http://safeshare.tv/w/ubjnFiEZzx

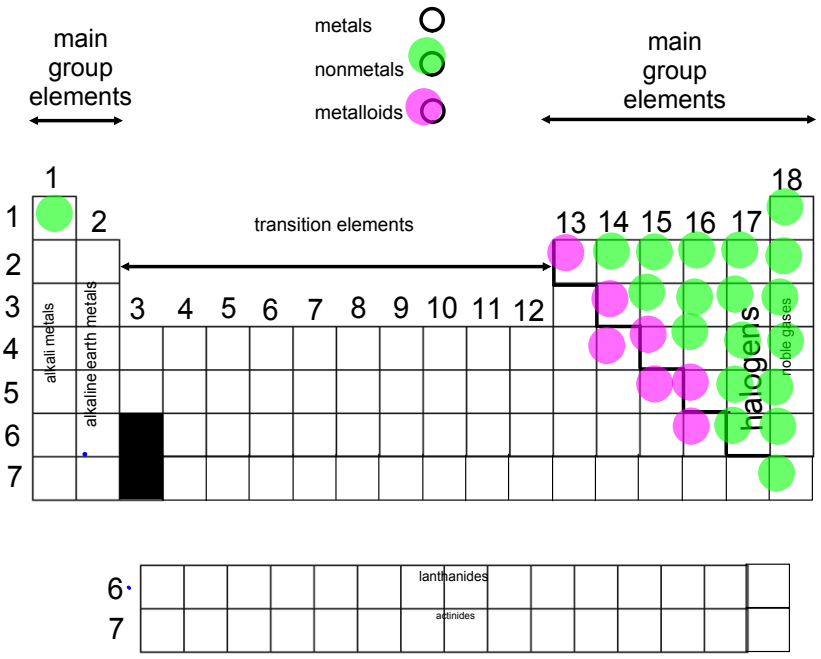
Metals	Nonmetals
generally solids	found in all three states ℓ, s, g
mostly hard and nonbrittle	solid nonmetals are hard but brittle
good conductors of heat and electricity	bad conductors of heat and electricity
ductile and malleable	neither ductile nor malleable
melting points and boiling points are generally high	melting points and boiling points are generally low
generally lustrous and can be polished	generally non-lustrous and cannot be polished

http://safeshare.tv/w/CvDkQfwOLc

Periodic Table of the Elements

Chemical Periods and Groups

Elements in the periodic table are arranged in **periods** (rows) and **groups/families** (columns).



Chemical Symbols and Chemical Formulas

A chemical symbol is an abbreviation of the name of an element. The names and symbols come from various sources (ie/ Greek and Latin).

Na Fe O N

A chemical formula is the combination of symbols that represents a particular compound.

Water H_2O

Salt NaCl

Sugar (Glucose) $C_6H_{12}O_6$

} Examples

★

Atoms and Their Structure

Atoms are the basic building blocks of matter. They are made up of smaller particles called subatomic particles.

There are 3 subatomic particles:

1) protons - found in the nucleus of the atom
   - have a positive charge

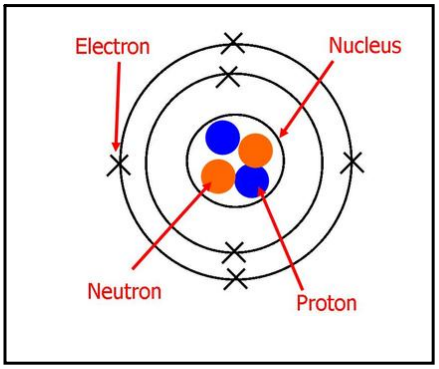
p+

2) neutrons - found in the nucleus of the atom
   - are electrically neutral (no charge)

n

3) electrons - found in orbits (energy levels) around the nucleus
   - have a negative charge

