Reasoning and Problem Solving
Step 2: Multiply 3 Numbers

National Curriculum Objectives:

Mathematics Year 4: (4C6a) Recall multiplication and division facts for multiplication tables up to 12 × 12
Mathematics Year 4: (4C6b) Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain how best to group numbers when multiplying three 1-digit numbers. Pictorial support given and the efficient grouping of the calculations is already complete.
Expected Explain how best to group numbers when multiplying three 1-digit numbers. Pictorial support given.
Greater Depth Group numbers and explain why this is the most efficient grouping when multiplying three 1-digit numbers.

Questions 2, 5 and 8 (Problem Solving)
Developing Choose cards to create a number sentence that multiplies three 1-digit numbers. Pictorial support given and the efficient grouping of the calculations is already complete.
Expected Choose cards to create a number sentence that multiplies three 1-digit numbers.
Greater Depth Choose cards and identify the missing number to create a number sentence that multiplies three 1-digit numbers. The question relies on the children's knowledge of the inverse.

Questions 3, 6 and 9 (Problem Solving)
Developing Find 3 numbers which can be multiplied to make a given product. Pictorial support given and the efficient grouping of the calculations is already complete.
Expected Find 3 numbers which can be multiplied to make a given product.
Greater Depth Find 3 numbers which can be multiplied to make a given product following given clues. The question relies on the children's knowledge of the inverse.
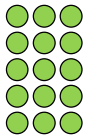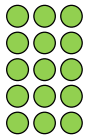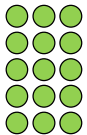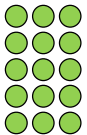
More Year 4 Multiplication and Division resources.

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

Multiply 3 Numbers

Multiply 3 Numbers

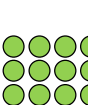**1a.** Tick the best way to group the numbers in the calculation below.

3   x   5   x   4   ☐
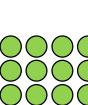
4   x   3   x   5   ☐

Explain your choice.

⭐D   R

1b. Tick the best way to group the numbers in the calculation below.

4   x   4   x   5   ☐

5   x   4   x   4   ☐

Explain your choice.

⭐D   R

2a. Arrange the cards to complete the multiplication number sentence.

| 2 | 3 | 20 | x |

| x | 5 | = | 2 |

Which card cannot be used?

⭐D   PS

2b. Arrange the cards to complete the multiplication number sentence.

| 4 | 5 | 30 | x |

| x | 3 | = | 2 |

Which card cannot be used?

⭐D   PS

3a. Using the numbers from 1 to 9, complete the number sentence below.

☐   x   ☐   x   ☐   =   45

You may use each number more than once.

Find 5 possibilities.

⭐D   PS

3b. Using the numbers from 1 to 9, complete the number sentence below.

☐   x   ☐   x   ☐   =   72

You may use each number more than once.

Find 5 possibilities.

⭐D   PS

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Reasoning and Problem Solving – Multiply 3 Numbers – Year 4 Developing

Multiply 3 Numbers

Multiply 3 Numbers

4a. Tick the best way to group the numbers in the calculation below.

4   x   2   x   9   ☐

9   x   2   x   4   ☐

Explain your choice.

⭐ E   R
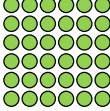
4b. Tick the best way to group the numbers in the calculation below.

6   x   6   x   2   ☐

2   x   6   x   6   ☐

Explain your choice.

⭐ E   R

5a. Arrange the cards to create a multiplication number sentence.

| 3 | 2 | 6 | x | 5 |

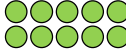| x | 8 | = | 70 | 80 |

Which cards cannot be used?

⭐ E   PS

5b. Arrange the cards to create a multiplication number sentence.

| 4 | 5 | = | 63 | 7 |

| 56 | x | 2 | 6 | x |

Which cards cannot be used?

⭐ E   PS

6a. Using the numbers from 2 to 9, complete the number sentence below.

☐ x ☐ x ☐ = 48

You may use each number more than once.

Find 5 possibilities.

⭐ E   PS

6b. Using the numbers from 2 to 9, complete the number sentence below.

☐ x ☐ x ☐ = 36

You may use each number more than once.

Find 5 possibilities.

⭐ E   PS

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Multiply 3 Numbers

Multiply 3 Numbers

7a. George is creating a calculation using the numbers 9, 7 and 2.

He isn't sure how to group the numbers to help him solve the calculation.

Help George group the numbers so that he can complete the calculation.

Explain your choice.

☆GD   R

7b. Jamie is creating a calculation using the numbers 3, 7 and 4.

He isn't sure how to group the numbers to help him solve the calculation.

Help Jamie group the numbers so that he can complete the calculation.

