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When writing the chemical formula of chemical compounds it is important to get the elements in the right order.

One way to do this is to follow three simple steps that work most of the time in junior science using the periodic table shown above.

Step 1 - the first element in the formula is the element that appears in the lowest, left side of the periodic table.

Step 2 - the last element is the one that appears on the highest point at the right side of the table.

Step 3 – elements in between the first and last element are written in the order as they appear in the periodic table.

Example 1 Write the chemical formula for the smallest particle of an unknown compound that contains 3 atoms of oxygen, 1 atom of sodium and one atom of carbon.

Step 1 since sodium is the element that is most left on the periodic table Na is written first .

Na

Step 2 Oxygen is written last as it is the element that appears on the top right of the table.

Step 3 Carbon is written in between Na and O as it appears on the periodic table.

Na₂CO₃

Example 2 Write the chemical formula for the smallest particle of an unknown compound that contains 2 atoms of bromine and 1 atom of cobalt.

Step 1 the left most element in this case is cobalt (Co) .

Co

Step 2 bromine is written last as it is the element that appears on the top-right most side of the table.

CoBr₂

Eg 3 Write the chemical formula for the smallest particle of an unknown compound that contains 1 atom of cobalt, 1 atom of titanium and 3 oxygen atoms.
 Step 1 the left most element in this case is cobalt (Co) .

Co

Step 2 oxygen is written last as it is the element that appears on the top-right most side of the table.

 A standard periodic table of elements. Red circles highlight the element Cobalt (Co) in the fourth period, eighth group, and the element Oxygen (O) in the second period, sixth group. Red arrows originate from the text and point to these two elements.

Step 3 titanium is written in between Co and O, as it appears on the periodic table.

CoTiO₃

Eg 4 Write the chemical formula for the smallest particle of an unknown compound that contains 1 atom of chlorine, 1 atom of fluorine and 3 oxygen atoms.
 Step 1 since there is no element on the left of the periodic table we start at the right and select the lowest element present.

Cl

Step 2 fluorine is written last as it is the element that appears on the top-right most side of the table.

 A standard periodic table of elements. Red circles highlight the element Chlorine (Cl) in the third period, seventh group, and the element Fluorine (F) in the second period, seventh group. Red arrows originate from the text and point to these two elements.

Step 3 oxygen is written in between Cl and F, as it appears on the periodic table.

ClFO₃

Writing formulae worksheet – which element goes first and what order?

Use the periodic table to assist in writing the correct formula for each compound

Number and type of elements forming the smallest particle of the compound	Chemical formula
1 chlorine atom, 1 hydrogen atom and 4 oxygen atoms	
1 potassium atom, 1 chlorine atom and 4 oxygen atoms	
1 potassium atom, 4 oxygen atoms and one manganese atom	
1 hydrogen atom, 3 oxygen atoms, 1 carbon atom and 1 sodium atom	
1 fluorine atom, 3 oxygen atoms, 1 phosphorus atom and 2 sodium atoms	
1 sulfur atom, 4 oxygen atoms and 1 calcium atom	
1 sulfur atom, 4 oxygen atoms and 2 hydrogen atoms	
3 oxygen atoms, 1 hydrogen atom and 1 nitrogen atom	
1 hydrogen atom, 3 oxygen atoms, 1 carbon atom and 1 sodium atom	
1 silver atom, 3 oxygen atoms and 1 nitrogen atom	

1 H Hydrogen 1.008																	2 He Helium 4.0026						
3 Li Lithium 6.94	4 Be Beryllium 9.012182																	5 B Boron 10.81	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.99840324	10 Ne Neon 20.180
11 Na Sodium 22.98976928	12 Mg Magnesium 24.305																	13 Al Aluminum 26.9815386	14 Si Silicon 28.085	15 P Phosphorus 30.973762	16 S Sulfur 32.07	17 Cl Chlorine 35.45	18 Ar Argon 39.9
19 K Potassium 39.0983	20 Ca Calcium 40.08	21 Sc Scandium 44.95591	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938044	26 Fe Iron 55.845	27 Co Cobalt 58.933195	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.63	33 As Arsenic 74.921595	34 Se Selenium 78.9718	35 Br Bromine 79.904	36 Kr Krypton 83.80						
37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.90584	40 Zr Zirconium 91.224	41 Nb Niobium 92.90638	42 Mo Molybdenum 95.94	43 Tc Technetium 98.90625	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.9055	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.757	52 Te Tellurium 127.6	53 I Iodine 126.90447	54 Xe Xenon 131.29						
55 Cs Cesium 132.90545	56 Ba Barium 137.33	72 Hf Hafnium 178.49	73 Ta Tantalum 180.9479	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 196.229	77 Ir Iridium 192.222	78 Pt Platinum 195.084	79 Au Gold 196.96657	80 Hg Mercury 200.59	81 Tl Thallium 204.383	82 Pb Lead 207.2	83 Bi Bismuth 208.98040	84 Po Polonium 209	85 At Astatine 209	86 Rn Radon 222.01758							
87 Fr Francium 223.018783	88 Ra Radium 226.0254	104 Rf Rutherfordium 261	105 Db Dubnium 262	106 Sg Seaborgium 263	107 Bh Bohrium 264	108 Hs Hassium 265	109 Mt Meitnerium 266	110 Ds Darmstadtium 267	111 Rg Roentgenium 268	112 Cn Copernicium 269	113 Nh Nihonium 270	114 Fl Flerovium 271	115 Mc Moscovium 272	116 Lv Livermorium 273	117 Ts Tennessine 274	118 Og Oganesson 277							

1 barium atom, 3 oxygen atoms and 1 carbon atom

1 sulfur atom, 4 oxygen atoms and 1 copper atom

1 phosphorus atom, 4 oxygen atoms, 1 hydrogen atom and 2 potassium atoms

1 nitrogen atom, 3 oxygen atoms and 1 chlorine atom

1 nitrogen atom, 2 oxygen atoms and 1 chlorine atom

7 oxygen atoms, 2 potassium atom, and 2 chromium atoms

3 oxygen atoms, 3 hydrogen atoms, and 1 boron atom

4 oxygen atoms, 1 lithium atom, and 1 chlorine atom

4 oxygen atoms, 1 sulfur atom, and 1 cobalt atom

2 oxygen atoms, 3 hydrogen atoms, and 1 phosphorus atom

1 iron atom, 4 oxygen atoms and 1 selenium