

Discussion Problems

Step 1: Multiply 4 Digits by 1 Digit

National Curriculum Objectives:

Mathematics Year 5: (5C7a) [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](#)

About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

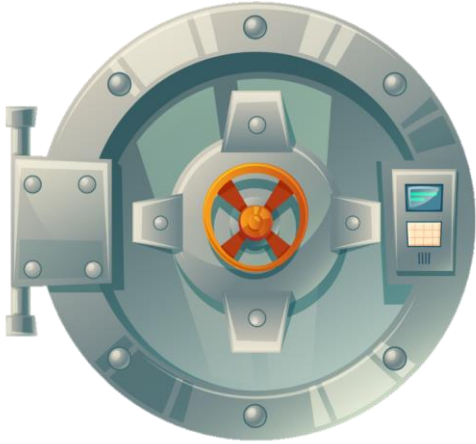
More [Year 5 Multiplication and Division](#) resources.

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Multiply 4 Digits by 1 Digit

1. Ivan the bank manager has forgotten the code to enter the underground vault at his bank. He remembers that the code was the result of multiplying a 4-digit number by 3.

The 4-digit number Ivan multiplied was made from the digits 0-9 where each digit was only used once. The code was a 4-digit number, and one of the digits was repeated twice within the code.



x				3
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Explore what the 4-digit code could be.

DP

2. Louisa, Alfie and Rehan are playing a game. They are multiplying their 4-digit numbers by 6 to see whose answer is closest to 10,000. They each give clues for their 4-digit numbers.



Louisa

The digit sum of my number is 10. My number has a 0 in the ones column and each digit is different.

All of the digits in my number are even, and one digit is 0. My digit sum is less than Louisa's.



Alfie



Rehan

My number has the highest digit sum. Two of my digits are 0s.

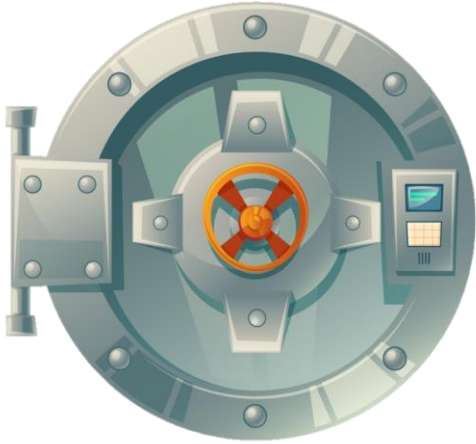
Investigate what each of their numbers could be and who could have won the game.

DP

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x				3
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Explore what the 4-digit code could be.

Various answers, for example: $1,248 \times 3 = 3,744$, which could be the code because the digit 4 is repeated twice.

DP

2. Louisa, Alfie and Rehan are playing a game. They are multiplying their 4-digit numbers by 6 to see whose answer is closest to 10,000. They each give clues for their 4-digit numbers.



Louisa

The digit sum of my number is 10. My number has a 0 in the ones column and each digit is different.

All of the digits in my number are even, and one digit is 0. My digit sum is less than Louisa's.



Alfie



Rehan

My number has the highest digit sum. Two of my digits are 0s.

Investigate what each of their numbers could be and who could have won the game.

Various answers, for example: Louisa could have $1,270 \times 6 = 7,620$; Alfie could have $2,220 \times 6 = 13,121$; Rehan could have $5,600 \times 6 = 33,600$. In this case, Alfie would win.

DP