Problem of the Week: Week 2 (Sum2): Year 7: Algebra

- Generate terms of a sequence from either a term-to-term or a position-to-term rule
- Recognise arithmetic sequences and find the nth term

What a Coincidence!

An arithmetic sequence grows by the same amount each time
(so, you add or subtract from one term to find the next term)

Consider the arithmetic sequences:

1998,2005, 2012... and

1996,2005,2014, ...

Which is the next number after 2005 that appears in both sequences?

https://nrich.maths.org/9431

Shifting Times Tables

The numbers in the four times table are
4,8,12,16...36,40,44...100,104,108.

I could shift the four times table up by 3 and end up with

7,11,15,19...39,43,47...103,107,111...

What do you notice about the differences between consecutive terms in each sequence?
You could draw out a number-line to help you

https://nrich.maths.org/shifting

If we call the four times table '4n'

4 x 1 , 4 x 2 , 4 x 3 , 4 x 4 ,……4 x n

We can describe the sequence 7,1,15,19……. As 4n + 3 , since the terms are always 3 more than the four times table.

Write out the three times table (let's call this 3n)

Now write out the sequences 3n + 1 ; 3n + 4 and 3n – 2

Try the sequence 3n + 3 ~ what do you notice ?