

ALGEBRAIC NOTATION AND MANIPULATION

Keywords:	Expression / Simplify / Term / Variable / Substitute / Coefficient / Equivalent / Solve / Expand / Factorise								
Definition / Description:	Expression: an algebraic statement	Simplify: collect like terms	Term: part of an expression	Variable: a quantity that can have different values	Substitute: exchange or replace	Coefficient: a number or letter multiplying a term	Solve: find the result	Expand: multiply out of brackets	Factorise: separate into factors
Knowledge points:	Use and interpret notation Use letter symbols to represent unknown numbers in equations		Substitute into formulae Swap letter symbols in formulae for numbers to solve for an unknown	Algebraic vocabulary Understand and use expressions, equations, formulae, identities, inequalities and terms		Simplify expressions Collect like terms, expanding brackets, factorising into brackets	Rearrange formulae Balance terms about the equation sign to make another unknown the subject of the formula	Equivalence and identities Use algebra to prove equivalent expressions and use the identity symbol	
Knowledge point examples:	ab in place of $a \times b$ $3y$ in place of $y + y + y$ and $3 \times y$ a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$ $\frac{a}{b}$ in place of $a \div b$		<i>Find the value of x^2 when $x = 5$</i> When $x = 5$, replace the x in x^2 with 5 to make $(5)^2$. $5^2 = 25$	Expression: $a + 1$ Equation: $b = a + 1$ Formula: $F = ma$ Identity: $2 + b \equiv b + 2$ Inequality: $a > 1$ Term: a or $2b$	<i>Simplify:</i> $a + b + 2a - 2b = a + 2a + b - 2b = 3a - b$ <i>Expand:</i> $3(x + 5) = (3 \times x) + (3 \times 5) = 3x + 15$ <i>Factorise:</i> $6c - 8d = 2 \times 3c - 2 \times 4d = 2(3c - 4d)$	<i>Rearrange: $y = 2x + 3$ to make x the subject</i> $y = 2x + 3$ (-3 on both sides) $y - 3 = 2x$ ($\div 2$ on both sides) $\frac{y - 3}{2} = x$	$b \times b \times b \equiv b^3$ $2(a + b) \equiv 2a + 2b$ $5x + 6x \equiv 11x$		
Linked Knowledge Maps	Functions (Incl. Composite / Inverse) / Inequalities / Solve Linear Equations / Solve Quadratic Equations								