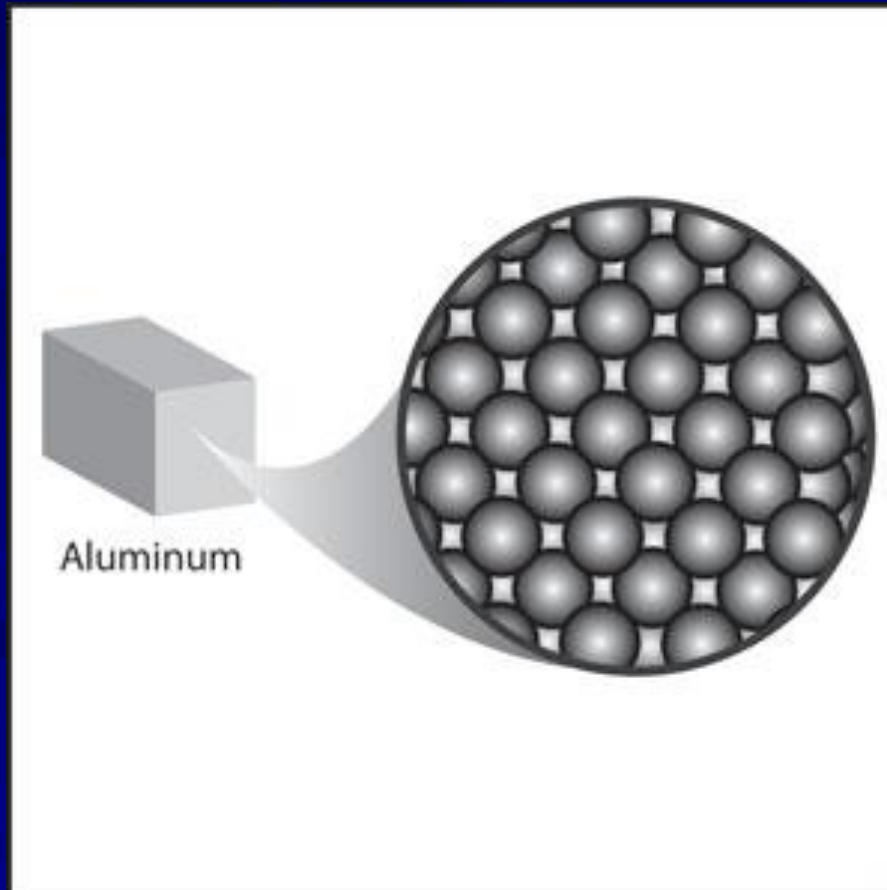
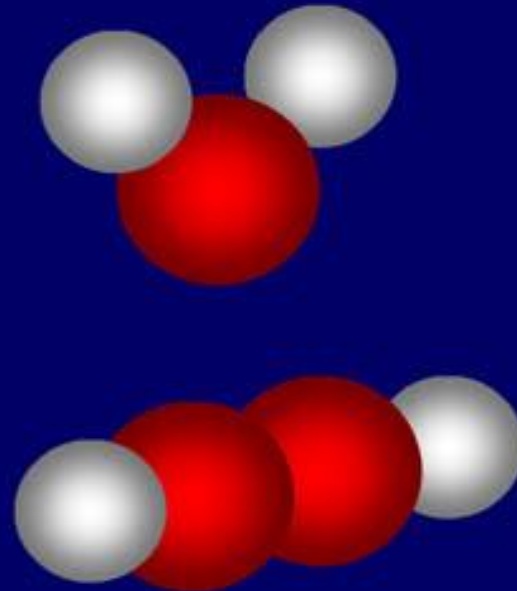
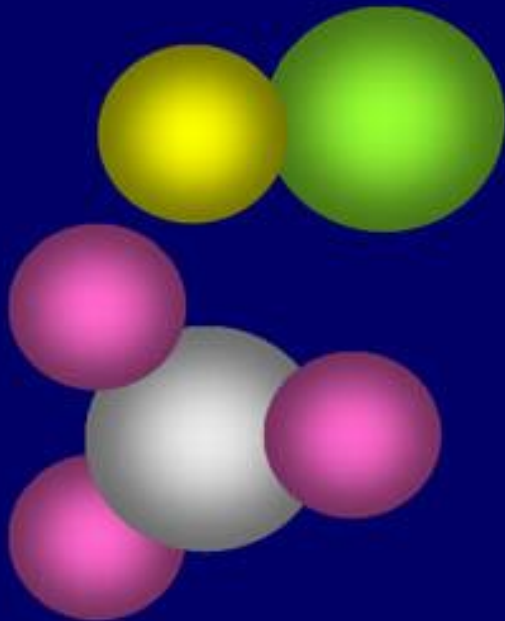


