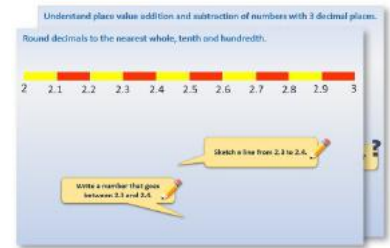


# Year 6: Week 2, Day 4

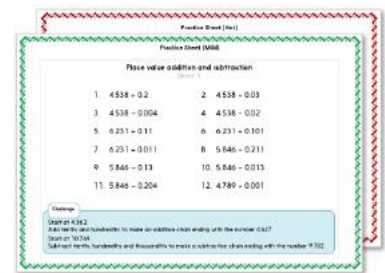
## Short multiplication

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

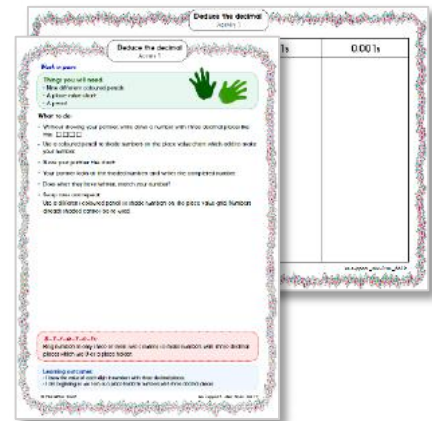
1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



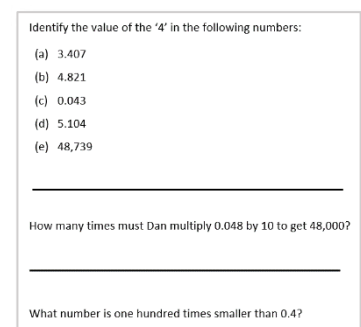
2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.



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

Use short multiplication to multiply 3- and 4-digit numbers by 1-digit numbers.

Remind yourself how to use the grid method to find  $3 \times 326$ .

x	300	20	6	
3	900	60	18	978

Now let's use short multiplication to find  $3 \times 326$ .

$$\begin{array}{r} 326 \\ \times 3 \\ \hline 978 \end{array}$$

### Step 1

3 times 6 is 18. We write the 8 in the 1s column and the 1 ten in the 10s column above the line like we do for addition.

### Step 2

Next, find  $3 \times 20$ , 2 tens. That's 6 tens, plus the 1 ten we had from multiplying the 1s, so that's 7 tens; so we write 7 in the 10s column.

### Step 3

Then we find  $3 \times 300$ . That's nine 100s, which we write in the 100s column.

## Learning Reminders

Use short multiplication to multiply 3- and 4-digit numbers by 1-digit numbers.

Find  $5 \times 2326$

$$\begin{array}{r} 2326 \\ \times \quad 5 \\ \hline 113 \\ 11630 \end{array}$$

Where does each pair of coloured digits come from?

Remember to leave a line for the 'carry' digits, as in addition.

**Step 1**  
 $6 \times 5$  is 30.

**Step 2**  
 $20 \times 5$  is, 10 tens, plus the 3 tens we had from multiplying the 1s, so that's 13 tens.

**Step 3**  
 $300 \times 5$   
That's 15 hundreds, plus the 1 hundred we had from multiplying the 10s. So, that's 16 hundreds.

**Step 4**  
 $2000 \times 5$   
That's 10 thousands, plus the 1 thousand we had from multiplying the 100s. So, that's 11 thousands.

## Practice Sheet Mild

### Multiplication practice

Use a written method to work out the answers, but watch out for a few where you could use a mental method instead.

1.  $3 \times 472$

2.  $5 \times 635$

3.  $4 \times 222$

4.  $4 \times 572$

5.  $3 \times 299$

6.  $8 \times 427$

7.  $7 \times 684$

8.  $3 \times 2513$

9.  $6 \times 7238$

10.  $4 \times 4025$

11.  $8 \times 4582$

12.  $5 \times 3200$

13.  $6 \times 7438$

14.  $8 \times 7869$

15.  $7 \times 9786$

#### Challenge

Which two products have a difference of 2500? Which have a difference of 100?  
(You may have to use some estimation to find these two)

## Practice Sheet Hot

### Multiplying 4-digit numbers by 1-digit numbers

Use a written method to work out these multiplications.

