

Unit 1 - Physical Science: Chemical Reactions

The physical sciences are concerned with the study of inanimate natural objects. Chemistry is a physical science.

Periodic Table of the Elements ✓

The periodic table of the elements is a structured arrangement of elements that helps us to explain and predict physical and chemical properties. ✓

<http://www.youtube.com/watch?v=r7hO-1ItqXw>



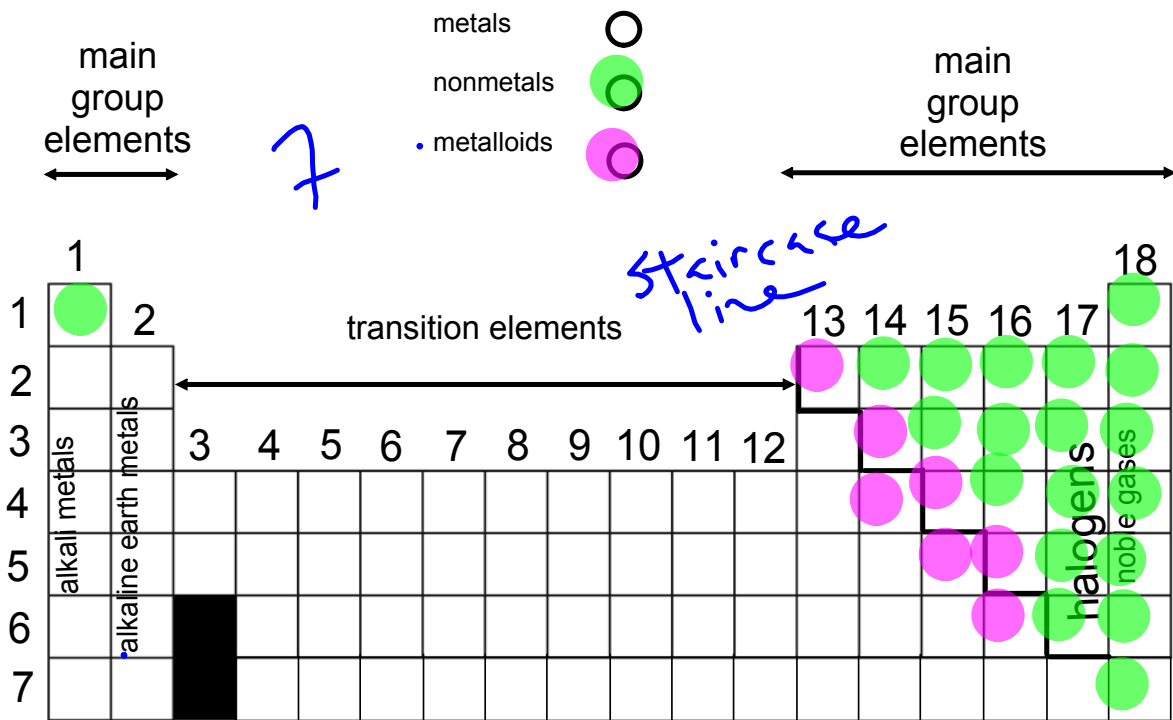
<http://www.youtube.com/watch?v=zUDDiWtFtEM>



Periodic Table of the Elements

Chemical Periods and Groups

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



6						lanthanides						
7						actinides						

<http://safeshare.tv/w/ubjnFiEZzx>



Metals	Nonmetals
generally solids	found in all three states
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>



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).

H - hydrogen

S - sulfur

Fe - Iron

Cu - copper

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

water - H₂O

salt - NaCl

sugar - C₆H₁₂O₆

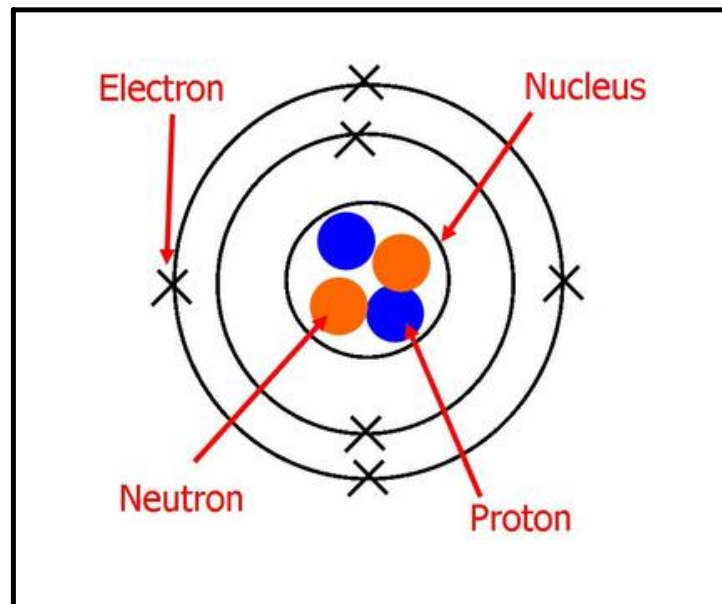


Atoms and Their Structure

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 p^+
- have a **positive** charge
- 2) neutrons - found in the **nucleus** of the atom n
- are electrically **neutral** (no charge)
- 3) electrons - found in **orbits** (energy levels) around the nucleus e^-
- have a **negative** charge

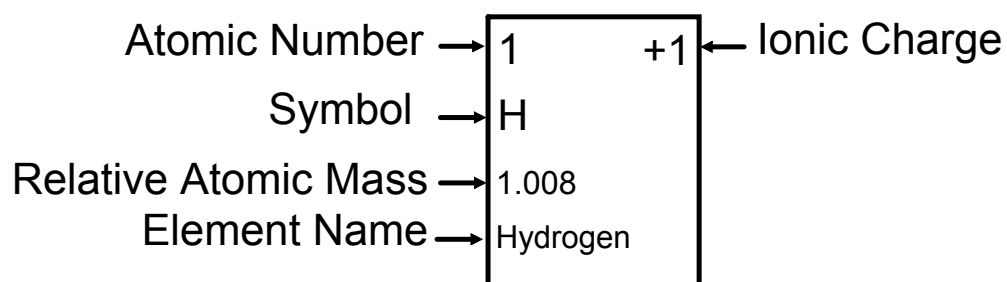


<https://sites.google.com/site/mrsinghs2pand2dsciencesite/atomic-structure-standard-atomic-notation-and-bohr-rutherford-diagrams>



Atomic Number

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



In an atom: $\# \text{ protons} = \# \text{ electrons}$

Attachments

Science 10 - Grade 9 Chem Topics.docx

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

Science 10 - Activity - Molecular Models.docx