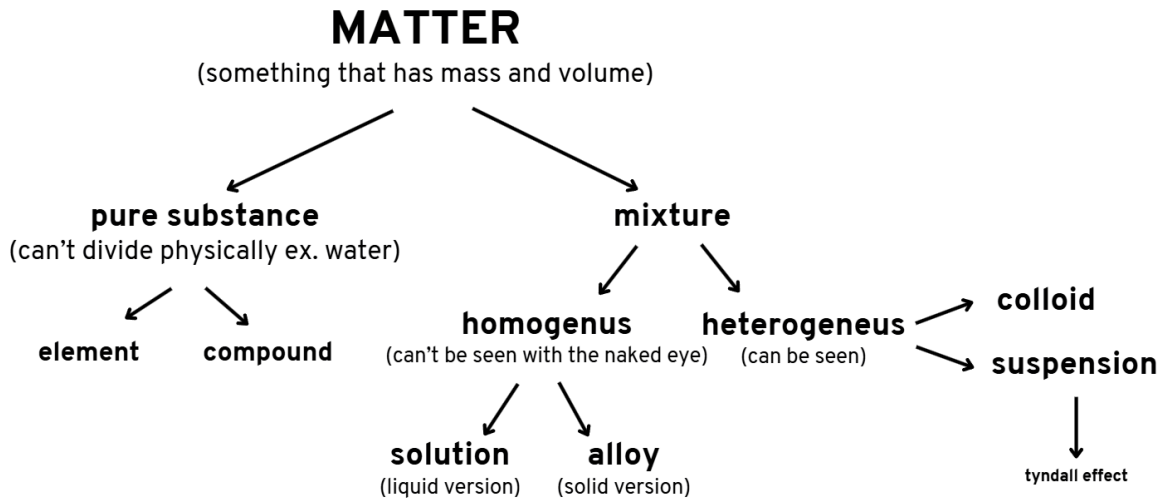
MATTER & ATOM

> Matter

It is something that has mass and volume



Types of mixtures:

- Solution

particles are small, molecules are dissolved
e.g: salt and water, sugar and water.

- Suspension

particles are large, molecules aren't dissolved, you can still see
e.g: chalk and water

- Colloid

in between solution and suspension
e.g: milk

How to unmix/seperate mixtures:

- Evaporation
- Filtration
- Centrifugation
- Distillation

distillation is a separation technique used to separate liquids that have different boiling points and still want to keep the liquid part. For instance, you want to separate an alcohol and water mixture. First, heat up the mixture (not until 100°C), the alcohol will evaporate since it has a different boiling point. Then, the gas of the alcohol will get condensed once it goes through the cooler. Now, you still have the liquids but separated.

- Crystallization

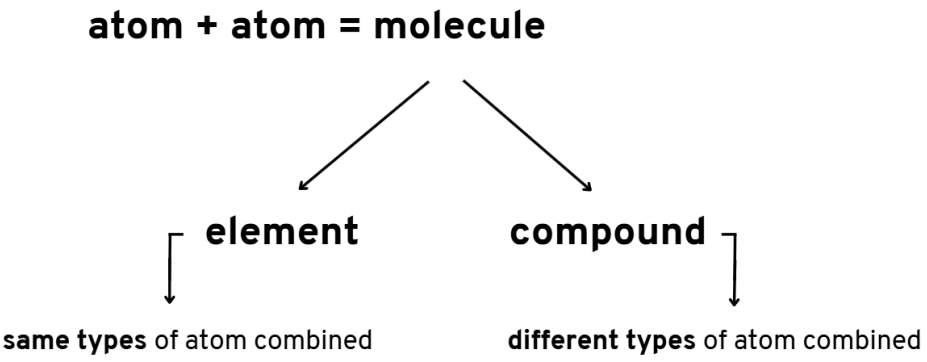
crystallization is a separation technique specially for salt. So let's say we want to unmix salt and sand. First, heat up the mixture, then since the salt will dissolve, filter the sand out. After filtering the sand, freeze the salt and water mixture so that the salt will evaporate.

Chemical change (change in molecule structure using chemical reaction):

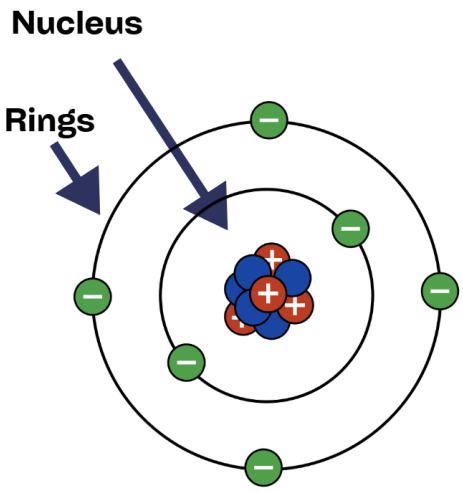
- Digestion
- Combustion
- Oxulation

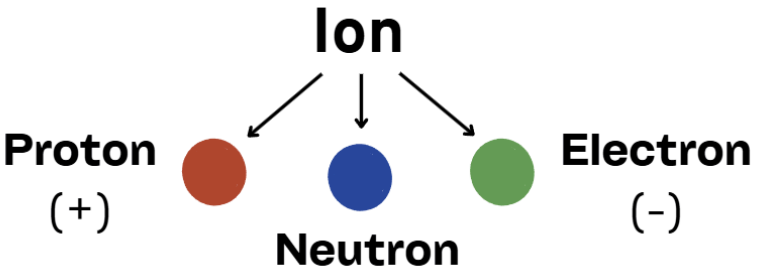
> Atom

- the basic unit of a chemical element.
- the smallest part of a substance that cannot be broken down chemically



