



Year 8 Maths Learning Journey

Spring term 1

Algebraic techniques: Brackets, equations and inequalities

Core knowledge	Reference
<u>Form algebraic expressions</u> “What is the difference between a term and an expression?”	Worksheet
<u>Use directed number with algebra</u> “Why is it not true that ‘two minuses make a plus?’ ”	Worksheet
<u>Multiply out a single bracket</u> “What does expand mean when we are working with brackets?”	Worksheet
<u>Factorise into a single bracket</u> “Is it useful to have 1 as a common factor? Why/why not?”	Worksheet
<u>Expand multiple single brackets and simplify</u> “Is it possible to simplify an expression and end up with the answer 0?”	Worksheet
<u>Expand a pair of binomials (H)</u> “Why do you get four terms when you multiply two binomials?”	Worksheet
<u>Solve equations, including with brackets</u> “Do you have to expand the brackets to solve the equation?”	Worksheet
<u>Form and solve equations with brackets</u> “What is different about $2x + 3$ and $2(x + 3)$?”	Worksheet
<u>Understand and solve simple inequalities</u> “What the same and what’s different about solving an equation/inequality?”	Worksheet
<u>Form and solve inequalities</u> “What does integer mean? How does this change the question?”	Worksheet
<u>Solve equations and inequalities with unknowns on both sides (H)</u> “How can we check our solution to an equation is correct?”	Worksheet
<u>Form and solve equations and inequalities with unknowns on both sides (H)</u> “Does the order of the steps matter?”	Worksheet
<u>Identify and use formulae, expressions, identities and equations</u> “Can an equation have more than one variable?”	Worksheet

Learning Checkpoints

LC Title	Completed	Dirt
Brackets, equations and inequalities		

Key Vocabulary:

Binomial: an algebraic expression of the sum or the difference of two terms.

Bracket: Symbols used to group numbers in arithmetic or letters and numbers in algebra and indicating certain operations as having priority.

Coefficient: Often used for the numerical coefficient. More generally, a factor of an algebraic term.

Common factor: A number which is a factor of two or more other numbers, for example 3 is a common factor of the numbers 9 and 30

Directed number: A number having a direction as well as a size e.g. (-7), +10

Equation: A mathematical statement showing that two expressions are equal.

Equivalent: equal in value, amount, function, meaning, etc.

Expand: become or make larger or more extensive.

Expression: algebraic expression consists of unknown variables, numbers and arithmetic operators.

Factor: When a number, or polynomial in algebra, can be expressed as the product of two numbers or polynomials, these are factors of the first.

Factorise: To express a number or a polynomial as the product of its factors

HCF: The common factor of two or more numbers which has the highest value.

Inequality: When one number, or quantity, is not equal to another.

Like terms: Terms whose variables (such as x or y) with any exponents (such as the 2 in x^2) are the same.

Negative: An integer less than 0. Examples: -1, -2, -3 etc.

Positive: A number greater than zero.

Product: The result of multiplying one number by another.

Quadratic: Describing a expression of the form $ax^2 + bx + c$ where a, b and c are real numbers

Simplify: Reduce to its simplest form.

Substitute: Numbers can be substituted into an algebraic expression in x to get a value for that expression for a given value of x.

Term: either a single number or variable, or numbers and variables multiplied together.

Unlike terms: Algebraic terms, which does not have the same literal coefficients, and cannot be raised to the same power