

Introduction to ATOMS and ELEMENTS

What is an atom?

An **atom** is the basic building block of matter.

Parts of an atom

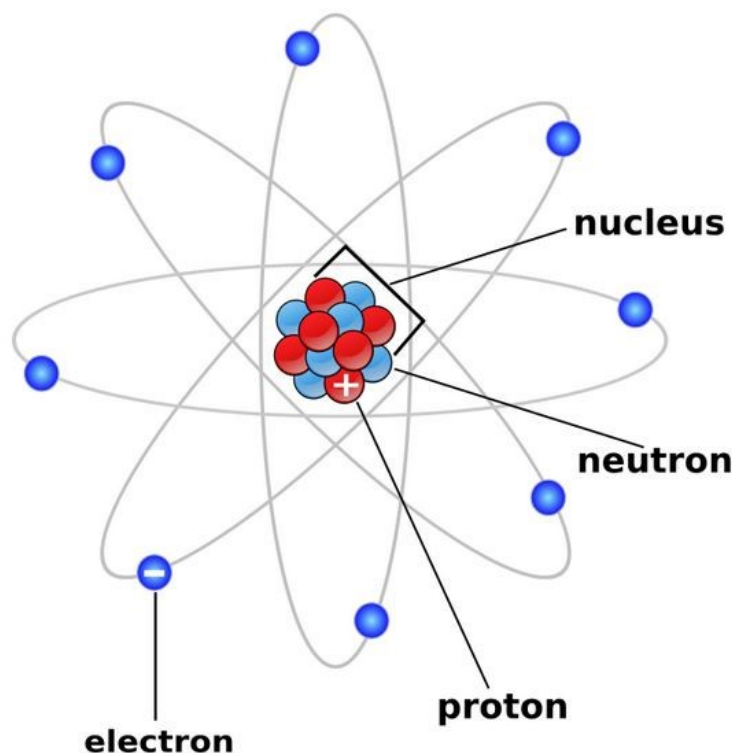
Atoms are made of smaller particles: **protons**, **neutrons**, and **electrons**. Proton and neutrons are located in the nucleus, or center, of the atom. The electrons orbit the nucleus.

Nucleus—the very center of the atom

Proton— a positively charged particle located in the nucleus of an atom

Neutron - a neutral charged particle located in the nucleus of the atom

Electrons— negatively charged particle that orbits the nucleus of the atom



Elements and Atomic Numbers

Atoms of the same type make up elements. These elements are identified by the number of protons inside atomic nucleus. The number of protons an atom possesses is called its atomic number.

For instance, the element hydrogen has 1 proton in its nucleus, so its atomic number is 1. The element Oxygen has 8 protons, so its atomic number is 8.

The number of particles that make up an atom not only identify the type of element the atom is, but it also determines the characteristics of the element.

The Periodic Table Of Elements

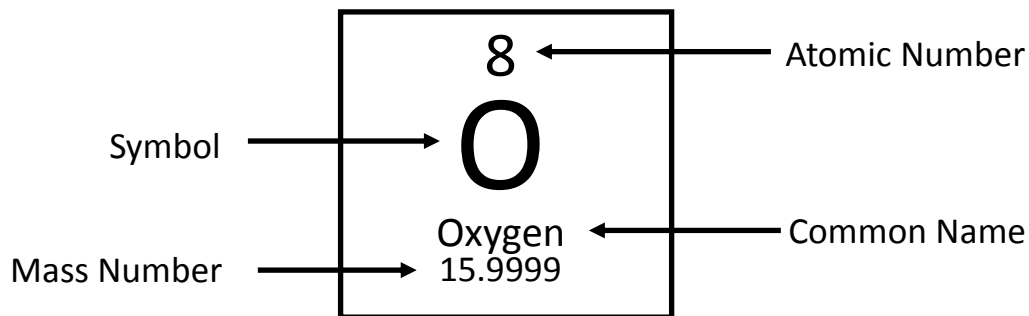
We organize elements in a periodic table according to their atomic number.

Group→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
↓Period																		
1	1 H																	2 He
2	3 Li	4 Be										5 B	6 C	7 N	8 O	9 F	10 Ne	
3	11 Na	12 Mg										13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra		104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Uut	114 Fl	115 Uup	116 Lv	117 Uus	118 Uuo
Lanthanides	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu			
Actinides	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr			

There are currently 118 known elements. Some are naturally occurring elements, while others are man-made, or **synthesized**. The common answer for the number of naturally occurring elements is 92, although recent research suggests that number may be 98.

Periodic Table Entries

Each element is given a block that contains important information about the element. This block, or entry, may contain the element's **chemical symbol, common name, atomic number, and mass number**. (The **mass number** is the average mass of that type of element.)



Choose any element and write the periodic table entry for that element.