Explain your choice.

☆GD   R

8a. Arrange the cards to create two different multiplication number sentences with the product 162.

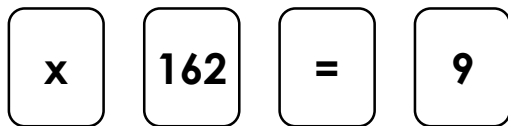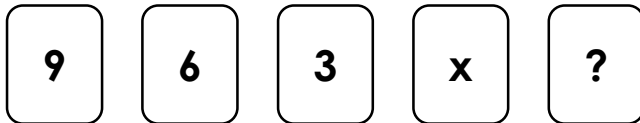| 9 | 6 | 3 | x | ? |

| x | 162 | = | 9 |

Which number is missing?

☆GD   PS

8b. Arrange the cards to create two different multiplication number sentences with the product 162.

| ? | 8 | 7 | x | 4 |

| x | 168 | = | 3 |
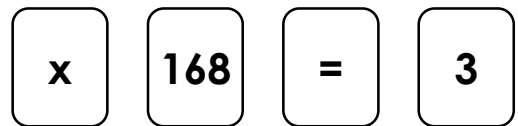
Which number is missing?

☆GD   PS

9a. Using the numbers from 2 to 12, complete the number sentence below.

☐ x ☐ x ☐ = 120

You may use each number more than once.

Your calculation must contain only one number that is a multiple of 3.

How many possibilities can you find?

☆GD   PS

9b. Using the numbers from 2 to 12, complete the number sentence below.

☐ x ☐ x ☐ = 144

You may use each number more than once.

Your calculation must contain at least one number that is a multiple of 4.

How many possibilities can you find?

☆GD   PS

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Reasoning and Problem Solving
Multiply 3 Numbers

Developing
1a. 3 x 4 x 5; you can use the times tables to work out 3 x 4 = 12 then 12 x 5 = 60.
2a. Various answers; for example:
2 x 2 x 5; 5 x 2 x 2; 2 x 5 x 2. The 3 card cannot be used.
3a. Various answers; for example:
3 x 3 x 5; 5 x 3 x 3; 3 x 5 x 3, 9 x 1 x 5, 5 x 1 x 9.

Expected
4a. 4 x 2 x 9; you can use the times tables to work out 4 x 2 = 8 then 8 x 9 = 72.
5a. Various answers; for example:
2 x 5 x 8 = 80. The cards 3, 6 and 70 cannot be used.
6a. Various answers; for example:
3 x 2 x 8; 8 x 2 x 3; 4 x 2 x 6; 6 x 2 x 4; 3 x 4 x 4; 4 x 3 x 4

Greater Depth
7a. Accept any answer accompanied with valid reasoning, for example: 9 x 7 x 2 because you can use the times tables to work out 9 x 7 = 63 then double 63 to get 126.
8a. Various answers; for example:
9 x 6 x 3 = 162; 9 x 9 x 2 = 162. The missing number is 2.
9a. Various answers; for example:
8 x 3 x 5; 4 x 6 x 5; 6 x 2 x 10; 12 x 2 x 5.

Reasoning and Problem Solving
Multiply 3 Numbers

Developing
1b. 4 x 5 x 4; you can use the times tables to work out 4 x 5 = 20 then 20 x 4 = 80.
2b. Various answers; for example:
5 x 3 x 2; 5 x 2 x 3; 3 x 5 x 2; 3 x 2 x 5; 2 x 5 x 3; 2 x 3 x 5. The 4 card cannot be used.
3b. Various answers; for example:
6 x 3 x 4; 6 x 4 x 3; 3 x 6 x 4; 3 x 4 x 6; 4 x 6 x 3; 4 x 3 x 6.

Expected
4b. 2 x 6 x 6; you can use the times tables to work out 2 x 6 = 12 then 12 x 6 = 72.
5b. Various answers; for example:
4 x 2 x 7 = 56. The cards 5, 6 and 63 cannot be used.
6b. Various answers; for example:
3 x 2 x 6; 3 x 6 x 2; 2 x 3 x 6; 2 x 6 x 3; 6 x 3 x 2; 6 x 2 x 3

Greater Depth
7b. Accept any answer accompanied with valid reasoning, for example: 7 x 3 x 4 because you can use your times tables to work out 7 x 3 = 21 then double 21 and double again to get 84.
8b. Various answers; for example:
8 x 7 x 3 = 168; 4 x 7 x 6 = 168. The number is 6.
9b. Various answers; for example:
12 x 6 x 2; 6 x 3 x 8; 6 x 4 x 6, 9 x 2 x 8, 9 x 4 x 4 .