Year 9 Maths Learning Journey

Autumn Term 2

Reasoning with algebra: Forming and solving equations

Core knowledge	Reference
One and two-step equations and inequalities (R) What is the difference between an equation and an inequality?	Worksheet
Equations and inequalities with brackets (R) Do you always have to expand the brackets first to solve an equation?	Worksheet
Inequalities with negative numbers What's the same/different about solving an inequality where the variable has a negative coefficient?	Worksheet
Solve equations with unknowns on both sides Why do we do the same operation to both sides of an equation?	Worksheet
Solve inequalities with unknowns on both sides How can we check that the solution to an inequality is correct?	Worksheet
Equations and inequalities in other mathematical contexts What facts do we know that will help us to form an equation/inequality?	Worksheet
Formulae and equations What is the difference between a formula and an equation?	Worksheet
Rearrange formulae (one-step) Which variable is the subject of the formula? How do you know?	Worksheet
Rearrange formulae (two-step) What is the first step you need to take to rearrange the formula?	Worksheet
Rearrange complex formulae (H) What is the inverse of squaring/cubing/square rooting/cube rooting?	Worksheet

Learning Checkpoints

LC Title	Completed	Dirt
Forming and solving equations		

Key Vocabulary:

Balance: An equation in balance maintains proportion

Check: A calculation or process where an answer is tested

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

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

Expand: To expand a bracket, multiply each term in the bracket by the expression outside the bracket.

Formula: An equation linking sets of physical variables

Greater/less than: A value that is more than or less than another value.

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

Inverse operations: Operations that, when they are combined, leave the entity on which they operate unchanged. Multiplication and division are inverse operations to each other; one undoes the other.

Inverse: Opposite operations for example Addition is the inverse to subtraction.

Make the subject of: A formula relates different physical variables in a mathematical way.

Reverse: Use inverse operations,

Satisfy: A value (or values) that solve an equation

Solution: A value or values which, when substituted for a variable in an equation, make the equation true

Solve: To solve something is to find a solution

Square/root: The square of a number is the product of the number and itself

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

Unknown: an unknown is a number we do not know

Variable: A quantity that can take on a range of values, often denoted by a letter, x, y, z, t, … etc.