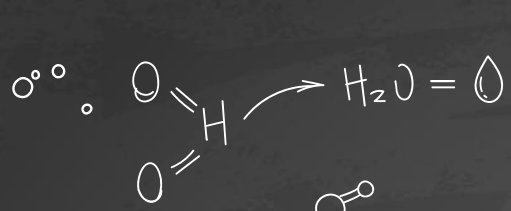
Chemistry - 101

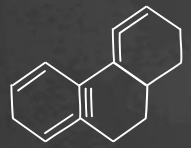
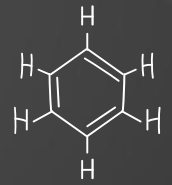
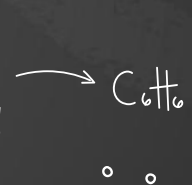
January 17

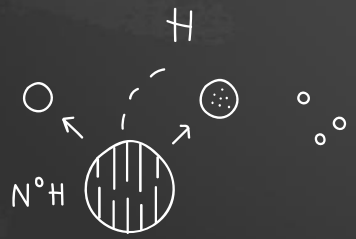


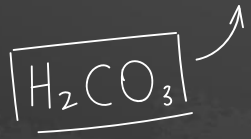




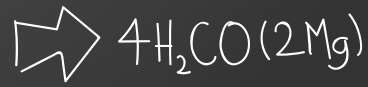










Chemical reactions

In chemical reactions substances with certain compositions and properties turn into different substances with different compositions and properties BUT the nuclei of atoms DO NOT change.

$H_2 + O_2 = H_2O$

$Fe + H_2O = H_2 + Fe_2O_3$

$Zn + CuCl_2 = Cu + ZnCl_2$

$NH_3 = N_2 + H_2$

$Cu + S = CuS$

$AgF + NaCl = AgCl\downarrow + NaF$

$CaCO_3 = CaO + CO_2$

$CuBr_2 + NaOH = Cu(OH)_2 + NaBr$

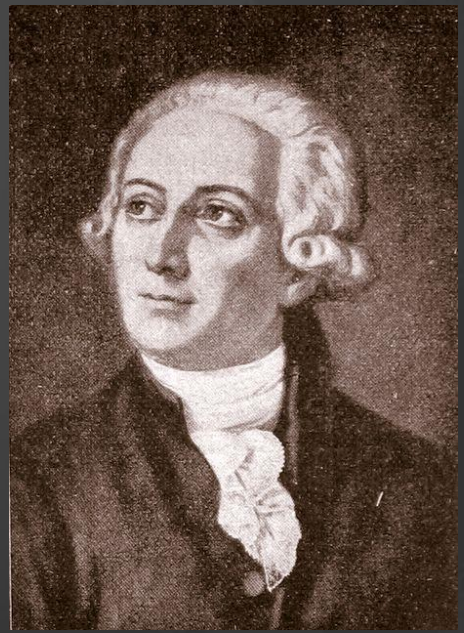
The oxidation state, which may be positive, negative or zero, is the hypothetical charge that an atom would have if all bonds to atoms of different elements were 100% ionic, with no covalent component.

Element	Electronegativity	Element	Electronegativity
Cs	0.79	H	2.20
K	0.82	C	2.55
Na	0.93	S	2.58
Li	0.98	I	2.66
Ca	1.00	Br	2.96
Mg	1.31	N	3.04
Be	1.57	Cl	3.16
Si	1.90	O	3.44
B	2.04	F	3.98
P	2.19		

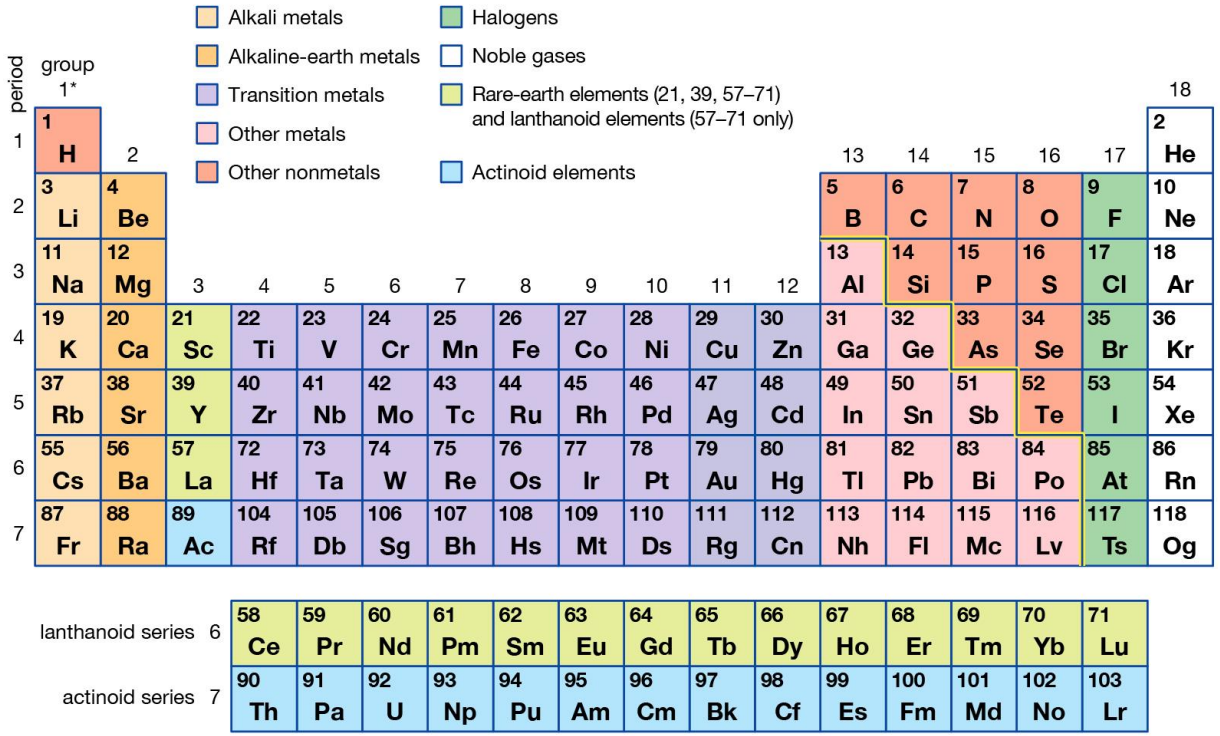
LOMONOSOV - LAVOISIER LAW

- The **Law** of **Conservation** of **Mass/Matter** (also known as the **Lomonosov**-Lavoisier **Law**) states that **mass** in a closed system will remain the same. Hence, **matter** cannot be created nor destroyed but can be rearranged.

- Mass of the reactants (substances that react) is equal to the mass of reaction products (substances that form in the reaction)



Periodic table of the elements



*Numbering system adopted by the International Union of Pure and Applied Chemistry (IUPAC).

This class uses the materials from the following books:
Larry Gonick and Graig Criddle “The cartoon guide to chemistry”
Manyuilov and Rodionov “Chemistry for children and adults”
Kuzmenko, Eremin, Popkov “Beginnings of chemistry”
http://school-collection.edu.ru (experiments)