ATOMS AND MOLECULES



WHAT IS AN ATOM?

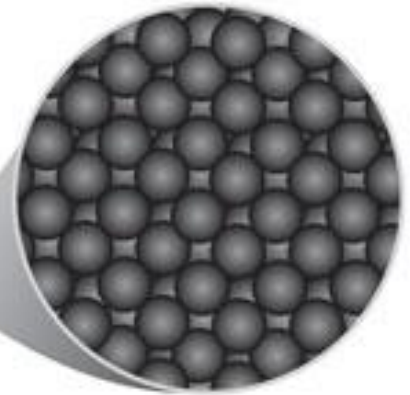
- All the material on the Earth is composed of various combinations of atoms;



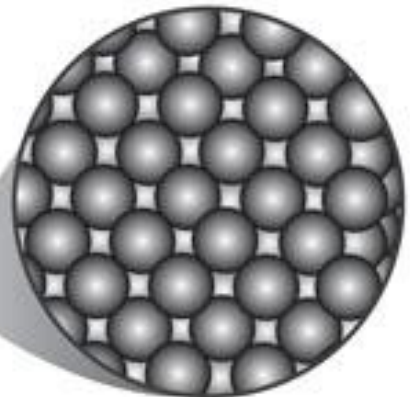
□ **ATOM** is the smallest unit of matter that retains the identity of the substance;



