Getting algebraic expressions by identifying mathematical operations

What should we look for?

When changing from verbal expressions to algebraic expressions, look for key words that indicate which mathematical operation we should use. The table below gives the most commonly encountered examples (but we should not limit ourselves to these only). Note that some words might have different meanings, and so we should also read the context very carefully.

Operations	corresponding key words (or phrases)
Add	sum, plus, total, increase, more than, raise, combined, altogether, in all
Subtract	difference, less, less than, decrease, reduce, remain, larger, fewer
Multiply	product, times, total, in all, twice, part of altogether, area, volume
Divide	quotient, divided, each, shared, average, ratio, per, equal parts

Table: Correspondence between words and operations

Practical Steps:

(1) Identify the variable(s).

(2) Identify the key words that indicate the mathematical operations.

(3) Write down the algebraic expression according to the verbal descriptions.

Examples: In this group of examples, we use x to denote the word "the number" (or "a number") , in our algebraic expressions.

Verbal Expressions	Algebraic Expressions
six more than the number	$x + 6$
the sum of ten and a number	$10 + x$
seventeen more than a number	$17 + x$
a number decreased by 10	$x - 10$
10 less than a number	$x - 10$
10 less a number	$10 - x$
one half of a number	$\frac{1}{2} \cdot x$ or $\frac{x}{2}$
3 more than twice a number	$3 + 2x$
seventeen less than one half of a number	$\frac{x}{2} - 17$
a number divided into 3 equal parts	$\frac{x}{3}$