


Further Challenges Nrich

If you are looking to further your learning, try one of these NRICH problem solving challenges. These will not be marked via google classroom, but you are welcome to explore and complete these at home. 😊

<p>Roman Numerals</p> <p>Age 7 to 11 ★</p> <p>These symbols are the building blocks of Roman numerals:</p> <p>I, V, X, L, C, D and M</p> <p>Do you know the value of each letter? Click on 'Show' to check...</p> <p>Show</p> <p>In our number system (the Arabic numeral system), there are ten different digits, (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) and the place of these digits in the number determines its value. For example, 2 on its own means 'two', but in 3240, the '2' now means "two hundred". In this way, any number can be written down, using only ten digits.</p> <p>Roman numerals have a set of rules which allow you to write down any number:</p> <ol style="list-style-type: none"> 1. If a smaller numeral comes after a larger numeral, add the smaller number to the larger number; 2. If a smaller numeral comes before a larger numeral, subtract the smaller number from the larger number; 3. Do not use the same symbol more than three times in a row. <p>Can you use these rules to construct and decipher Roman numerals? Try converting the following Roman numerals into Arabic numerals:</p> <p>III IV XVIII XIX MCMLXXVI MMXXIII MCMLXII</p>	<p>NRICH Roman Numerals:</p> <p>https://nrich.maths.org/13271</p>
<p>Round the Three Dice</p> <p>Age 7 to 11 ★</p>  <p>There are three dice, each of them with faces labelled from 1 to 6. When the dice are rolled they can be combined in six different ways to make a three-digit number.</p> <p>For example, if I roll a 2 and a 4 and a 5, I can combine them to make 245, 254, 425, 452, 524 or 542.</p> <p>Now round each of these numbers to the nearest 100: 245 rounds to 200, 254 rounds to 300, 425 rounds to 400, 452 rounds to 500, 524 rounds to 500 and 542 rounds to 500.</p> <p>Repeat for other rolls of the dice.</p> <p>Can each of the six numbers round to the same multiple of 100? Can each of the six numbers round to a different multiple of 100?</p> <p>There some interactive dice here that you can use for this problem.</p>	<p>NRICH Round the Three Dice:</p> <p>https://nrich.maths.org/10436</p>

Consecutive Negative Numbers

Age 11 to 14 ★★★

Do you notice anything about the solutions when you add and/or subtract consecutive negative numbers?

Take, for example, four consecutive negative numbers, say

$$-7, -6, -5, -4$$

Now place + and/or - signs between them.

e.g.

$$-7 + -6 + -5 + -4$$

$$-7 + -6 - -5 - -4$$

There are many more possibilities. Try to list all of them.

Now work out the solutions to the various calculations.

e.g.

$$-7 + -6 + -5 + -4 = -22$$

$$-7 + -6 - -5 - -4 = -4$$

Choose a different set of four consecutive negative numbers and repeat the process.

Take a look at both sets of solutions. Notice anything?

Can you explain any similarities?

Can you predict some of the solutions you will get when you start with a different set of four consecutive negative numbers?

Test out any conjectures you may have.

Can you explain and justify your findings?

NRICH Consecutive Negative Numbers:

<https://nrich.maths.org/5868>