Maths - Year 5

Pattern and Algebra 1: Exploring sequences and number patterns

Key Vocabulary

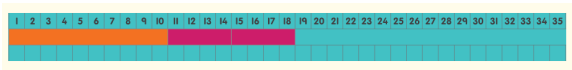
Ordinal numbers	First, second, third, fourth etc.
Sequence	An ordered list of numbers, shapes or objects.
Interval	The distance between two points or the numbers between two values, e.g. the sequence 2, 4, 6 has intervals of 2.
Term to term rule	The rule present between two or more numbers in a sequence e.g. x3.
Equivalent	The same value represented in different ways.
Tenths	Refers to the number of tenths (one whole one split into ten equal pieces) in a fraction or decimal.
Hundredths	Refers to the number of hundredths (one whole one split into 100 equal pieces) in a fraction or decimal.

Mathematical Skills

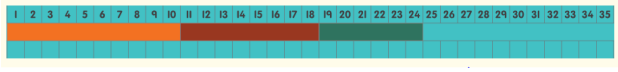
- Relate the idea of a sequence to familiar recurring events.
- Find the difference between a pair of numbers in a linear sequence to help find the term to term rule and work out missing numbers.
- Illustrate with structured apparatus and explain the term to term rule for increasing or decreasing linear sequences.
- Recognise which digits are significant when finding differences between terms in a linear sequence of large numbers.
- Make sequences of larger numbers that increase or decrease in powers of 10, changing digits appropriately when place value boundaries are crossed.
- Make sequences of numbers with up to three decimal places, changing digits appropriately when place value boundaries are crossed.
- Use number rods to find the term to term rule in increasing and decreasing decimal sequences.

Mathematical Methods

- Exploring patterns in linear sequences e.g. 2014, 2018, 2022, 2026, 2030, 2034, 2038.
To get from 14 to 18 you add 4.
Therefore, the term to term rule is +4.



- Using number rods to find missing information in sequences with constant differences e.g.
1218, 1224, 1230, 1236, ▯, ▯
Term to term rule is +6.



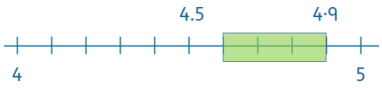
- Making sequences that increase or decrease in powers of 10.

1 = 1
2 = 10
3 = 100
4 = 1000
5 = 10 000
6 = 100 000

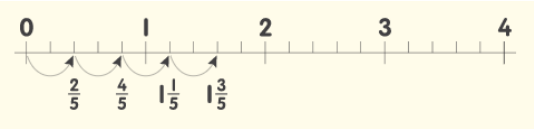
1 = + 1
2 = − 1
3 = + 0·1
4 = − 0·1
5 = + 0·01
6 = − 0·01

- Making decimal sequences that increase or decrease in tenths and hundredths.

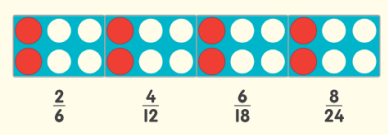
- Exploring decimal sequences with number rods e.g. One seedling had a length of 4.6cm to begin with, and was 4.9cm a day later. How much had it grown by?

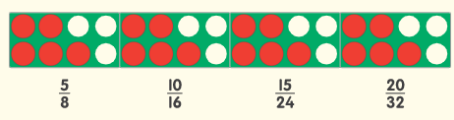


- Exploring fraction sequences, converting improper fractions to mixed numbers e.g.



- Making connections between sequences and equivalent fractions e.g.





Can you..?

- Work out the missing numbers in the sequence 3231, ☐ , ☐ ,3267, ☐ ,3291

- If the orange rods are worth 1, what would the green rods be worth. Write a decimal sequence for the green rods.

- Continue this sequence $\frac{2}{3}, \frac{4}{6}, \frac{6}{9}, \frac{8}{12} \ldots$