Copper



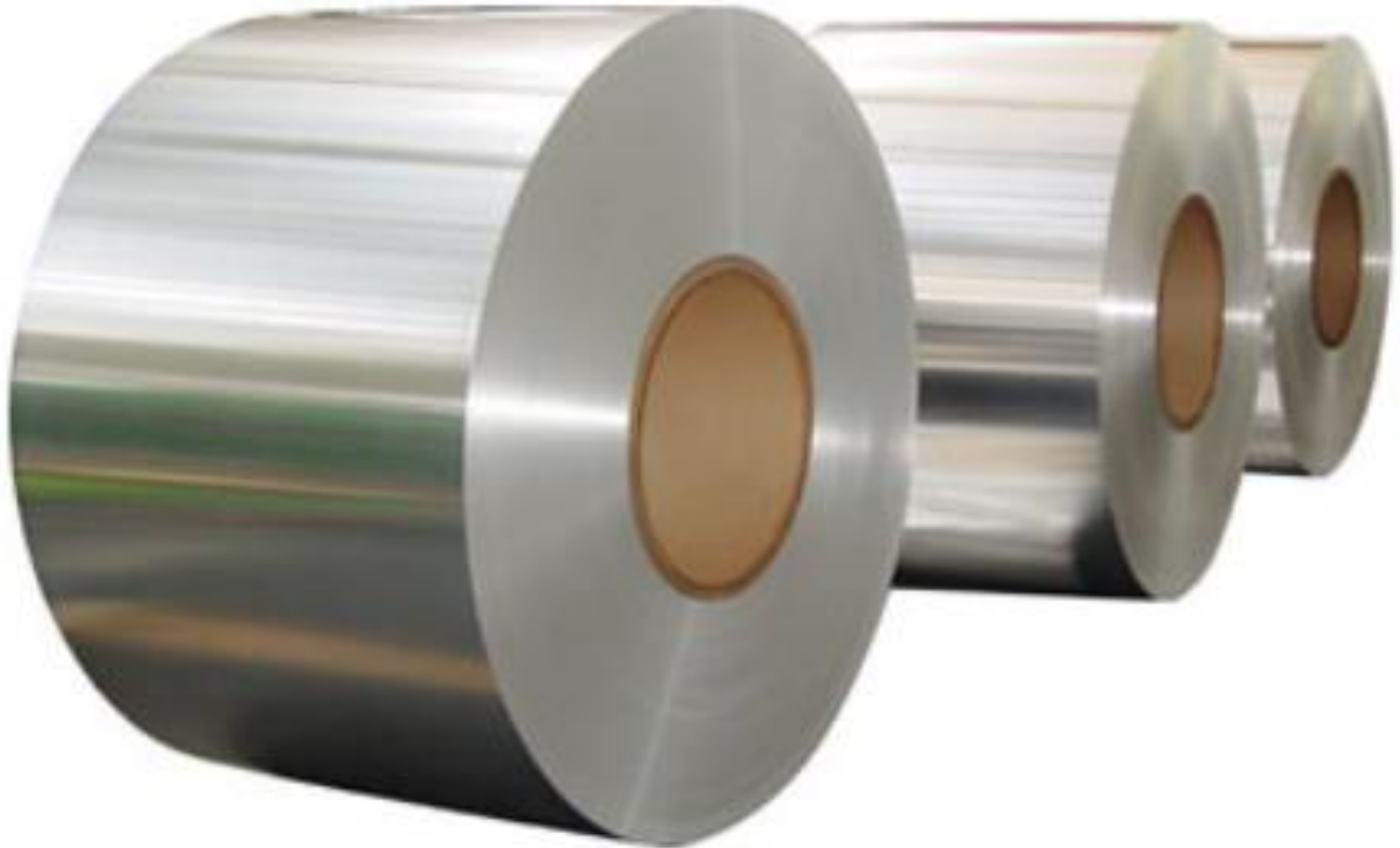
Aluminum



□ Atoms differ in **size** and **mass**.



- A substance that contains only one type of atoms is called an **ELEMENT**.

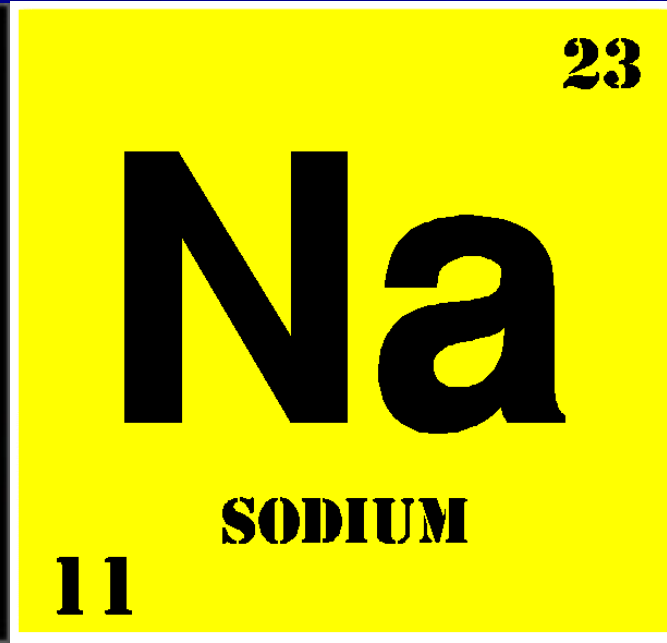
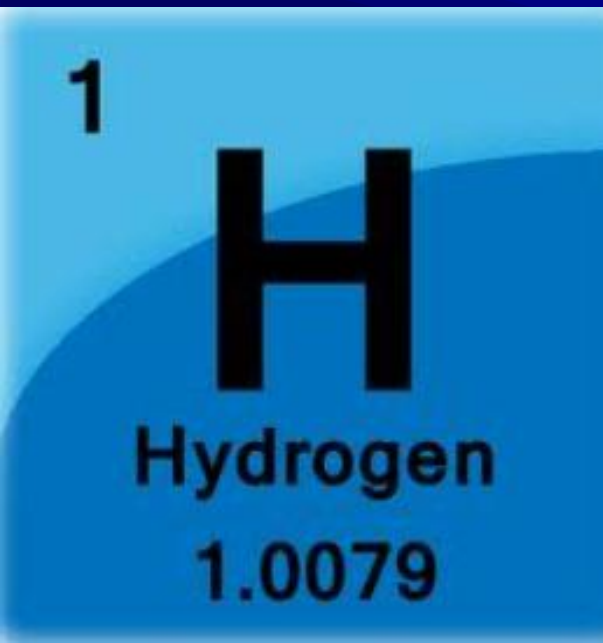


- All elements are listed in the *periodic table* in increasing order of their atomic number.

