

Structure of matter

A substance made up of only one kind of atoms that cannot be broken down into simpler substances by chemical methods is called an element.

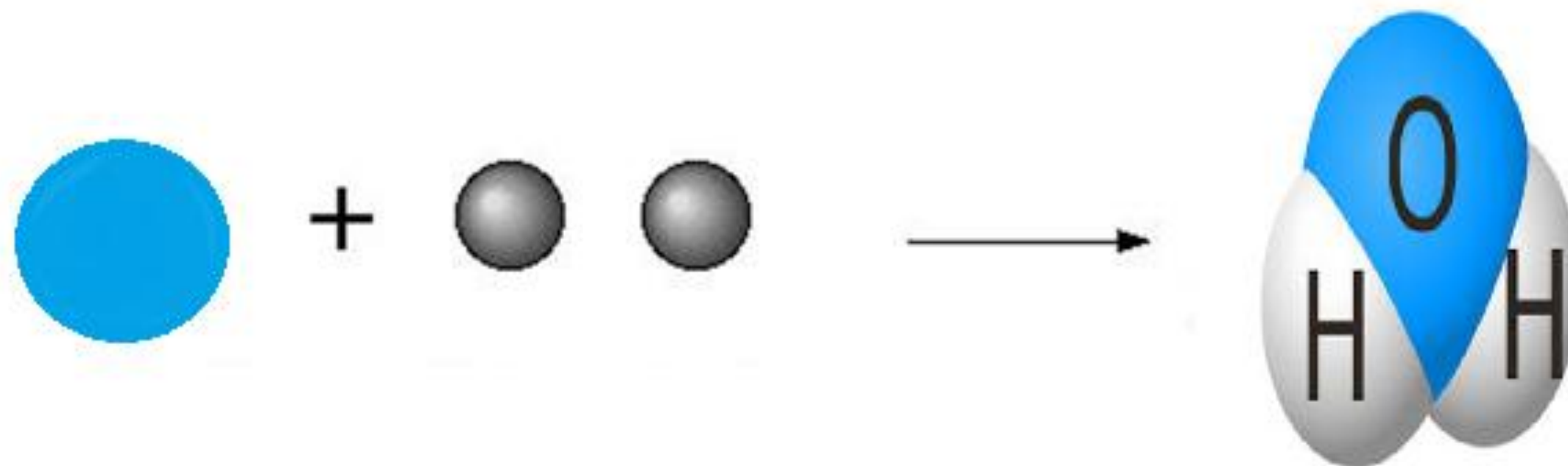
Periodic Table of the Elements

1 H Hydrogen	2 He Helium																			18
3 Li Lithium	4 Be Beryllium																			10 Ne Neon
11 Na Sodium	12 Mg Magnesium																			18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton			54 Xe Xenon
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon			86 Rn Radon
55 Cs Cesium	56 Ba Barium	57-71 Lanthanides	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon			118 Uuo Ununoctium
87 Fr Francium	88 Ra Radium	89-103 Actinides	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Uut Ununtrium	114 Uuq Ununquadium	115 Uup Ununpentium	116 Uuh Ununhexium	117 Uus Ununseptium	118 Uuo Ununoctium			

