Reasoning and Problem Solving
Step 2: Multiply 4-digits by 2-digits

National Curriculum Objectives:

Mathematics Year 6: (6C7a) Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
Mathematics Year 6: (6C8) Solve problems involving addition, subtraction, multiplication and division

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find three different ways of multiplying 3-digits by 2-digits, less than 20, to achieve the same answer.
Expected Find three different ways of multiplying 4-digits by 2-digits, less than 20, to achieve the same answer.
Greater Depth Find three different ways of multiplying 5-digits by 2-digits, less than 20 or 25, to achieve the same answer.

Questions 2, 5 and 8 (Reasoning)
Developing Explain if the statements multiplying 3-digits by 2-digits (less than 50) are true or false. If false, identify and amend the error.
Expected Explain if the statements multiplying 4-digits by 2-digits (up to 99) are true or false. If false, identify and amend the error.
Greater Depth Explain if the statements multiplying 5-digits by 2-digits are true or false. If false, identify and amend the error.

Questions 3, 6 and 9 (Reasoning)
Developing Decide if a 3-digit by 2-digit statement can support finding an answer and explain. Numerals only.
Expected Decide if a 4-digit by 2-digit statement can support finding an answer and explain. Numerals and words.
Greater Depth Decide if a 5-digit by 2-digit statement can support finding an answer and explain. Numerals and words.

More resources which follow the same small steps as White Rose.

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

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Reasoning and Problem Solving – Multiply 4-digits by 2-digits

1a. The answer is:

4,200

Find three 3-digit numbers that can be multiplied by 2-digit numbers, less than 20, to give the same answer.

1b. The answer is:

8,400

Find three 3-digit numbers that can be multiplied by 2-digit numbers, less than 20, to give the same answer.

2a. True or false?

			6	2	8
x				3	5
		3	1	4	0
		3	1	4	
		1	8	8	4
		1		2	
		5	0	2	4
		1	1		

If false, explain the correct the mistake.

2b. True or false?

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

If false, explain and correct the mistake.

3a. Paul says,

I can use 256 x 20 to help me find the answer to 256 x 19.

Do you agree with Paul? Convince me.

3b. Sara says,

I can use 741 x 20 to help me find the answer to 741 x 18.

Do you agree with Sara? Convince me.

Reasoning and Problem Solving – Multiply 4-digits by 2-digits

4a. The answer is:

> **60,800**

Find three 4-digit numbers that can be multiplied by 2-digit numbers, less than 20, to give the same answer.

⭐E

PS

4b. The answer is:

> **80,400**

Find three 4-digit numbers that can be multiplied by 2-digit numbers, less than 20, to give the same answer.

⭐E

PS

5a. True or false?

		2	4	2	5
x				3	2
		7	2	1	5
			1		1
	4	8	5	0	0
				1	
	5	5	7	1	5
				1	

If false, explain and correct the mistake.

⭐E

R

5b. True or false?

		6	3	8	3
x				2	4
	2	5	5	3	2
		1	3	1	
1	2	7	6	6	0
			1		
1	4	2	1	9	2
	1	1	1		

If false, explain and correct the mistake.

⭐E

R

6a. Nina says,

> I can use four thousand, two hundred and fifteen multiplied by twenty to help me find the answer to 4,215 x 18.

Do you agree with Nina? Convince me.

⭐E

R

6b. Joe says,

> I can use six thousand, seven hundred and twenty nine multiplied by twenty to help me find the answer to 6,729 x 10.

Do you agree with Joe? Convince me.

⭐E

R

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Reasoning and Problem Solving – Multiply 4-digits by 2-digits – Year 6 Expected

Reasoning and Problem Solving – Multiply 4-digits by 2-digits

7a. The answer is:

160,400

Find three 5-digit numbers that can be multiplied by 2-digit numbers, less than 25, to give the same answer.

GD · PS

7b. The answer is:

240,800

Find three 5-digit numbers that can be multiplied by 2-digit numbers, less than 20, to give the same answer.

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8a. True or false?

	1	9	2	0	7
x				3	3
	5	7	6	2	1
	2			2	
5	7	6	2	1	0
	2			2	
8	5	3	0	5	1
	1	1			

If false, explain and correct the mistake.

GD · R

8b. True or false?

	2	3	4	1	9
x				6	1
1	4	0	5	1	4
1	2	2	1	5	
2	3	4	1	9	0
3	7	4	7	0	4
			1		

If false, explain and correct the mistake.

GD · R

9a. Han says,

> I can use fifteen thousand, eight hundred and forty two multiplied by four to help me find the answer to 15,842 x 20.

Do you agree with Han? Convince me.

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9b. Katie says,

> I can use twenty eight thousand, two hundred and six multiplied by twenty to help me find the answer to 28,602 x 18.

Do you agree with Katie? Convince me.

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Reasoning and Problem Solving – Multiply 4-digits by 2-digits

Developing

1a. Possible answers: 420 x 10; 350 x 12; 300 x 14; 280 x 15

1b. Possible answers: 840 x 10; 700 x 12; 600 x 14; 560 x 15; 525 x 16

2a. False because there should be a 0 as a place holder on the second row of multiplication. The answer should be 21,980.

2b. False because the first row of multiplication should be 1,032 not 1,022. The answer should be 21,672.

3a. Yes, I agree with Paul because if you multiply 256 x 20 and then subtract 256 you will get the answer.

3b. Yes, I agree with Sara because if you multiply 741 x 20 and then subtract two lots of 741 you will get the answer.

Expected

4a. Possible answers; 6,080 x 10; 3,800 x 16; 3,200 x 19

4b. Possible answers; 8,040 x 10; 6,700 x 12; 5,360 x 15; 5,025 x 16

5a. False because the tens have been multiplied first. The answer should be 77,600.

5b. False because when adding the multiplication together to calculate the answer, the hundreds and tens columns have not been calculated correctly. The answer should be 153,192.

6a. I agree with Nina because if you multiply 4,215 x 20 and then subtract two lots of 4,215 you will get the answer.

6b. I agree with Joe because if you multiply 6,729 x 20 and then divide the answer by 2, you will get the new answer.

Greater Depth

7a. Possible answers; 16,040 x 10; 10,025 x 16; 8,020 x 20

7b. Possible answers; 24,080 x 10; 17,200 x 14; 15,050 x 16

8a. False because when adding the two multiplications together to get the final answer, the exchanges have been included into the addition giving an incorrect answer. The answer should be 633,831.

8b. False because the tens have been multiplied first. The answer should be 1,428,559.

9a. Yes, I agree with Han because if you multiply 15,842 x 5 and then multiply the answer by 4, you will get the answer to 15,842 x 20.

9b. No, I don't agree with Katie because there is no immediately obvious relationship between 28,206 and 28,602.

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