QEMS

Y7 Sequences



Δ O X D O X D Δ X D Δ O

What do I need to be able

to do?

By the end of this unit you should be able

- Describe and continue both linear and non-linear sequences
- Explain term to term rules for linear sequence
- Find missing terms in a linear sequence

!i <u>Keywords</u>

11 Sequence: items or numbers put in a pre-decided order

11 Term: a single number or variable Position: the place something is located

 $!^{l}$ Rule: instructions that relate two variables

Linear: the difference between terms increases or decreases by the same value each time

Non-linear: the difference between terms increases or decreases in different amounts

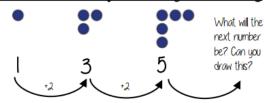
i Difference: the gap between two terms

11 Orithmetic: a sequence where the difference between the terms is constant

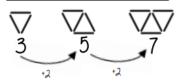
ert Geometric: a sequence where each term is found by multiplying the previous one by a fixed non zero number

Describe and continue a sequence diagrammatically





Predict and check terms



CHECK - draw the next terms



Predictions:

Look at your pattern and consider how it will increase.

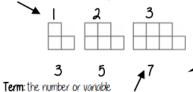
e.g. How many lines in pattern

Prediction - 13

If it is increasing by 2 each time - in 3 more patterns there will be 6 more lines

Sequence in a table and graphically

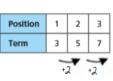




The **term** in position 3 has 7 squares*

(the number of squares in each image)





Graphicallu

Because the terms increase by the same addition each time this

is **linear** — as seen in the *gra*ph

Linear and Non Linear Sequences

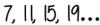
Linear Sequences — increase by addition or subtraction and the same amount each time Non-Inear Sequences — do not increase by a constant amount — quadratic, geometric

- Do not plot as straight lines when modelled graphically
- The differences between terms can be found by addition, subtraction, multiplication or

Fibonacci Sequence — look out for this type of sequence

Each term is the sum of the previous two terms.

Continue Linear Sequences



How do I know this is a linear sequence?

It increases by adding 4 to each term.

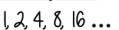
How many terms do I need to make this conclusion?

Ot least 4 terms — two terms only shows one difference not if this difference is constant. (a common difference).

How do I continue the sequence?

You continue to repeat the same difference through the next positions in the ==========

Continue non-linear Sequences



How do I know this is a non-linear sequence?

It increases by multiplying the previous term by 2- this is a geometric sequence because the constant is multiply by 2

How many terms do I need to make this conclusion?

Ot least 4 terms — two terms only shows one difference not if this difference is constant. (a common difference).

How do I continue the sequence?

You continue to repeat the same difference through the next positions in the sequence.

Explain term-to-term rule How you get from term to term

Try to explain this in full sentences not just with mathematical notation.

Use key maths language — doubles, halves, multiply by two, add four to the previous term etc.

To explain a whole sequence you need to include a term to begin at...

The next term is found by tripling the previous term. The sequence begins at 4.

