1) a) 1132 × 3 = 3396

b) 2042 × 4 = 8168

c) 3613 × 6 = 21 678 The code is 311.

2) Possible answers must show the need for calculating 2103 × 4, for example:
Sally is writing a book. Each day, she writes 2103 words. How many words has she written after the fourth day?
Sylvain earns £2103 a month. How much does he earn after four months?

1) a) Harry should have regrouped the ten from 4 × 3 and added this to 10 × 3, to make 4 in the tens column.

b) Harry has not regrouped the ten from 3 × 4.

c) Harry has incorrectly recorded 0 × 6 as 6.

d) Harry has not recorded 0 × 8 as 0 by putting a place holder in the ones column.

2) a) 2314 × 3 = 6942

b) 3043 × 4 = 12 172

c) 5206 × 6 = 31 236

d) 4310 × 8 = 34 480

1) a)

3	2	**1**	2
×			3
9	**6**	3	6

b)

	4	**0**	1	**5**
×				4
1	6	0	6	0
			2	

c)

	6	1	**0**	**3**
×				5
3	0	5	1	5
			1	

2) a) There are four possible solutions.

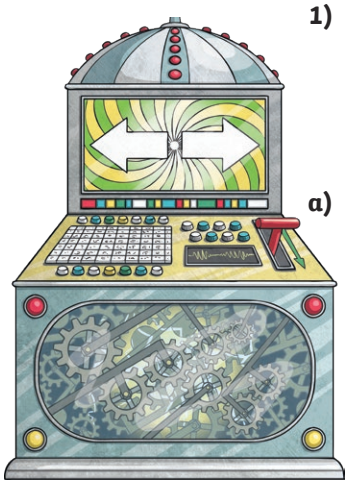
1221 × 3 = 3663

1441 × 2 = 2882

1331 × 2 = 2662

1221 × 4 = 4884

b) Look for children explaining that A must have a value of 1 to ensure that the answer C has the same value as the multiplier C. None of the letters can have a value of 0. Multiplying B by C must not result in any regrouping, so these letters must have a value of less than 5.



1) The time machine has broken down. We need a 3-digit code to make it work again. The code is the second digit of each product.

Write the multiplication calculation which is represented by the place value counters and find the product to help work out the code.

a)

Thousands	Hundreds	Tens	Ones
3	2	3	2
3	2	3	2
3	2	3	2

b)

Thousands	Hundreds	Tens	Ones
2		4	2
2		4	2
2		4	2
2		4	2

c)

Thousands	Hundreds	Tens	Ones
3	6	1	3
3	6	1	3
3	6	1	3
3	6	1	3
3	6	1	3
3	6	1	3

What is the 3-digit code?

2) Write two different word problems which could be solved by the calculation represented by the place value counters.

Thousands	Hundreds	Tens	Ones
2	1		3
2	1		3
2	1		3
2	1		3

1) Harry has been practising short multiplication. Identify and explain the errors he has made.

2) Now complete each calculation correctly.

a)

2	3	1	4
×			3
6	9	3	12

2	3	1	4
×			3

b)

	3	0	4	3
×				4
1	2	1	6	2
		1		

	3	0	4	3
×				4

c)

	5	2	0	6
×				6
3	1	2	9	6
	1		3	

	5	2	0	6
×				6

d)

	4	3	1	0
×				8
	3	4	4	8
		2		

	4	3	1	0
×				8

1) Can you identify the missing digits in these calculations?

a)

☐	2	☐	2
×			3
9	☐	3	6

b)

	4	☐	1	☐
×				4
☐	6	0	6	0

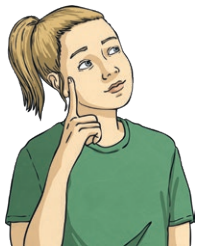
c)

	☐	1	☐	☐
×				5
3	0	5	1	5

2) Replace the letters with numbers to make this multiplication calculation work.

a) Find 3 possible solutions.

A	B	B	A
×			C
C	D	D	C



b) Explain how you found solutions. For example, what can the letters be and what can they not be?

