Expressions and equations

Term	Definition	Illustration
Abstract thinking	Thinking logically without the use of concrete material or visual representations.	
Algebra	The use of letters and numbers to express mathematical information.	
Algebraic expression	Algebraic expressions are built up from integer constants, variables (letters) and operations.	$4b - 5$ $6 + 3t^2 - 7p$
Algebraic term	A constant, a variable or a combination of these multiplied together	$3t^2$ $-7p$
Constant	A number, or a symbol used to denote a value that does not change.	
Distributive Law	Multiplying a number by a group of numbers added together is the same as doing each multiplication separately	$3 \times (2 + 4) = 3 \times 2 + 3 \times 4$
Equality	The equals sign (=) is used between two expressions to indicate that they take the same value.	
Equation	A statement that means that two expressions are equal in value.	$4x - 2 = 10$

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Formula	A mathematical relationship or rule expressed in symbols.	Volume of a Cuboid: $V = l \times b \times h$
Greater than	The symbol > means greater than.	$7 > 4$
Inequality	The symbol ≠ is used between two expressions to indicated that they do not take the same value.	
Less than	The symbol < means less than.	$2 < 5$
Operators	These are symbols that are part of the universal language of mathematics. The four operators +, –, ×, ÷ are the first set of symbols that learners usually become familiar with.	
Variable	A variable quantity, as its name suggests, can change in value. In algebra, letters are used to represent variables.	

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Skill	Illustration
Evaluating algebraic expressions	Substitute specific values for each variable and perform the correct operations to find the value of the expression. Given $t = 2$ and $f = 6$ $5t + 3f$ $= 5 \times 2 + 3 \times 6$ $= 10 + 18$ $= 28$
Expanding brackets	Using the distributive law with algebraic terms. $5(f + 4)$ $= 5 \times f + 5 \times 4$ $= 5f + 20$
Factorising algebraic expressions	The process of finding the factors in an expression. It is like "splitting" an expression into a multiplication of simpler expressions. Factorise $6y + 9$ 3 is the highest common factor of $6y$ and 9 So $6y + 9 = 3(2y + 3)$
Simplifying expressions by collecting like terms	Longer expressions should be simplified so to avoid repetition of terms involving the same variable. $2x + 5y + 3x – 3 – 4y$ $= 5x + y – 3$
Solving equations	The process of finding the value of a variable that makes both sides of the equation equal in value. The idea of keeping both sides balanced by carrying out the same operation to each side of the equations at every step is important here.