Periodic Table of the Elements

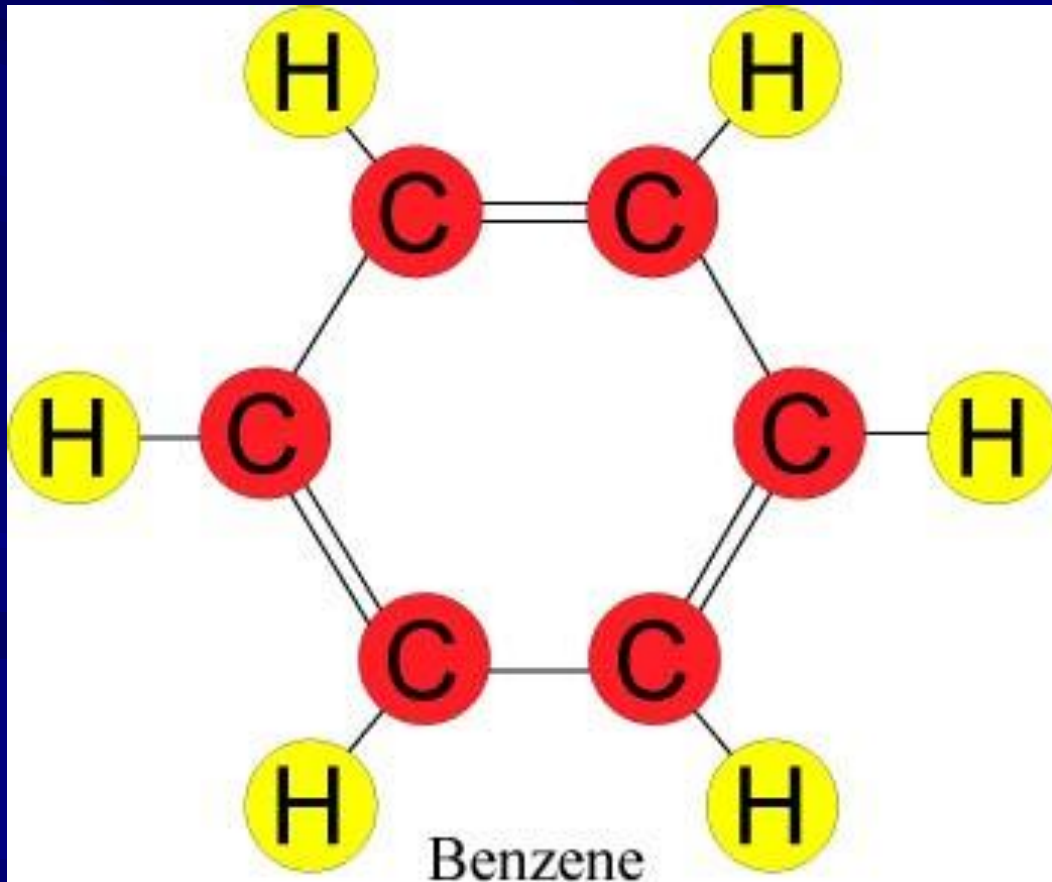
1 H 1.01																	18 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18
11 Na 22.99	12 Mg 24.30	3 Sc 44.96	4 Ti 47.88	5 V 50.94	6 Cr 52.00	7 Mn 54.94	8 Fe 55.85	9 Co 58.93	10 Ni 58.69	11 Cu 63.55	12 Zn 65.39	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
19 K 39.10	20 Ca 40.08	21 Sc 44.96	22 Ti 47.88	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.39	31 Ga 69.72	32 Ge 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (97.91)	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.75	52 Te 127.60	53 I 126.90	54 Xe 131.29
55 Cs 132.91	56 Ba 137.33	57 La 138.91	72 Hf 178.49	73 Ta 180.95	74 W 183.85	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.2	83 Bi 208.98	84 Po (208.98)	85 At (209.99)	86 Rn (222.02)
87 Fr (223.02)	88 Ra (226.03)	89 Ac (227.03)	104 Rf (261.11)	105 Ha (262.11)	106 Sg (263.12)												

