



Year 11 Maths Learning Journey

Spring Term 3

Reasoning: Algebraic Reasoning

Core knowledge	Worksheet
Simplify complex expressions “How do you know when an expression is in its simplest form?”	Worksheet
Find the rule for the nth term of a linear sequence (R) “What’s the connection between the coefficients of n in the rule for a linear sequence and the behaviour of the sequence? How would this change if n were negative?”	Worksheet
Find the rule for the nth term of a quadratic sequence (H) (R) “What’s the same and what’s different about linear and quadratic sequences?”	Worksheet
Use rules for sequences “What’s the difference between a linear sequence and a geometric sequence?”	Worksheet
Solve linear simultaneous equations (R) “What does simultaneous mean?”	Worksheet
Solve simultaneous equations with one quadratic (H) (R) “How can you solve a quadratic equation when you cannot factorise?”	Worksheet
Formal algebraic proof (H) “Why isn’t a list of examples a proof?”	Worksheet
Inequalities in two variables (H) “How can you use the coordinates of a point in a region to test what inequalities it satisfies?”	Worksheet

Learning Checkpoints

LC Title	Completed	Dirt
Algebraic Reasoning		

Key Vocabulary:

Term – Singular component of an expression or equation.

Expression – A collection of algebraic terms.

Simplify – Make simpler by removing factors or collecting like terms.

Coefficient – Multiplier of a variable in an algebraic expression.

Linear – progressing at a constant rate.

Sequence – A collection of terms linked in some way.

Non – Linear – Not progressing at a constant rate.

Quadratic – Having the highest order of variable to be to the power of 2.

Second Difference – The difference between two differences.

Constant – A term which does not change it's value.

Geometric – Progressing with a common ratio.

Inequality – Mathematical statement defining a range of values.

Simultaneous – occurring at the same point in space & time.

Proof – A demonstration for all cases.

Demonstration – A showing of an individual case.

Counter-example – An example of a case disproving a statement.

Satisfy – To make true.