1.  $3 \times 2493$

2.  $3 \times 8241$

3.  $4 \times 2854$

4.  $4 \times 6178$

5.  $6 \times 4728$

6.  $6 \times 7236$

7.  $7 \times 2143$

8.  $7 \times 5942$

9.  $8 \times 1487$

10.  $8 \times 6048$

#### Challenge

Which will have a total closest to 4321?

a)  $1234 \times 4$

b)  $654 \times 7$

c)  $1441 \times 3$

## Practice Sheets Answers

### Multiplication practice (mild)

- $3 \times 472 = 1416$
- $5 \times 635 = 3175$
- $4 \times 222 = 888$
- $4 \times 572 = 2288$
- $3 \times 299 = 897$
- $8 \times 427 = 3416$
- $7 \times 684 = 4788$
- $3 \times 2513 = 7539$
- $6 \times 7238 = 43,428$
- $4 \times 4025 = 16,100$
- $8 \times 4582 = 36,656$
- $5 \times 3200 = 16,000$
- $6 \times 7438 = 44,628$
- $8 \times 7869 = 62,952$
- $7 \times 9786 = 68,502$

#### Challenge

Product number 4 and product number 7 have a difference of 2500.

Product number 10 and product number 12 have a difference of 100.

### Multiplying 4-digit numbers by 1-digit numbers (hot)

- $3 \times 2493 = 7479$
- $3 \times 8241 = 24,723$
- $4 \times 2854 = 11,416$
- $4 \times 6178 = 24,712$
- $6 \times 4728 = 28,368$
- $6 \times 7236 = 43,416$
- $7 \times 2143 = 15,001$
- $7 \times 5942 = 41,594$
- $8 \times 1487 = 11,896$
- $8 \times 6048 = 48,384$

#### Challenge

c)  $1441 \times 3 = 4323$   
since  $7 \times 654 = 4578$   
and  $4 \times 1,234 = 4936$

## A Bit Stuck? Greatest grid gurus!

Discuss your work together, in pairs.

### Things you will need:

- A pencil
- Grids with the multiplications



### What to do:

- Use the grid method to work out the multiplications on the sheet.
- Start by partitioning the 3-digit or 4-digit number. Write the numbers in the correct places on the grid along the top.
- Write the 1-digit multiplier on the grid.
- Multiply the numbers and write the answers.
- Add the answers and complete the number sentence.
- You can use the place value grid to help you multiply by 10, 100 and 1000.

$6 \times 243 = 1458$				
x	200	40	3	=
6	1200	240	18	1458

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

Use the digits 1, 2, 3, 4 and 5 in any order that you wish to make a 4-digit by 1-digit multiplication, e.g.  $5 \times 1342$ . Find the answer using the grid method. The person who has the answer closest to 10,000 wins.

### Learning outcomes:

- I can use the grid method to multiply 3-digit numbers by 1-digit numbers.
- I am beginning to use the grid method to multiply 4-digit numbers by 1-digit numbers.

**A Bit Stuck?**  
**Greatest grid gurus!**

1000s	100s	10s	1s



**A Bit Stuck?**  
**Greatest grid gurus!**

**X**

**=**

**A Bit Stuck?**  
**Greatest grid gurus!**

$4 \times 325 =$

x	300	20	5	=
4				

$3 \times 412 =$

x				=

$6 \times 532 =$

x				=

$4 \times 1235 =$

x	1000	200	30	5	=
4					

$6 \times 3152 =$

x					=

$3 \times 2341 =$

x					=

## Check your understanding

### Questions

Maya says that  $2578 \times 4$  gives the same product as  $8 \times 1289$ .  
Is she correct? Demonstrate why/why not.

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Multiply 1386 by 9. Write the product.  
Add the same number (1386) to the product.  
What do you notice?  
Repeat with  $2547 \times 9$ , adding 2547 to the product.  
Explain what happens.  
Could you use this to make finding the product easier?

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Write the missing digits in this multiplication:  
 $36\square2 \times 8 = \square9,\square36$

*Fold here to hide answers:*

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## Check your understanding

### Answers

Maya says that  $2578 \times 4$  gives the same product as  $8 \times 1289$ .  
Is she correct? Demonstrate why/why not.  
Maya is correct, the product of each is 10,312. Comparing the two questions, 4 has been doubled and 2578 halved, which results in the same product.

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Multiply 1386 by 9. Write the product.  $12,474$   
Add the same number (1386) to the product.  $13,860$   
What do you notice?  $\text{This is the same as } 10 \times 1386$   
Repeat with  $2547 \times 9$ , adding 2547 to the product.  
Explain what happens.  $2547 \times 9 = 22,923$ ; adding 2547 gives 25,470.  
Could you use this to make finding the product easier?  $\text{You can find the answer to 9 times any number by finding } 10x \text{ the number, then subtracting the number itself.}$

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Write the missing digits in this multiplication:  
 $3642 \times 8 = 29,136$