Reasoning and Problem Solving
Step 7: Multiply 3 Digits by 1 Digit

National Curriculum Objectives:

Mathematics Year 4: (4C6a) Recall multiplication and division facts for multiplication tables up to 12 × 12
Mathematics Year 4: (4C7) Multiply two-digit and three-digit numbers by a one-digit number using formal written layout

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Solve the calculations (in expanded form) to identify which one has a given digit sum. Includes up to one exchange and no zeros in the tens or ones column.
Expected Solve the calculations (in short written form) to identify which one has a given digit sum. Includes up to two exchanges and some use of zeros in the tens or ones column.
Greater Depth Match the numbers to make a given product and identify the numbers which cannot be used. Includes up to three exchanges and some use of zeros in the tens or ones column.

Questions 2, 5 and 8 (Problem Solving)
Developing Add the missing digit to the multiplication calculation. Includes up to one exchange and no zeros in the tens or ones column. Partially completed place value chart given to support.
Expected Add the missing digits to the multiplication calculation. Includes up to two exchanges and some use of zeros in the tens or ones column.
Greater Depth Add the missing digits to the multiplication calculation. Includes up to three exchanges and some use of zeros in the tens or ones column.

Questions 3, 6 and 9 (Reasoning)
Developing Prove if a statement is correct by multiplying a 3-digit number by a 1-digit number. Includes up to one exchange and no zeros in the tens or ones column.
Expected Prove if a statement is correct by multiplying a 3-digit number by a 1-digit number. Includes up to two exchanges and some use of zeros in the tens or ones column.
Greater Depth Prove if a statement is correct by multiplying a 3-digit number by a 1-digit number. Includes up to three exchanges and some use of zeros in the tens or ones column.
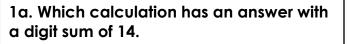
More Year 4 Multiplication and Division resources.

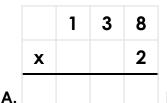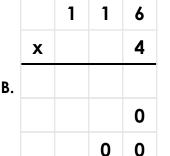Did you like this resource? Don't forget to review it on our website.

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Multiply 3 Digits by 1 Digit

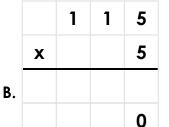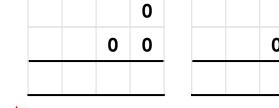**1a.** Which calculation has an answer with a digit sum of 14.

A.

	1	3	8
x			2
			0
		0	0

B.

	1	1	6
x			4
			0
		0	0

PS

1b. Which calculation has an answer with a digit sum of 12.

A.

	2	1	7
x			3
			0
		0	0

B.

	1	1	5
x			5
			0
		0	0

PS

2a. Add the missing digit to the calculation below. Complete the place value chart to help you.

Hundreds	Tens	Ones
● ●	● ● ●	

	2	3	
x			2
			8
		6	0
	4	0	0
	4	6	8

PS

2b. Add the missing digit to the calculation below. Complete the place value chart to help you.

Hundreds	Tens	Ones
● ● ● ● ●	● ●	

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

PS

3a. Imran says,

> My number 2,285 is 5 times larger than 437.

Is Imran correct? Prove it.

R

3b. Sadia says,

> My number 1,167 is 3 times larger than 389.

Is Sadia correct? Prove it.

R

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Reasoning and Problem Solving – Multiply 3 Digits by 1 Digit – Year 4 Developing

4a. Which calculation has an answer with a digit sum of 12.

A.
	4	0	9
x			3

B.
	6	2	2
x			4

E PS

4b. Which calculation has an answer with a digit sum of 15.

A.
	5	3	0
x			6

B.
	3	1	8
x			5

E PS

5a. Add the missing digits to the calculation below.

| 4 | 1 | 8 | 9 | 6 |

	2	2	☐
x			4
	☐	9	6
		☐	

E PS

5b. Add the missing digits to the calculation below.

| 1 | 7 | 3 | 5 | 2 |

	4	☐	6
x			6
☐	8	5	6
4	☐		

E PS

6a. Jack says,

My number 3,534 is 7 times larger than 504.

Is Jack correct? Prove it.

E R

6b. Inaaya says,

My number 3,430 is 8 times larger than 430.

Is Inaaya correct? Prove it.

E R

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Reasoning and Problem Solving – Multiply 3 Digits by 1 Digit – Year 4 Expected

Multiply 3 Digits by 1 Digit

7a. Match the numbers which have an answer of 3,456.

908	3
735	8
864	6
432	4

Which numbers cannot be used?

Multiply 3 Digits by 1 Digit

7b. Match the numbers which have an answer of 2,274.

542	3
379	7
680	5
758	6

Which numbers cannot be used?

8a. Add the missing digits to the calculation below so that all exchanges are even.

	☐	5	☐
x			9
8	5	7	7
		☐	☐

8b. Add the missing digits to the calculation below so that all exchanges are even.

	6	☐	4
x			7
☐	4	3	☐
		☐	2

9a. Marvin says,

My starting number was 398 and Jenny's was 590. I multiplied by 8 and Jenny made her number 4 times larger.

Jenny says,

The total of our two answers is 6,376.

Is Jenny correct? Prove it.

9b. Ernie says,

My starting number was 476 and Lian's was 802. I multiplied by 6 and Lian made her number 3 times larger.

Lian says,

The total of our two answers is 5,262.

Is Lian correct? Prove it.

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Reasoning and Problem Solving – Multiply 3 Digits by 1 Digit – Year 4 Greater Depth

Reasoning and Problem Solving
Multiply 3 Digits by 1 Digit

Developing

1a. **B**

2a. **23<u>4</u> x 2 = 468**

3a. **No, 437 x 5 = 2,185.**

Expected

4a. **A**

5a.

	2	2	**4**
x			4
	8	9	6
		1	

6a. **No, 504 x 7 = 3,528**

Greater Depth

7a. **864 x 4 = 3,456 and 432 x 8 = 3,456. The numbers 3, 6, 735 and 908 cannot be used.**

8a.

	9	5	3
x			9
8	5	7	7
	4	**2**	

9a. **No, 398 x 8 = 3,184 and 590 x 4 = 2,360 so the total is 5,544.**

Reasoning and Problem Solving
Multiply 3 Digits by 1 Digit

Developing

1b. **A**

2b. **52<u>1</u> x 3 = 1,563**

3b. **Yes, 389 x 3 = 1,167.**

Expected

4b. **B**

5b.

	4	**7**	6
x			6
2	8	5	6
		4	**3**

6b. **No, 430 x 8 = 3,440**

Greater Depth

7b. **758 x 3 = 2,274 and 379 x 6 = 2,274. The numbers 5, 7, 542 and 680 cannot be used.**

8b.

	6	**3**	4
x			7
4	4	3	**8**
	2	2	

9b. **Yes, 476 x 6 = 2,856 and 802 x 3 = 2,406 so the total is 5,262.**

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Reasoning and Problem Solving – Multiply 3 Digits by 1 Digit **ANSWERS**