

single molecule of edible salt has one atom of sodium and one atom of chlorine. The chemical symbol of sodium is Na and Cl stands for chlorine. So a salt molecule is represented by NaCl. Even water is a compound, symbolically written as H₂O — each molecule containing two hydrogen atoms and one oxygen atom. In this fashion all the material of the world is composed of the aforementioned ninety-two kinds of atoms.

Not only did we understand the basic building blocks of matter with the advent of atom. The mystery of chemical reactions became clear too. Dalton said that in a chemical reaction neither are the atoms destroyed nor new ones created — they simply change partners. Caustic soda contains sodium, and hydrochloric acid has chlorine in it. When these two are mixed the sodium and chlorine combine to form salt, NaCl, as we have said before. And the rest is simple water. Writing in terms of chemical symbols this reaction looks like the following,



Of course, all reactions do not proceed with such ease, external heat or pressure need to be applied in many cases. But the basic message is simple — a chemical reaction takes place when the partner of one goes to another.

Therefore chemistry became much easier now. It was no longer necessary to sweat analysing millions of compounds. If one understood the nature of these ninety-two elements, the way they combine with each other, then the key to understanding the chemistry has already been found.

3.2: Mendeleev	
1	H
3	Li
4	Be
6.94	C
10.01	N
10.81	O
12.01	F
14.01	Ne
16.99	Ne
19.00	Ne
20.18	
2	He
4.02	
5	B
6	C
7	N
8	O
9	F
10	Ne
13	Si
14	P
15	S
16	Cl
17	Ar
26.98	Al
26.99	Si
26.99	P
30.97	S
31.00	Cl
31.00	Ar
36.95	
31	Ge
32	As
33	Se
34	Br
35	Kr
65.38	Zn
63.55	Ge
69.72	As
72.39	Se
74.92	Br
78.96	Kr
79.90	
83.80	
37	Rb
38	Sc
39	Ti
40	V
41	Cr
42	Mn
43	Fe
44	Co
45	Ni
46	Cu
47	Zn
48	Ge
49	As
50	Se
51	Br
52	Kr
53	
54	Xe
131.3	

Explanation of chemical symbols	
Ag : Silver	Al : Aluminum
Br : Bromine	C : Carbon
Cu : Copper	F : Fluorine
He : Helium	I : Iodine
Mn : Manganese	N : Nitrogen
P : Phosphorus	Na : Sodium
Si : Silicon	Pd : Palladium
	Se : Selenium
	Ti : Titanium
Ar : Argon	As : Arsenic
	Ca : Calcium
	Cl : Chlorine
	Co : Cobalt
	Cr : Chromium
	Ge : Germanium
	Ga : Gallium
	H : Hydrogen
	He : Helium
	K : Potassium
	Kr : Krypton
	Li : Lithium
	Mg : Magnesium
	Ne : Neon
	Ni : Nickel
	O : Oxygen
	P : Phosphorus
	Rb : Rubidium
	Sc : Scandium
	S : Sulphur
	V : Vanadium
	Xe : Xenon

Table 3.1: First four rows of the periodic table, and a few elements in the fifth row.