladders.

64	80	88	96
56	72	80	88
48	64	72	80
40	56	64	72
32	48	56	64
24	40	48	56
16	32	40	48
8	24	32	40
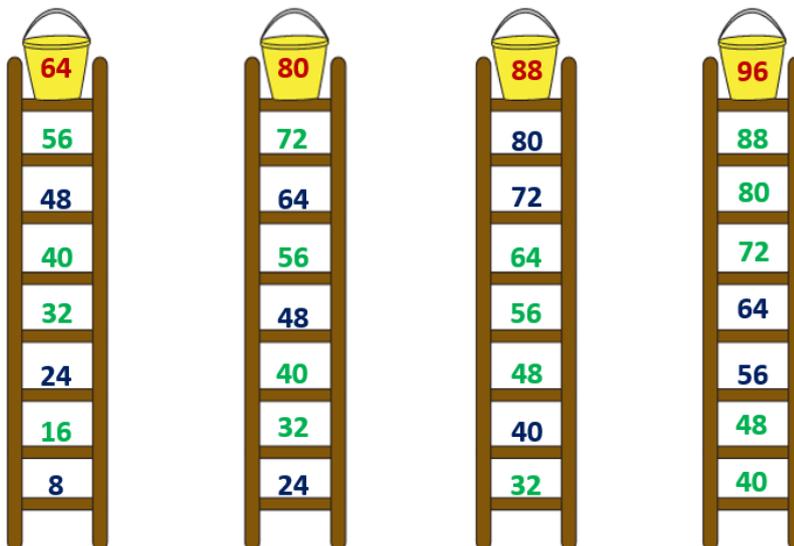
Work in pairs

Things you will need:
• Coloured pencils
• A 1-100 grid (see below)
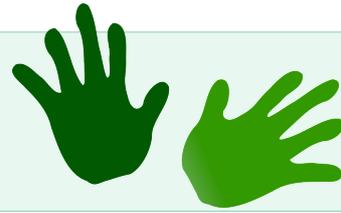
What to do:

- Colour in 4, 8 and 12 on this 1-100 number grid.

- Carry on counting in 4s all the way to 100, colouring each number you say.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- What pattern do the 4s make?

- Now **ring** 8, 16, 24 using a different colour pencil.

- Carry on counting in 8s, **ringing** each number you say.

- What do you notice? *Tell* a partner…

Now, can you *write* a sentence or two to describe those patterns/rules.

Investigation
Roots patterns

To find the digital root of 32 we add 3 and 2 to give 5.

To find the digital root of 96 we add 9 and 6 to give 15, then 1 and 5 to give 6.

- Write the answers in the 4x table, to at least 48, one under the other.

- *Now find the digital root of each number and write it at the side.*

- Draw a line from the digital root of the first *answer* (4) on the first numbered circle below, to the digital root for the second answer (8, *see below*).

- Draw line from digital root of 8 to the digital root of 12 (3), and so on.

- Look to see what patterns you get when you join the digital roots.

- Repeat with the 8 times table
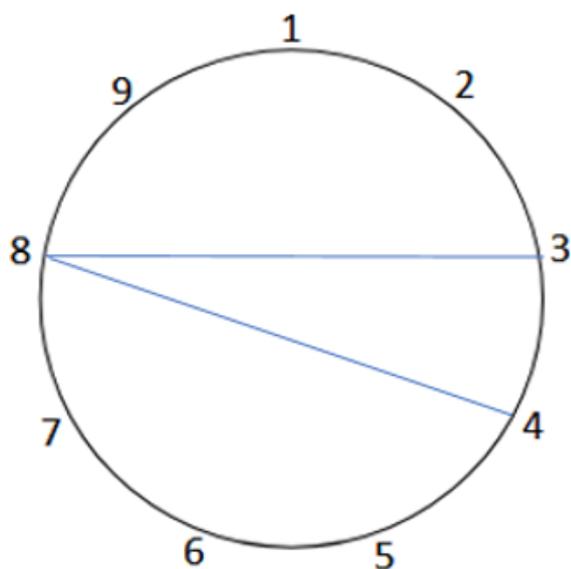
4x table
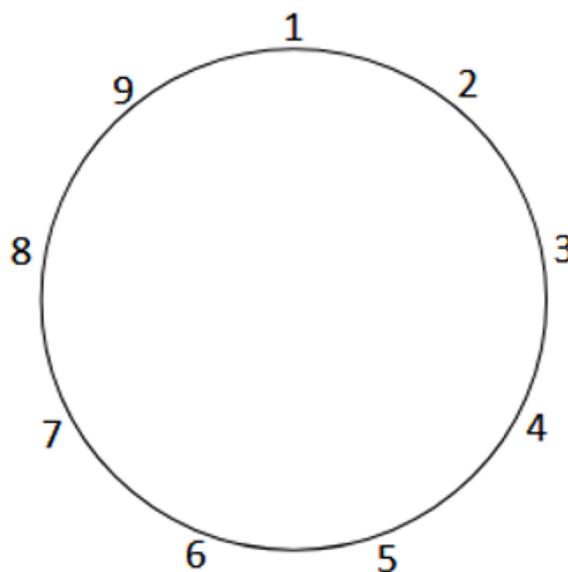
8x table

Challenge

- Choose other times tables and repeat. Carefully label each diagram you produce.

- Do you notice anything interesting?

- Can you **describe** patterns/similarities/differences in words to a partner, or by writing a sentence or two?

- Can you **explain** any of those observations…?

Investigation
Roots patterns

The page contains six numbered circles, each with the numbers 1 through 9 arranged clockwise around the circumference (1 at top, 2, 3, 4, 5 at bottom, 6, 7, 8, 9).