

Counting Atoms

Name _____

The formula for a compound indicates the elements that make up the compound and the number of atoms of each element present in the compound. The numbers of each atoms of each element is indicated by the use of small numbers called subscripts.

Sometimes groups of atoms act as a single atom. Such a group of atoms is called a polyatomic ion. If a polyatomic ion is used in a formula more than once, it is put in parentheses and the subscript appears outside the parentheses. When a subscript appears outside the parentheses, it indicates that all the elements inside the parentheses should be multiplied by the subscript. For example, the formula $\text{Fe}(\text{OH})_3$ indicates the combination of one atom of iron, Fe, three atoms of oxygen, O, and three atoms of hydrogen, H.

In the following examples, a) list each symbol in the compound, b) write name of the element, c) record the number of atoms of each element present. The first example has been done for you.

<u>NAME</u>	<u>USE/FOUND IN</u>	<u>FORMULA</u>	<u>ATOMS IN COMPOUND</u>
calcium carbonate	limestone/cement	CaCO_3	Ca = calcium - 1 C = carbon - 1 O = oxygen - 3
carbon dioxide	industry, soda pop	CO_2	C = carbon - 1 O =
methane	fuel, byproduct of digestion	CH_4	
carbon monoxide	product of poor burning	CO	
quartz	glass, computer chips	SiO_2	
graphite & diamonds	pencils, lubricant, jewelry	C	
salt	seasoning	NaCl	
hydrochloric acid	swimming pool bactericide	HCl	
water	uhhh...	H_2O	
galena	ore for lead	PbS	
pyrite	fool's gold	Fe_2S	

<u>NAME</u>	<u>USE/FOUND IN</u>	<u>FORMULA</u>	<u>ATOMS IN COMPOUND</u>
acetic acid	vinegar	$C_2H_4O_2$	
aspirin	pain reliever	$C_8H_8O_4$	
paradichlorobenzene	moth crystals	$C_{12}H_{10}Cl_2$	
table sugar	sweetener	$C_{12}H_{22}O_{11}$	
trinitrotoluene	explosive (boom!)	$C_7H_5(NO_2)_3$	
magnesium hydroxide	milk of magnesia	$Mg(OH)_2$	
cellulose	found in wood - paper	$C_6H_7O_2(OH)_6$	
pentane	one of many in gasoline	C_5H_{12}	
sulphuric acid	in auto batteries	H_2SO_4	
asbestos	carcinogenic insulator	$H_4Mg_3Si_2O_9$	
dichlorodiphenyl-trichloroethane (DDT)	nasty pesticide	$C_{14}H_9Cl_5$	
Iron oxide	rust	Fe_2O_3	