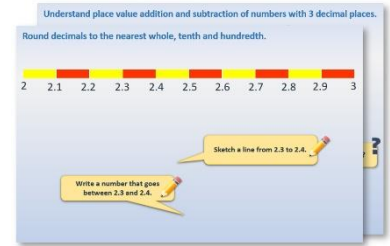


# Year 4: Week 1, Day 4

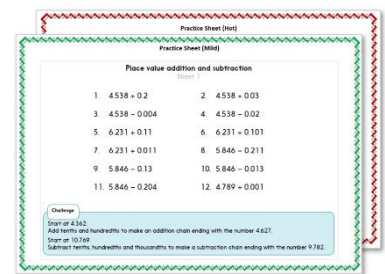
## Written multiplication

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

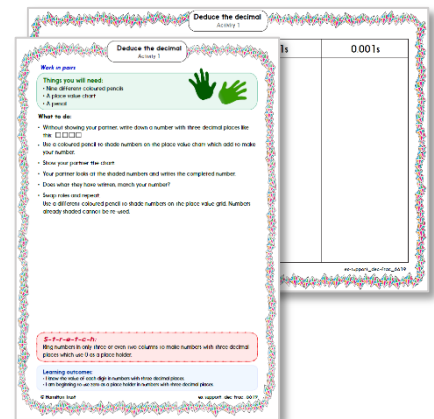
- Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



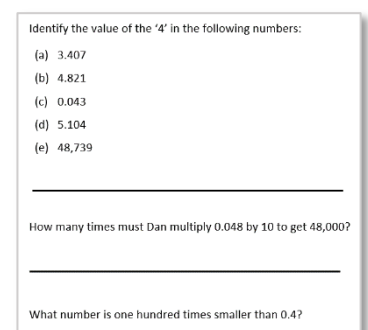
- Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.



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



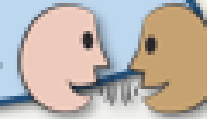
- Have I mastered the topic? A few questions to **Check your understanding**. Fold the page to hide the answers!



## Learning Reminders

Use partitioning to multiply 3-digit numbers by 1-digit numbers.

We're going to use the grid method to work out  $3 \times 134$ .



First we **partition 134**.  
Put the 100s, 10s and 1s  
in the top line of the grid  
and the 3 at the left side.

$\times$	100	30	4	
3	300	90	12	402

What is  $100 \times 3$ ?

$30 \times 3$ ?

$4 \times 3$ ?

Finally add  
 $300 + 90 + 12$ .

## Learning Reminders

Use partitioning to multiply 3-digit numbers by 1-digit numbers.

Let's work out  $423 \times 6$   
using the grid method.



x	400	20	3	
6	2400	120	18	2538

What is  $400 \times 6$ ?

$20 \times 6$ ?

$3 \times 6$ ?

Finally add  
 $2400 + 120 + 18$ .

$$\begin{array}{r} 423 \\ \times 6 \\ \hline 2400 \\ 120 \\ 18 \\ \hline 2538 \end{array}$$

We can also set out 3-digit  
multiplication this way – it is  
called the **ladder method**.

The three multiplications  
are just the same and the  
numbers are then neatly  
set out for the addition!

## Learning Reminders

Use partitioning to multiply 3-digit numbers by 1-digit numbers.

We're going to find  $543 \times 7$  using the **grid method** and then the **ladder method**.

$\times$	500	40	3	
7	3500	280	21	3801

What is  $500 \times 7$ ?

$40 \times 7$ ?

$3 \times 7$ ?

Finally add  $3500 + 280 + 21$ .

The **partitioning** is more obvious when we use **grid method**.

$$\begin{array}{r} 543 \\ \times 7 \\ \hline 3500 \\ 280 \\ 21 \\ 1 \\ \hline 3801 \end{array}$$

Finally use **column addition** to add  $3500 + 280 + 21$ .

The **addition at the end** can be easier with **ladder method**.

## Practice Sheet Mild

### Partitioning to multiply

Solve these using the grid method, or the ladder method - you choose!