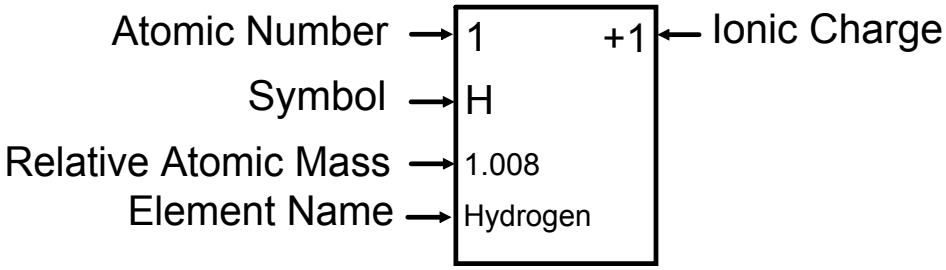
e-



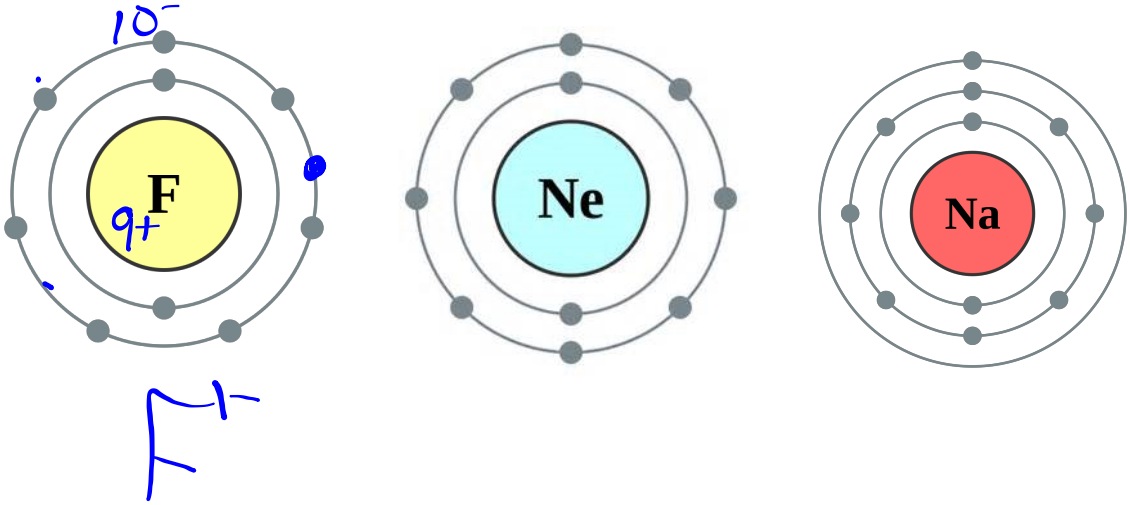
https://sites.google.com/site/mrsinghs2pand2dsciencesite/atomic-structure-standard-atomic-notaion-and-bohr-rutherford-diagrams

Atomic Number

The atomic number of an element gives us the number of protons in an atom of that element.



In an atom: # protons = # electrons



Ions

Atoms may lose or gain **electrons** to form ions in which the number of electrons is different from the number of protons. The numerical value of the electric charge of an ion with a plus (+) or minus (-) sign is called ionic charge.

Metals tend to lose electrons to produce cations (positive ions) and nonmetals tend to gain electrons to produce anions (negative ions).

- All atoms want to become chemically/structurally stable (HAPPY!!)
- An atom achieves this stability when it has a filled outer shell
- The noble gases have full outer shells and are, therefore, chemically stable and unreactive
- The atoms of all other elements only achieve this stability by losing electrons gaining electrons or sharing electrons

Worksheet - Chemistry: Ions and Subatomic Particles

Answer Key

Ion Symbol	Protons	Electrons	Charge
S^{2-}	16	18	2-
K^{1+}			
Ba^{2+}			
Fe^{3+}			
Fe^{2+}			
F^{1-}			
O^{2-}			
P^{3-}			
Sn^{4+}	*50*	*46*	*4+*
Sn^{2+}	*50*	*48*	*2+*
N^{3-}	*7*	*10*	*3–*
Br^{1-}	*35*	*36*	*1–*
Mg^{2+}	*12*	*10*	*2+*
Cu^{1+}	*29*	*28*	*1+*
Cu^{2+}	*29*	*27*	*2+*
U^{6+}	*92*	*86*	*6+*
Mn^{5+}	*25*	*20*	*5+*
Cl^{1-}	*17*	*18*	*1–*
Se^{2-}	*34*	*36*	*2–*

Attachments

Science 10 - Grade 9 Chem Topics.docx

Science 10 - Grade 9 Chem - What Do You Know.docx

Science 10 - Activity - Molecular Models.docx

Science 10 - Answer Key - Ions and Subatomic Particles.pdf