Reasoning and Problem Solving
Step 5: Written Methods

National Curriculum Objectives:

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 Identify the most efficient method to solve a multiplication calculation. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and scaffolding.
Expected Identify the most efficient method to solve a multiplication calculation. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and some incomplete calculations.
Greater Depth Identify the most efficient method to solve a multiplication calculation. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes incomplete calculations.

Questions 2, 5 and 8 (Reasoning)
Developing Use digit cards to create a multiplication calculation and solve it using the most efficient method. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and scaffolding.
Expected Use digit cards to create a multiplication calculation and solve it using the most efficient method. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and some incomplete calculations.
Greater Depth Use digit cards to create a multiplication calculation, solve it using the methods given and order the methods from the most efficient to the least efficient method. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes incomplete calculations.

Questions 3, 6 and 9 (Reasoning)
Developing Explain whether the multiplication has been calculated correctly. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and scaffolding.
Expected Explain whether the multiplication has been calculated correctly. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes pictorial representations and some incomplete calculations.
Greater Depth Explain whether the multiplication has been calculated correctly. Supporting using informal written methods to multiply 2-digits by a 1-digit number. Includes incomplete calculations.

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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1a. Which of the methods below would be the most efficient way of solving the given calculation?

23   x   4   =   ☐

Use it to solve the calculation.

(D)

R

1b. Which of the methods below would be the most efficient way of solving the given calculation?

15   x   6   =   ☐

Use it to solve the calculation.

(D)
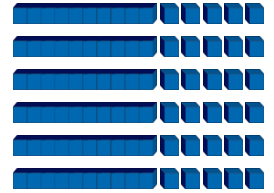
R

2a. Using the digit cards, create a calculation.

☐☐   x   3   =

| 4 | 2 | 1 |

Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.

(D)

PS

2b. Using the digit cards, create a calculation.

☐☐   x   4   =

| 1 | 3 | 2 |

Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.

(D)

PS

3a. Sydney is solving 16 x 5.

She thinks the answer is 90.

Is she correct? Convince me!

(D)

R

3b. Asher is solving 19 x 4.

He thinks the answer is 76.

Is he correct? Convince me!

(D)

R

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Reasoning and Problem Solving – Written Methods – Year 4 Developing
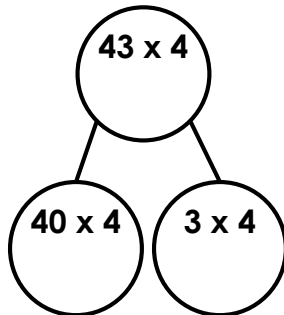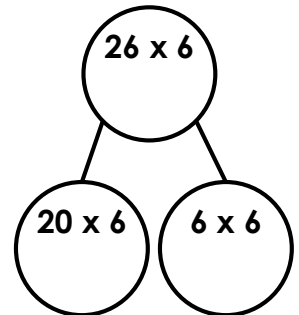
Written Methods

4a. Which of the methods below would be the most efficient way of solving the given calculation?

43   x   4   = ☐

E Use it to solve the calculation.   R

4b. Which of the methods below would be the most efficient way of solving the given calculation?

26   x   6   = ☐

E Use it to solve the calculation.   R

5a. Using the digit cards, create a calculation.
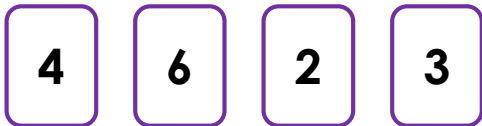
☐☐ x ☐ =

| 4 | 6 | 2 | 3 |

Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.

E   PS

5b. Using the digit cards, create a calculation.
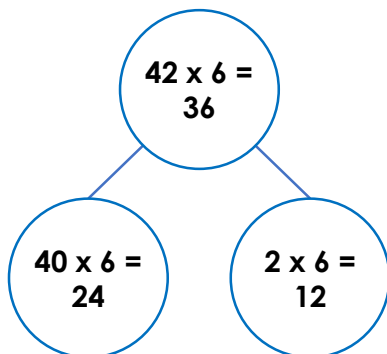
☐☐ x ☐ =

| 5 | 7 | 4 | 8 |

Use the most efficient method to solve it. You could use a part-whole model, a place value grid or a number line.

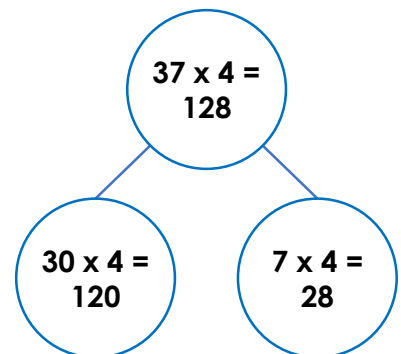**E**   PS

6a. Julie is solving 42 x 6.