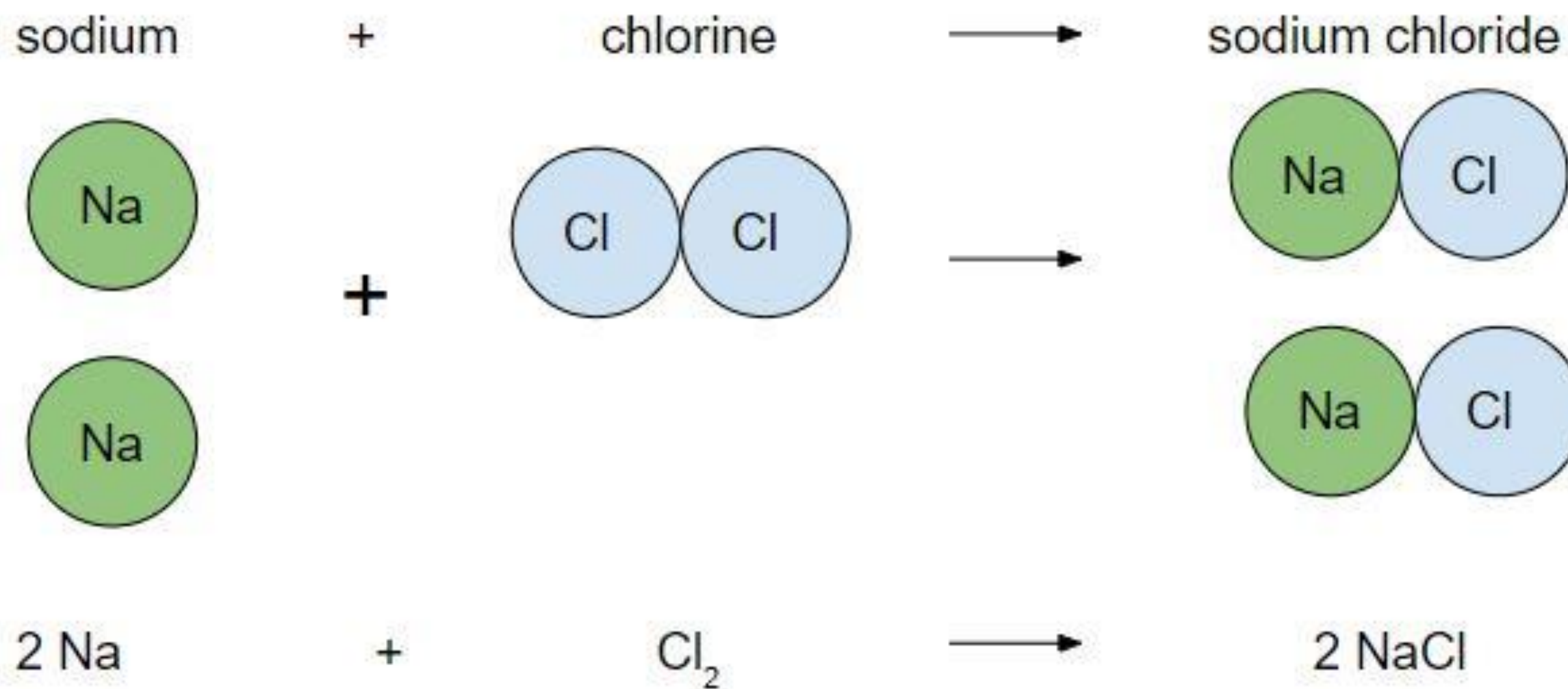
57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Cf Mendelevium	102 No Nobelium	103 Lr Lawrencium

A substance formed by the chemical combination of two or more elements in fixed proportions is called a compound.









A compound can be broken down into its constituent elements by chemical methods.

For example, each water molecule is made up of two atoms of hydrogen and one atom of oxygen.

Water can be broken down into the elements—hydrogen and oxygen—by passing electricity through water

A compound always contains the same elements combined together chemically in a fixed ratio.

No matter from where you take water, it will always contain hydrogen and oxygen in the ratio of 2:1 by volume.

Sugar is a compound of carbon, hydrogen and oxygen. Its molecule contains 12 atoms of carbon, 22 atoms of hydrogen and 11 atoms of oxygen. This proportion of 12:22:11 will remain constant no matter how and where sugar is produced.

The properties of a compound are different from those of its constituent elements.

For example, the properties of water (a liquid) are different from its constituent elements, i.e. hydrogen (a gas) and oxygen (a gas). Water puts off fire, whereas hydrogen burns and oxygen supports burning.