Structure of Atom:



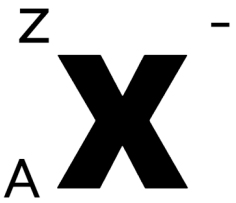


Ion (atoms that has charge):

- Cation (proton>electron)
- Anion (proton<electron)

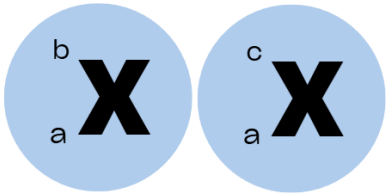
Atomic structure in periodic table:

A = atomic number (amount of protons)
Z = atomic mass (protons + electron)
– = net charge (proton - electron)
X = atom

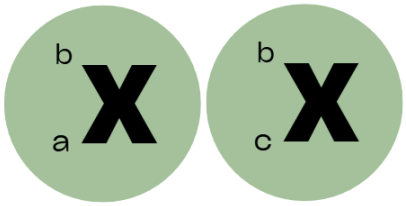


P.S. atomic mass is bigger than atomic number

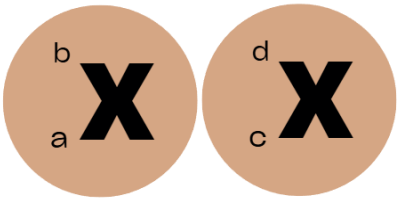
- Isotope = same proton



- Isobar = same atomic mass

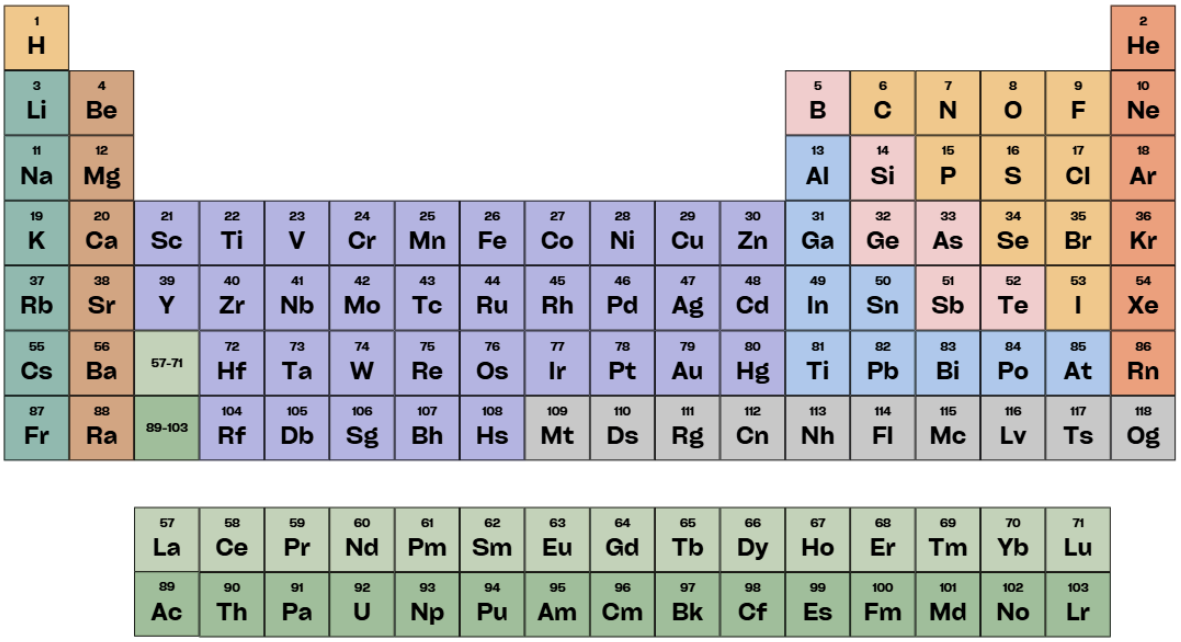


- Isotone = same neutrons



Periodic table:

- Row: amount of rings/electron orbit (horizontal)
- Column: amount of outer electrons (vertical)


1 H
2 He
3 Li
4 Be
5 B
6 C
7 N
8 O
9 F
10 Ne
11 Na
12 Mg
13 Al
14 Si
15 P
16 S
17 Cl
18 Ar
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
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
55 Cs
56 Ba
57-71
72 Hf
73 Ta
74 W
75 Re
76 Os
77 Ir
78 Pt
79 Au
80 Hg
81 Ti
82 Pb
83 Bi
84 Po
85 At
86 Rn
87 Fr
88 Ra
89-103
104 Rf
105 Db
106 Sg
107 Bh
108 Hs
109 Mt
110 Ds
111 Rg
112 Cn
113 Nh
114 Fl
115 Mc
116 Lv
117 Ts
118 Og
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
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