42 x 6 = 36

40 x 6 = 24   2 x 6 = 12

She thinks the answer is 36.

Is she correct? Convince me!

E   R

6b. Martin is solving 37 x 4.

37 x 4 = 128

30 x 4 = 120   7 x 4 = 28

He thinks the answer is 128.

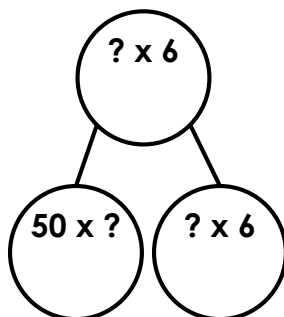Is he correct? Convince me!

E   R

Written Methods

Written Methods

7a. Which of the methods below would be the most efficient way of solving the given calculation?

53   x   6   = ⬚

?					
53	53	53	53	53	53

? x 6

50 x ?   ? x 6

Use it to solve the calculation.

7b. Which of the methods below would be the most efficient way of solving the given calculation?

43   x   5   = ⬚

?				
?	?	43	?	43

43 x ?

40 x ?   ? x ?
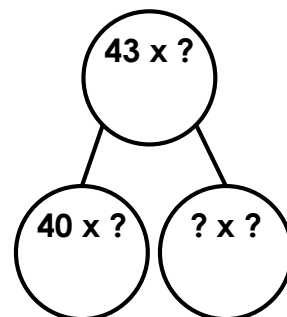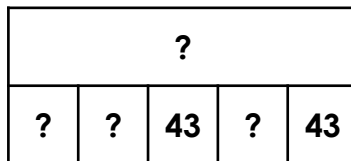
Use it to solve the calculation.

8a. Using the digit cards, create a calculation.

⬚⬚ x ⬚ =

3	6	7	5

Solve the calculations using a part-whole model, a place value grid and a number line. Order the methods from most efficient to least efficient.

8b. Using the digit cards, create a calculation.

⬚⬚ x ⬚ =

9	3	4	8

Solve the calculations using a part-whole model, a place value grid and a number line. Order the methods from most efficient to least efficient.

9a. Hilary is solving 23 x 9.

She thinks the answer is 209.

Is she correct? Convince me!

9b. Seth is solving 46 x 4.
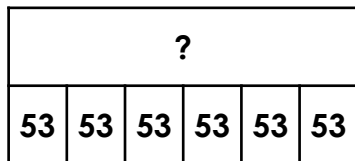
He thinks the answer is 184.

Is he correct? Convince me!

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Reasoning and Problem Solving – Written Methods – Year 4 Greater Depth

Reasoning and Problem Solving
Written Methods

Developing

1a. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. 23 x 4 = 92

2a. Various answers, for example: 21 x 3 = 63

3a. Sydney is incorrect because 10 x 5 = 50 and 6 x 5 = 30. 50 + 30 = 80 not 90.

Expected

4a. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. 43 x 4 = 172

5a. Various answers, for example: 24 x 3 = 72

6a. Julie is incorrect. When multiplying 40 x 6 = 240 she has not multiplied 4 x 6 by 10.

Greater Depth

7a. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not know the whole yet to complete the bar model. 53 x 6 = 318

8a. Various answers, for example: 67 x 5 = 335. Any order can be correct due to personal preference.

9a. Hillary is incorrect because 20 x 9 = 180 and 3 x 9 = 27. 180 + 27 = 207.

Reasoning and Problem Solving
Written Methods

Developing

1b. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. 15 x 6 = 90

2b. Various answers, for example: 23 x 4 = 92

3b. Asher is correct because 10 x 4 = 40 and 9 x 4 = 36. 40 + 36 = 76.

Expected

4b. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not have to draw out the counters. 26 x 6 = 156

5b. Various answers, for example: 48 x 5 = 240

6b. Martin is incorrect. He has multiplied correctly, but not added them correctly. 120 + 28 = 148 not 128.

Greater Depth

7b. Either method can be correct as long as the reasoning makes sense, for example: The part-whole model, because you do not know the whole yet to complete the bar model. 43 x 5 = 215

8b. Various answers, for example: 38 x 4 = 152. Any order can be correct due to personal preference.

9b. Seth is correct because 40 x 4 = 160 and 6 x 4 = 24. 160 + 24 = 184.