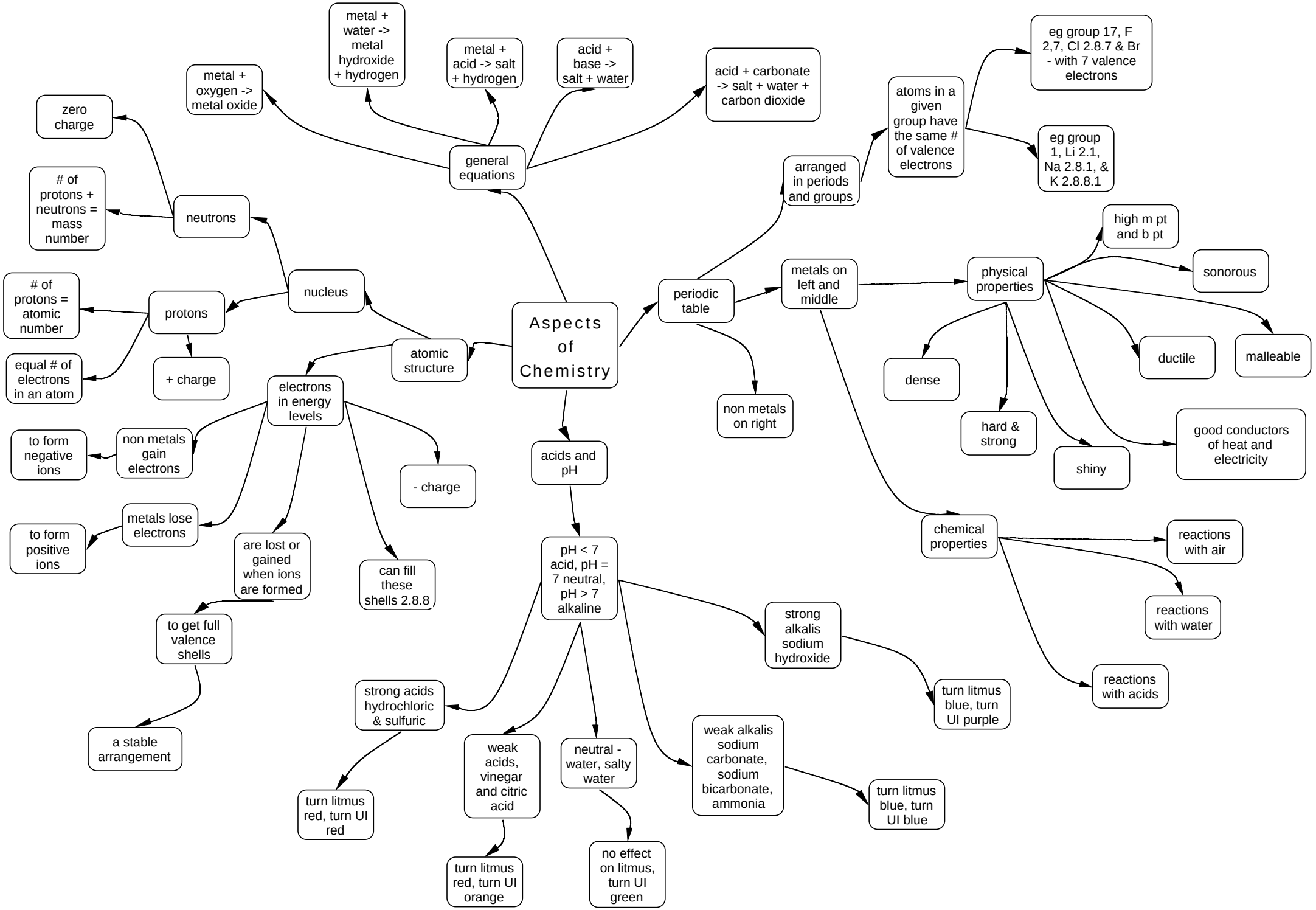
Aspects of Chemistry
atomic structure
nucleus
protons
# of protons = atomic number
equal # of electrons in an atom
+ charge
neutrons
# of protons + neutrons = mass number
zero charge
electrons in energy levels
non metals gain electrons
to form negative ions
metals lose electrons
to form positive ions
- charge
are lost or gained when ions are formed
can fill these shells 2.8.8
to get full valence shells
a stable arrangement
general equations
metal + oxygen -> metal oxide
metal + water -> metal hydroxide + hydrogen
metal + acid -> salt + hydrogen
acid + base -> salt + water
acid + carbonate -> salt + water + carbon dioxide
periodic table
arranged in periods and groups
atoms in a given group have the same # of valence electrons
eg group 17, F 2,7, Cl 2.8.7 & Br - with 7 valence electrons
eg group 1, Li 2.1, Na 2.8.1, & K 2.8.8.1
metals on left and middle
non metals on right
physical properties
high m pt and b pt
sonorous
ductile
malleable
dense
hard & strong
shiny
good conductors of heat and electricity
chemical properties
reactions with air
reactions with water
reactions with acids
acids and pH
pH < 7 acid, pH = 7 neutral, pH > 7 alkaline
strong acids hydrochloric & sulfuric
turn litmus red, turn UI red
weak acids, vinegar and citric acid
turn litmus red, turn UI orange
neutral - water, salty water
no effect on litmus, turn UI green
strong alkalis sodium hydroxide
turn litmus blue, turn UI purple
weak alkalis sodium carbonate, sodium bicarbonate, ammonia
turn litmus blue, turn UI blue