

Key Vocabulary

Sequence	A set of numbers which all obey a rule.
Term (n)	The term is the position a number appears in sequence.
Difference	The difference between two values, found by subtraction
Descending	Largest to smallest
Ascending	Smallest to Biggest
Linear	A number pattern which increases (or decreases) by the same amount each time is called a linear sequence.
Term-to-term rule E.g. +2 or x3	The rule that takes you from one term in a sequence to the next

Key facts / Diagrams

Generate a linear sequence using the term-to-term rule:

- Start at 5 and add 3 each time

5, 8, 11, 14, 17 ...

Generate a non-linear sequence using the term-to-term rule:

- Start at 3 multiply by 2 each time

3, 6, 12, 24, 48 ...

What is the term-to-term rule for the sequence

- 5, 9, 13, 17, 21

Start at 5 and add 4 each time

Continue the non-numeric sequence:
 ✓☺☺✓☺☺☺✓☺☺☺ ...

(A non-numeric sequence is that which doesn't contain numbers)

Common misconceptions

- Some pupils may think linear sequences are only ascending.
- Some pupils may think that any sequence that can be described by a rule to get from one term to the next is a linear sequence, e.g. 2, 4, 8, 16, ...
- Some pupils may not appreciate that both a starting number and a rule to find the next term are required in order to describe a sequence in full.

Worked examples

- Find the missing terms in each sequence
 - 2, 8, , 20, , 32
 - , -2, 2, , 10,
- Mike says '5, 10, 20, 40, ... is a linear sequence' Do you agree? Explain your answer.

This is not a linear sequence. A linear sequence increases by the same number. This goes up by multiplying by 2 each time so it is a Geometric Sequence.
- Write two different linear sequences with a second term of 5.

1, , 9, 13, 17...

3, , 7, 9, 11...