$3 \times 121$

$352 \times 4$

$3 \times 235$

$244 \times 6$

$5 \times 113$

$6 \times 531$

$454 \times 5$

$4 \times 512$

$423 \times 3$

$4 \times 345$

#### Challenge

Find the missing numbers:

	x	300	<input type="text"/>	7	
<input type="text"/>		<input type="text"/>	240	56	= <input type="text"/>

## Practice Sheet Hot

### Practising the ladder method

Solve these using the ladder method.

$$324 \times 3$$

$$437 \times 5$$

$$4 \times 582$$

$$6 \times 206$$

$$132 \times 8$$

$$365 \times 6$$

$$463 \times 4$$

$$8 \times 508$$

$$3 \times 213$$

$$5 \times 145$$

#### Challenge

Will  $354 \times 6$  have a larger or smaller answer than  $654 \times 3$ ? How do you know?

Will  $315 \times 4$  have a larger or smaller answer than  $415 \times 3$ ? How do you know?

# Practice Sheet Answers

## Partitioning to multiply (mild)

$3 \times 121 = 363$

$352 \times 4 = 1408$

$3 \times 235 = 705$

$244 \times 6 = 1464$

$5 \times 113 = 565$

$6 \times 531 = 3186$

$454 \times 5 = 2270$

$4 \times 512 = 2048$

$423 \times 3 = 1269$

$4 \times 345 = 1380$

## Challenge

$$\begin{array}{r|l|l|l} \times & 300 & 30 & 7 \\ \hline 8 & 2400 & 240 & 56 \\ \hline & & & = 2696 \end{array}$$

## Practising the ladder method (hot)

$324 \times 3 = 972$

$437 \times 5 = 2185$

$4 \times 582 = 2328$

$6 \times 206 = 1236$

$132 \times 8 = 1056$

$365 \times 6 = 2190$

$463 \times 4 = 1852$

$8 \times 508 = 4064$

$3 \times 213 = 639$

$5 \times 145 = 725$

## Challenge

354 x 6 will have a **larger** answer than 654 x 3.

315 x 4 will have a **smaller** answer than 415 x 3.

## A Bit Stuck? Grid genius

Work in pairs, but record your work on your own sheet.

### Things you will need:

- A pencil



### What to do:

- Use the grid method to work out the answer to the multiplications:

$3 \times 12$

x	10	2	
3			

$5 \times 13$

x	10	3	
5			

$4 \times 15$

x	10	5	
4			

- Next choose at least two multiplications and draw your own grid to keep track of your steps. Now you are a grid genius!

$7 \times 13$

$6 \times 14$

$8 \times 12$

$5 \times 15$

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

Use the grid method to work out  $3 \times 24$  and  $4 \times 24$ . Remember that to work out  $3 \times 20$ , we can multiply the answer to  $3 \times 2$  by 10.

### Learning outcomes:

- I can use the grid method to multiply numbers from 11 to 15 by 1-digit numbers.
- I am beginning to multiply numbers 21 to 25 by 1-digit numbers.



## Check your understanding Questions

Use grid method to complete each of these:

$$424 \times 6 =$$

$$3 \times 848 =$$

What do you notice? Why does this happen?

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Use grid AND ladder to solve  $354 \times 6$ .

Say which method you prefer and why.

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Write the missing numbers:

x	300		
4		160	24

What is the final product?

Fold here to hide answers

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## Check your understanding Answers

Use grid method to complete each of these:

$$424 \times 6 = 2544$$

x	400	20	4
6	2400	120	24

$$3 \times 848 = 2544$$

x	800	40	8
3	2400	120	24

What do you notice? Why does this happen? The answers are the same since 848 is double 424 and it is being multiplied by 3 which is half of 6.

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Use grid AND ladder to solve  $354 \times 6$ . 2124.

Say which method you prefer and why. Children should be referring to aspects such as place value, clarity of what the method shows, possible number of steps etc., rather than just saying "It's easier!"