Topic Sequence: Algebraic Thinking

1	2	3
Sequences	Understand and Use Algebraic Notation	Equality and Equivalence

Topic Overview: Sequences

In year 7 students will explore sequences in detail, using both diagrams and lists of numbers. Technology is used to produce graphs so students can appreciate and use the words "linear" and "non-linear" linking to patterns they have spotted. Calculators are used throughout so number skills are not a barrier to finding the changes between terms or subsequent terms. Sequences are treated more formally later in the unit.

Learning Sequence:

<u>To describe and continue a sequence given diagrammatically:</u> Given a sequence of diagrams, students recognise and describe the change from one term to the next. They use their findings to draw the next term(s) in the sequence. Sequences will be linear, non-linear and oscillating.

<u>Predict and check the next term and/or terms of a sequence:</u> Students predict the structure of the next term in a linear or non-linear sequence of diagrams. Student will then draw the next term to test their prediction.

<u>To represent sequences in tabular and graphical forms:</u> Understanding multiple representations of the same item is a key mathematical skill. Using appropriate technology, students will produce diagrams that illustrate the different rates of growth of sequences in another way, leading to an understanding of the words linear and non-linear.

<u>Recognise the difference between linear and non-linear sequences:</u> Building on the previous step, students will now be asked to recognise from a list of numbers, rather than a graph, whether a sequence is linear or not. The idea of a constant difference between the terms is the emphasis for this subtopic.

<u>Continue numerical linear sequences:</u> Students will be taught to work out the next term in a sequence of numbers using a constant difference. These sequences will be either increasing or decreasing.

<u>Continue numerical non-linear sequences:</u> Students will first be taught to decide whether a sequence is linear or non-linear by identifying if the difference is constant or not. In the case where they are not, students will be encouraged to find the most efficient way of getting from one term to the next.

<u>Explain the term-to-term rule of numerical sequences in words:</u> This step will happen alongside the previous to steps. Teachers shall be insistent that the term-to-term rule is described in full sentences rather than vague statements.

<u>Find missing numbers within sequences:</u> Students should start by considering finding a term further away than the next term in a given sequence. Student will develop strategies to find missing in sequence where the rule cannot be determined by adjacent terms.

Sequence of Learning:

1	To describe and continue a sequence given diagrammatically
2	Predict and check the next term and/or terms of a sequence
3	To represent sequences in tabular and graphical forms
4	Recognise the difference between linear and non-linear sequences
5	Continue numerical linear sequences
6	Continue numerical non-linear sequences
7	Explain the term-to-term rule of numerical sequences in words
8	**Find missing numbers within sequences**

Topic Resources:

Knowledge Maps:	Sequences

Assessment:

Knowledge:	End of Topic Test
Application of Knowledge:	Termly Mixed Topic Assessment

Supportive Reading:

Any supported reading listed here	Sparx Maths www.sparxmaths.co.uk
	Corbett Maths : www.corbettmaths.com
	AQA Revision Guide