- Elements are given a *name* and a *chemical symbol*. For example,
- Hydrogen – *H*
- Helium – *He*
- Sodium – *Na*



MOLECULES

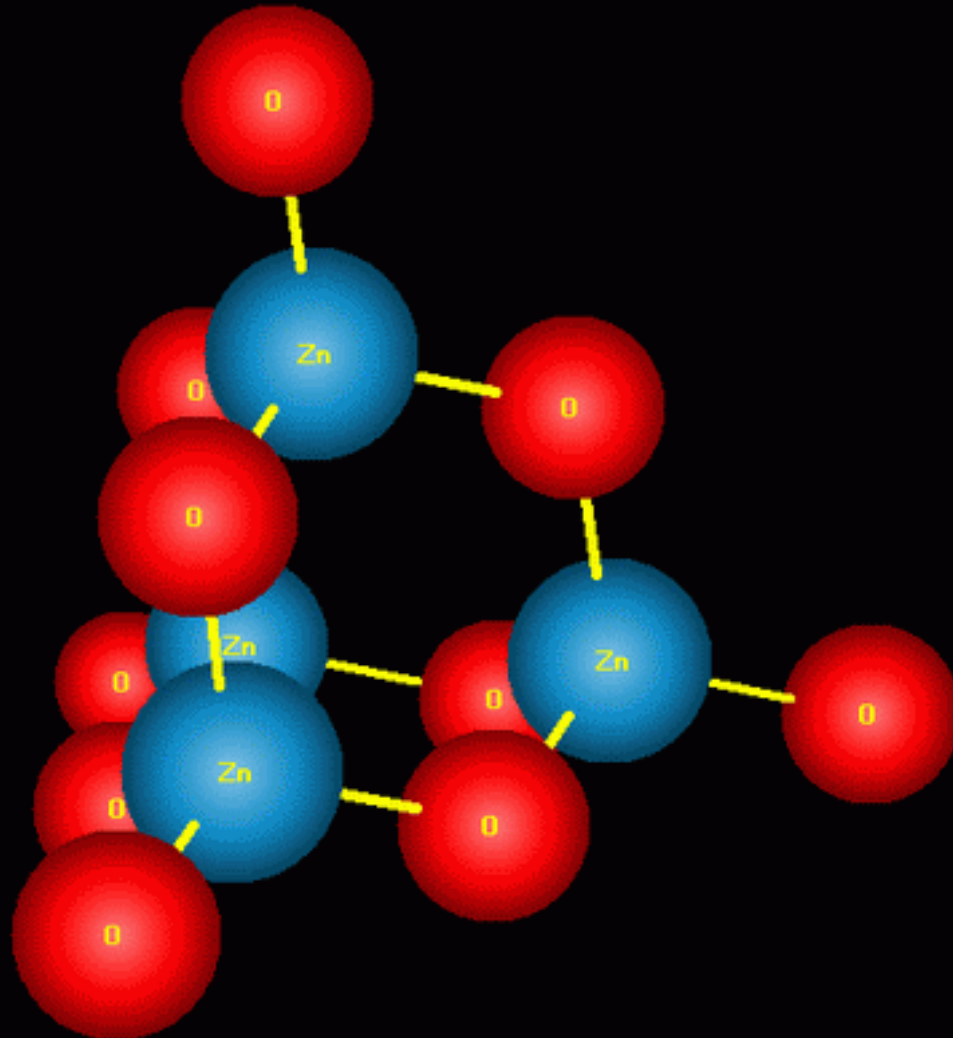
- A *molecule* is a group of two or more atoms held together by chemical bonds;



- A **COMPOUND** is a pure substance that contains at least two types of atoms that are chemically bound;