Diving into Mastery
PIES
Multiply 4 Digits by 1 Digit

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

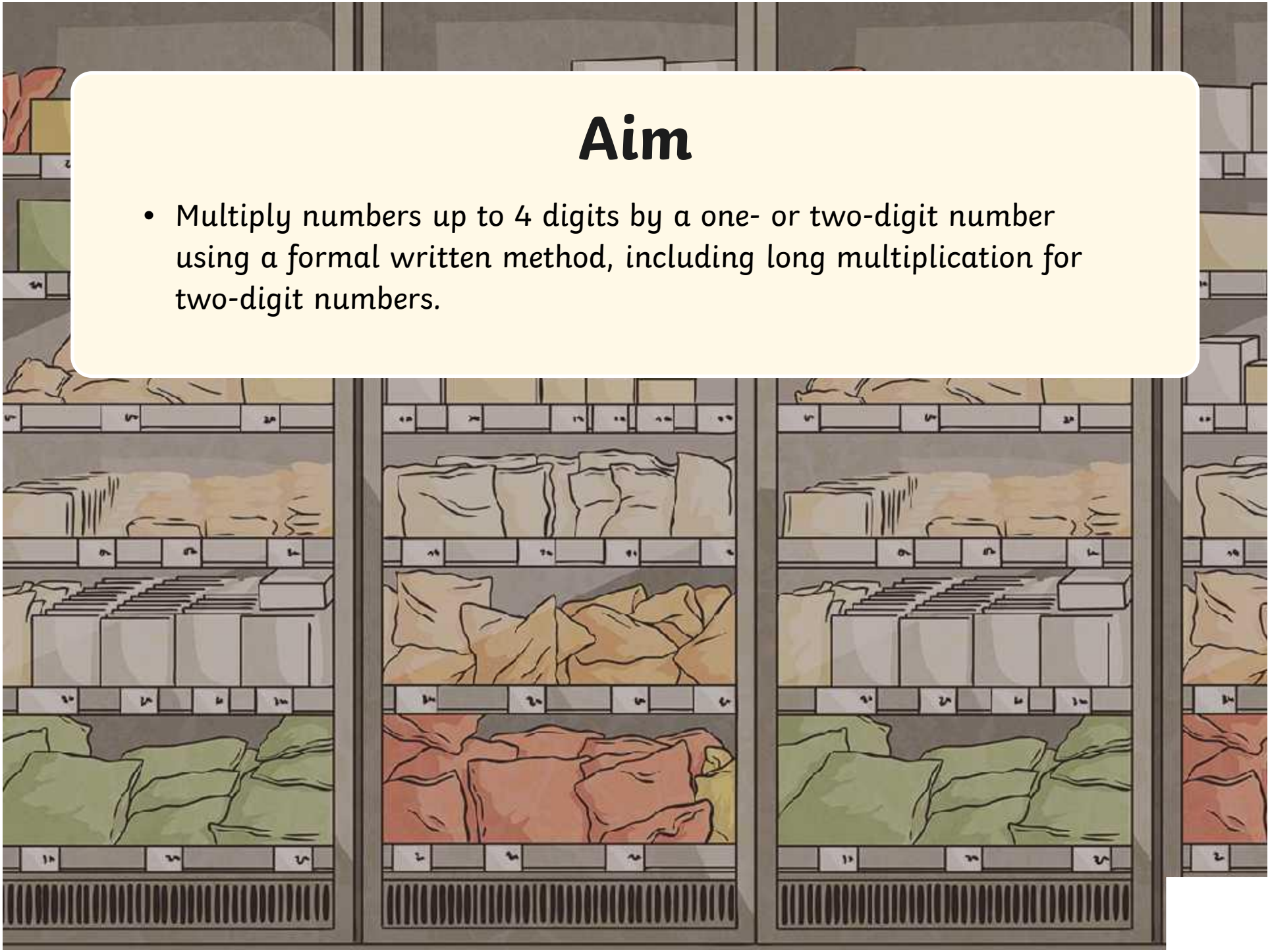
Diving

Deeper

Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.



Aim

- Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.

Multiply 4 Digits by 1 Digit

Diving

Thousands	Hundreds	Tens	Ones

Write the multiplication calculation which is represented by the place value counters.

	1	2	3	1
x				3
	3	6	9	3

Multiply 4 Digits by 1 Digit

Diving

Thousands	Hundreds	Tens	Ones
2	3	2	2
2	3	2	2
2	3	2	2
2	3	2	2

Write the multiplication calculation which is represented by the place value counters.

	2	3	2	2
x				4
	9	2	8	8
	1			

Multiply 4 Digits by 1 Digit

Diving

Thousands	Hundreds	Tens	Ones
●●●●●		●●●●	●●
●●●●●		●●●●	●●
●●●●●		●●●●	●●
●●●●●		●●●●	●●
●●●●●		●●●●	●●
●●●●●		●●●●	●●

Write the multiplication calculation which is represented by the place value counters.

	5	0	4	2
x				6
3	0	2	5	2
		2	1	

Multiply 4 Digits by 1 Digit

Diving

Thousands	Hundreds	Tens	Ones
●●●	●		●●●●●
●●●	●		●●●●●
●●●	●		●●●●●

Write a word problem which could be solved by the calculation represented by the place value counters.

The place value counters show 3105 × 3.

Here is one possible word problem:
Jasmine packs 3105 pies a day.
How many pies does she pack after 3 days?

