Formulas

Formulas are a simple and quick way of writing out what elements are in a compound. They use words or symbols (see page 53), and sometimes numbers. There are many different types of formulas. Below are four formulas for sodium chloride.

Key Facts

- ✓ **Formulas show which elements a compound is made up of.**
- ✓ **There are many types of formulas, but you need to know four: word, chemical, atomic, and structural.**

Word formula
The names of the elements in the compound are listed in full, instead of using their symbols.

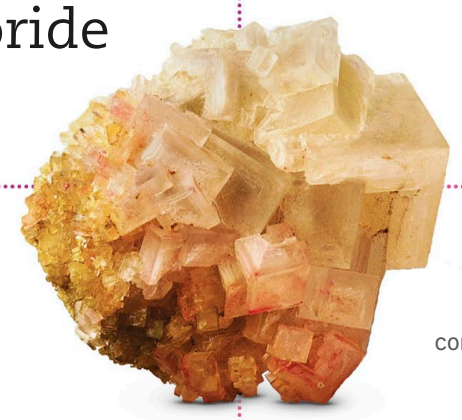
Sodium chloride

Chemical formula
The symbols for each element are used. There is no space between each symbol.

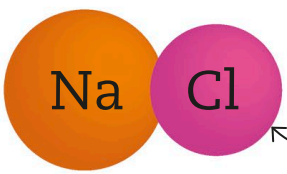
NaCl

Na is the symbol for sodium.

Cl is the symbol for chlorine.



Atomic formula
The symbols for each element and the outline of each atom show what is in the compound.



Structural formula
The symbols for each element are connected by a dash that represents a bond between each atom.

Na – Cl

The dash represents a bond between an Na atom and a Cl atom.

Common Formulas

Familiarize yourself with these common chemical compounds. A formula may have small numbers next to the symbols. This tells you how many atoms of this element are in a molecule of this compound.

Carbon dioxide	CO_2	Carbon monoxide	CO
Ammonia	NH_3	Hydrochloric acid	HCl
Water	H_2O	Calcium chloride	$CaCl_2$
Methane	CH_4	Sulfuric acid	H_2SO_4

There are two chlorine atoms in a molecule of calcium chloride.