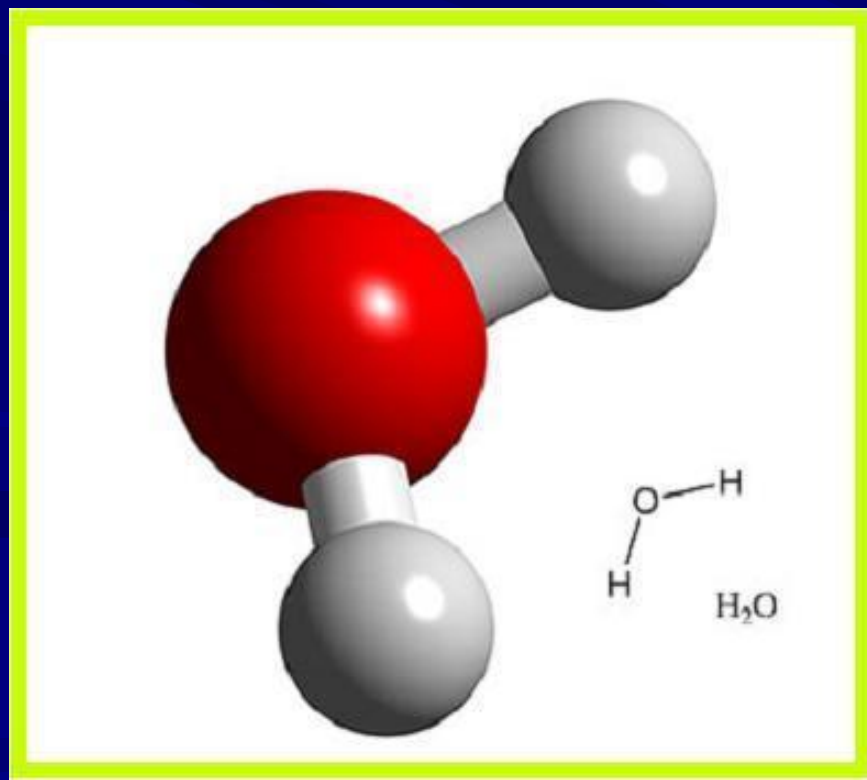
- Atoms form molecules in order to be *chemically stable*.



❑ Molecules are given a *name* and a *chemical formula*

❑ *For example,*

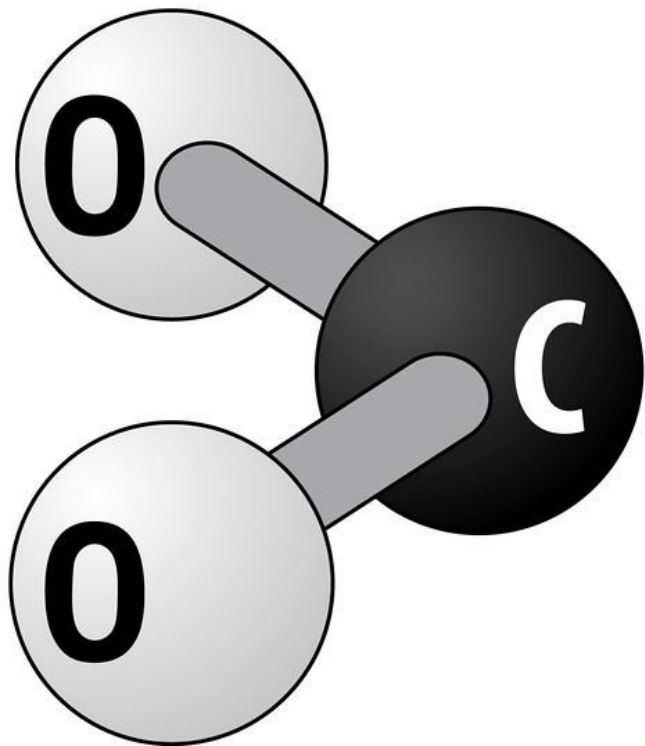
1. Dihydrogen monoxide (water) - H_2O



2. Carbon dioxide - CO_2

3. Nitrogen trihydride (ammonia) - NH_3

Carbon Dioxide Molecule



NH_3 ammonia