Multiply 4 Digits by 1 Digit

Deeper

Can you identify the errors that have been made in these short multiplication calculations?

Carry out the calculations correctly to find the correct products.

	2	4	3	1	The correct answer is
×				6	14 586.
1	4	5	8	1	1 × 6 has been recorded as
	2	1			1 whereas it is in fact 6.
	3	4	1	5	The correct answer is
×				3	10 245.
1	0	2	3	5	The regrouped ten has not
	1				been added to the 3 lots
					of tens to make 4 tens.

Multiply 4 Digits by 1 Digit

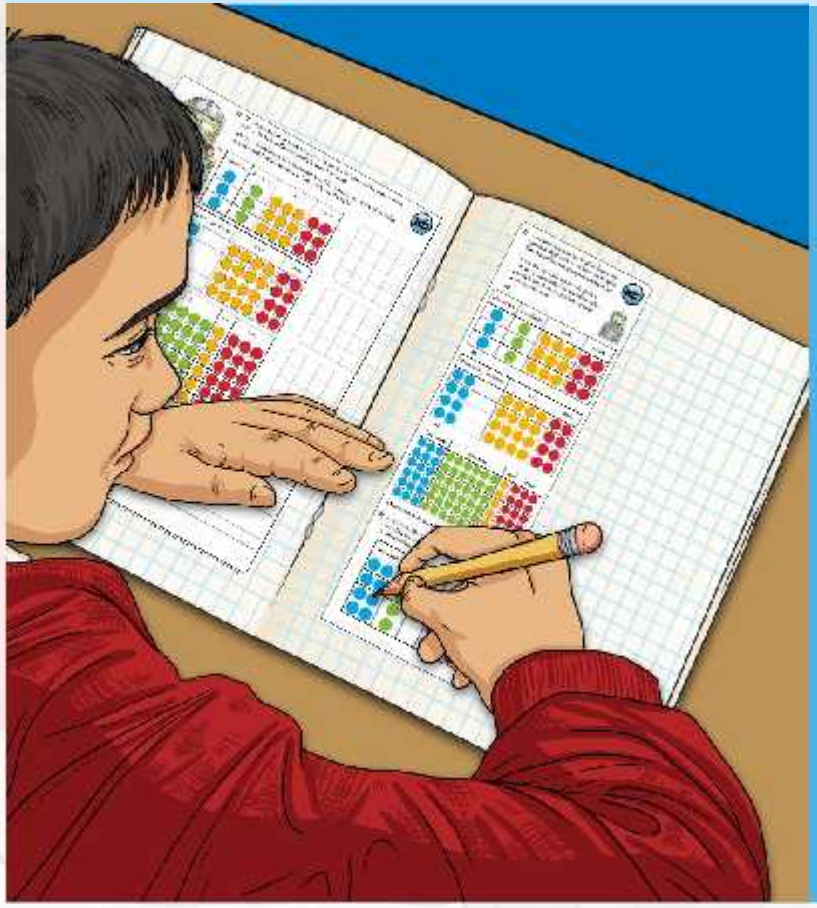
Deepest

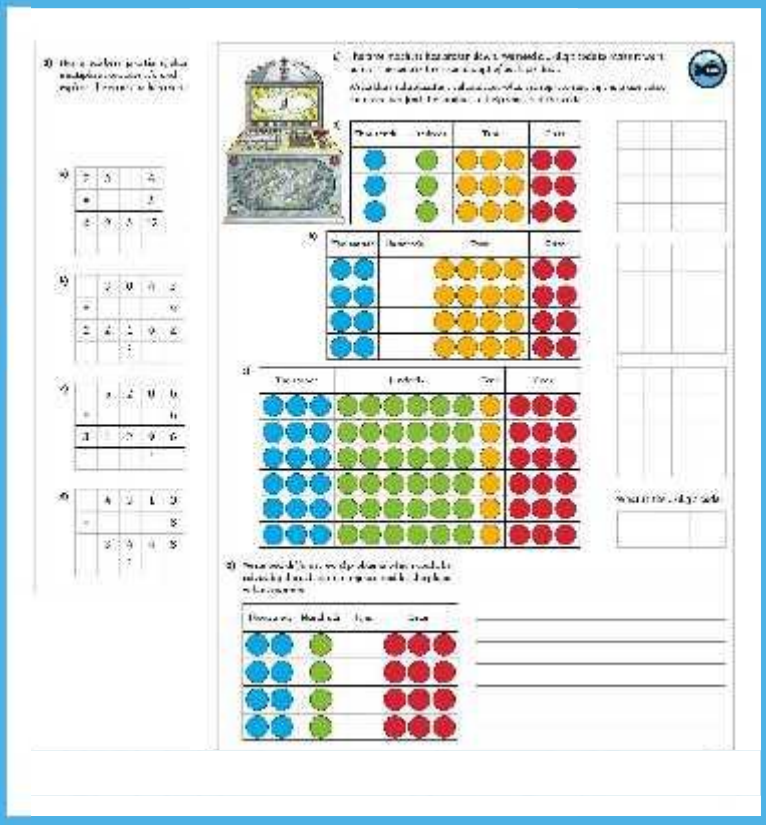
Can you identify the missing digits in these calculations?

