

# Chemical formulas

## How to write formulas for non-metal compounds



How to teach chemical formulas and equations  
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# Formulas of non-metal compounds

Some of these compounds have common names such as 'methane', 'ammonia' and 'water', which give no clue about the formula. The formulas for these compounds have to be learnt.

Name	Formula
Methane	$\text{CH}_4$
Water	$\text{H}_2\text{O}$
Ammonia	$\text{NH}_3$
Nitric acid	$\text{HNO}_3$
Sulfuric acid	$\text{H}_2\text{SO}_4$



# Names to formulas

- Most formulas are based directly on the name of the substance.
- The name tells us the elements in the compound.
- The ending of the last element has been changed to **-ide**.

For example, sodium chloride contains sodium and chlorine; magnesium oxide contains magnesium and oxygen.



# How many atoms?

- The number of atoms of each element are indicated by using **prefixes**

Prefix	Number of atoms
Mono-	1
Di-	2
Tri-	3
Tetra-	4
Penta-	5
Hexa-	6



# Formulas of non-metal compounds

- The name carbon dioxide tells us that it contains of one carbon and two oxygen atoms.
- The formula is:  $\text{CO}_2$ .
- In a similar way the formula  $\text{BCl}_3$  give us the name boron trichloride.

# Try it for yourself

Name	Formula
	CO
Hydrogen chloride	
	NO
Sulfur dioxide	
Nitrogen dioxide	
	SiO <sub>2</sub>
Phosphorous trichloride	
Carbon tetrachloride	
	SO <sub>3</sub>
	N <sub>2</sub> O <sub>4</sub>
Diphosphorous pentoxide	
Sulphur hexafluoride	
	ClF <sub>5</sub>

# Try it for yourself - answers

Name	Formula
<b>Carbon monoxide</b>	CO
Hydrogen chloride	HCl
<b>Nitrogen monoxide</b>	NO
Sulfur dioxide	SO <sub>2</sub>
Nitrogen dioxide	NO <sub>2</sub>
<b>Silicon dioxide</b>	SiO <sub>2</sub>
Phosphorous trichloride	PCl <sub>3</sub>
Carbon tetrachloride	CCl <sub>4</sub>
<b>Sulfur trioxide</b>	SO <sub>3</sub>
<b>Dinitrogen tetroxide</b>	N <sub>2</sub> O <sub>4</sub>
Diphosphorous pentoxide	P <sub>2</sub> O <sub>5</sub>
Sulphur hexafluoride	SF <sub>6</sub>
<b>Chlorine pentafluoride</b>	ClF <sub>5</sub>