	3	2	1	4	
x				3	
9	6	4	2		
		1			
	5	0	2	4	
x				5	
2	5	1	2	0	
		1	2		

Multiply 4 Digits by 1 Digit

Dive in by completing your own activity!

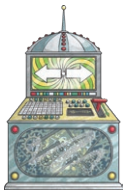




PIES
PIES

1) The time machine has broken down. We need a 3-digit code to make it work again. The code is the second digit of each product.

Write the multiplication calculation which is represented by the place value counters and find the product to help work out the code.



a)

Thousands	Hundreds	Tens	Ones
●	●	● ● ●	● ●
●	●	● ● ●	● ●
●	●	● ● ●	● ●

b)

Thousands	Hundreds	Tens	Ones
● ●		● ● ● ●	● ●
● ●		● ● ● ●	● ●
● ●		● ● ● ●	● ●
● ●		● ● ● ●	● ●

c)

Thousands	Hundreds	Tens	Ones
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●

What is the 3-digit code?

2) Write two different word problems which could be solved by the calculation represented by the place value counters.

Thousands	Hundreds	Tens	Ones
● ●	●		● ● ●
● ●	●		● ● ●
● ●	●		● ● ●
● ●	●		● ● ●

1) The time machine has broken down. We need a 3-digit code to make it work again. The code is the second digit of each product.

Write the multiplication calculation which is represented by the place value counters and find the product to help work out the code.

a)

Thousands	Hundreds	Tens	Ones
●	●	● ● ●	● ●
●	●	● ● ●	● ●
●	●	● ● ●	● ●

b)

Thousands	Hundreds	Tens	Ones
● ●		● ● ● ●	● ●
● ●		● ● ● ●	● ●
● ●		● ● ● ●	● ●
● ●		● ● ● ●	● ●

c)

Thousands	Hundreds	Tens	Ones
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●
● ● ●	● ● ● ● ● ●	●	● ● ●

What is the 3-digit code?

2) Write two different word problems which could be solved by the calculation represented by the place value counters.

Thousands	Hundreds	Tens	Ones
● ●	●		● ● ●
● ●	●		● ● ●
● ●	●		● ● ●
● ●	●		● ● ●

1) Harry has been practising short multiplication. Identify and explain the errors he has made.

a)

2	3	1	4
×			3
6	9	3	12

b)

	3	0	4	3
×				4
1	2	1	6	2
		1		

c)

	5	2	0	6
×				6
3	1	2	9	6
	1		3	

d)

	4	3	1	0
×				8
	3	4	4	8
		2		

2) Now complete each calculation correctly.

1) Harry has been practising short multiplication. Identify and explain the errors he has made.

a)

2	3	1	4
×			3
6	9	3	12

b)

	3	0	4	3
×				4
1	2	1	6	2
		1		

c)

	5	2	0	6
×				6
3	1	2	9	6
	1		3	

d)

	4	3	1	0
×				8
	3	4	4	8
		2		

2) Now complete each calculation correctly.

1) Can you identify the missing digits in these calculations?

a)

□	2	□	2
×			3
9	□	3	6

b)

	4	□	1	□
×				4
□	6	0	6	0

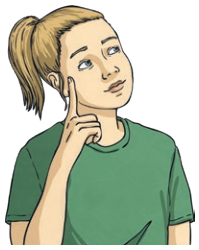
c)

	□	1	□	□
×				5
3	0	5	1	5

2) Replace the letters with numbers to make this multiplication calculation work.

a) Find 3 possible solutions.

A	B	B	A
×			C
C	D	D	C



b) Explain how you found solutions. For example, what can the letters be and what can they not be?

1) Can you identify the missing digits in these calculations?

a)

□	2	□	2
×			3
9	□	3	6

b)

	4	□	1	□
×				4
□	6	0	6	0

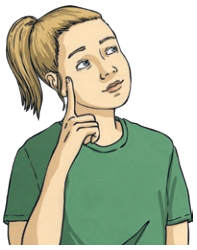
c)

	□	1	□	□
×				5
3	0	5	1	5

2) Replace the letters with numbers to make this multiplication calculation work.

a) Find 3 possible solutions.

A	B	B	A
×			C
C	D	D	C



b) Explain how you found solutions. For example, what can the letters be and what can they not be?