Today

Attendance, Syllabus

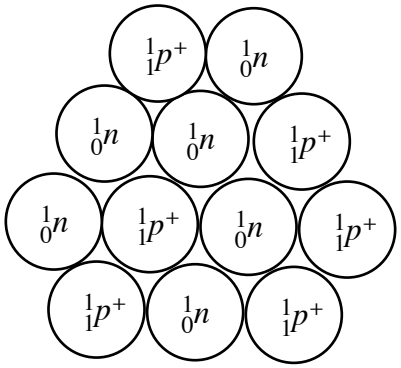
Sections 1.1 – 1.3, 1.5
- atomic structure and isotopes
- electrons, valence vs core electrons and using the periodic table for help
- periodic trends
- metals and nonmetals
- octet rule
- Ionic Interactions, Polar Bonds, and Nonpolar Bonds

Next Class

Sections 1.4, 1.6
Different ways of representing molecules
An introduction to Molecular Orbital Theory

Syllabus

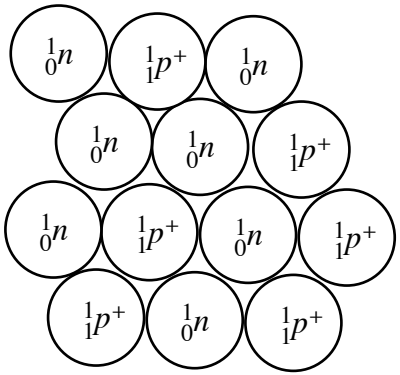
https://www.westfield.ma.edu/



98.9 %

6 protons
6 neutrons

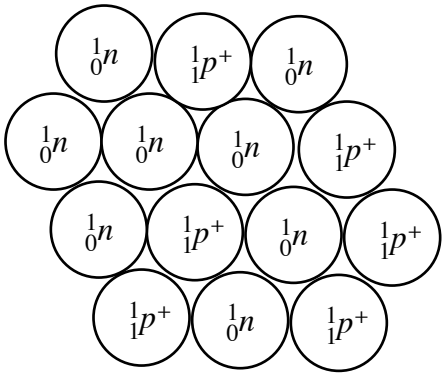
$^{12}_{6}C$



1.1 %

6 protons
7 neutrons

$^{13}_{6}C$



<0.0 %

6 protons
8 neutrons

$^{14}_{6}C$

mass number
$_0^1n$ + # $_1^1p^+$

same chemical properties for 3 different isotopes
heavier isotopes react more slowly
different nuclear properties

^{12}C not radioactive
not a tiny magnet

^{13}C is a
tiny magnet

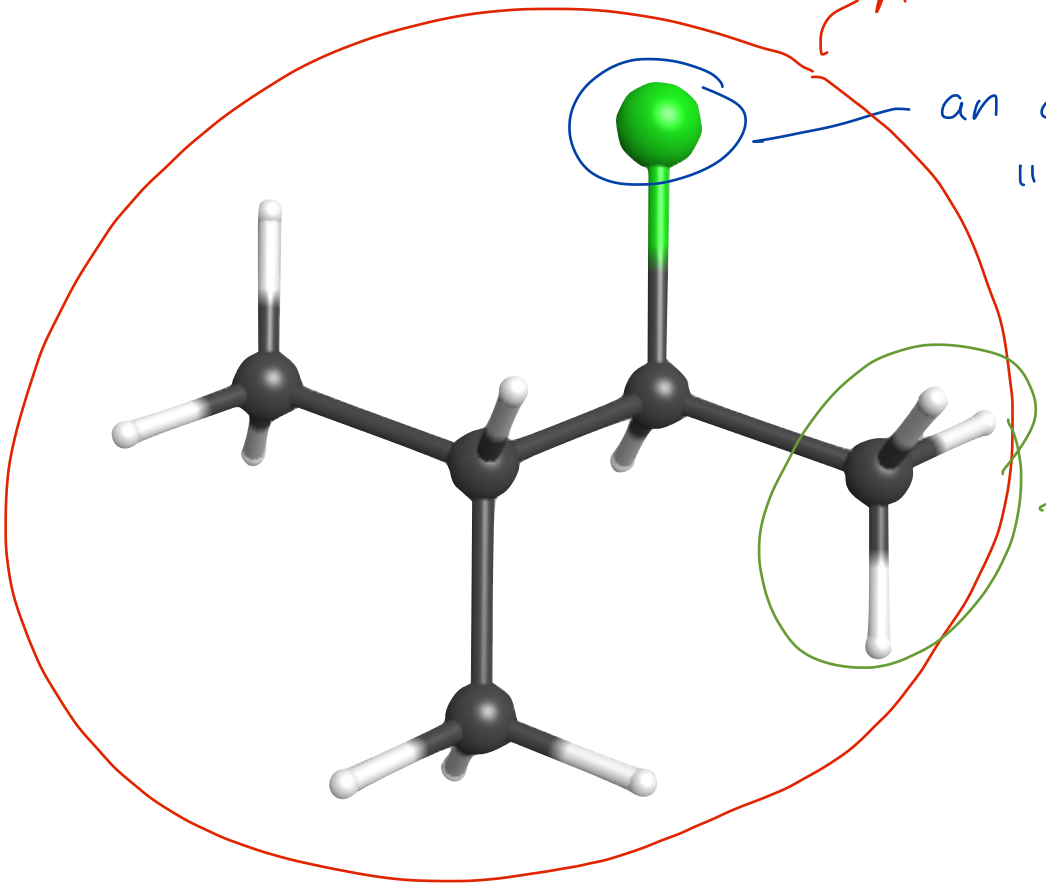
^{14}C is
radioactive

Remember atomic structure, meaning of isotope

Atoms, Elements, Molecules, and Substituents or Groups

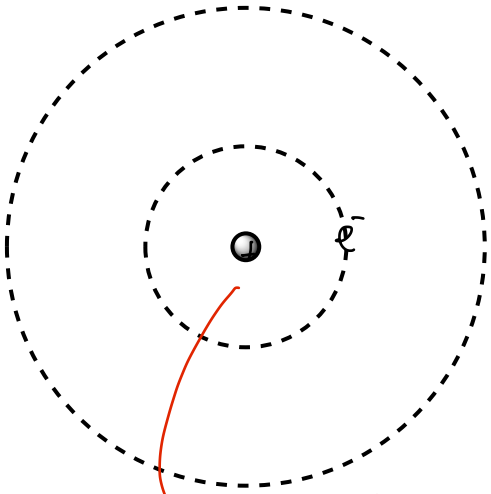
A diversion into the language of chemistry… what to call stuff

"In chemistry, an element is a pure substance consisting only of atoms that all have the same numbers of protons in their atomic nuclei."[1]



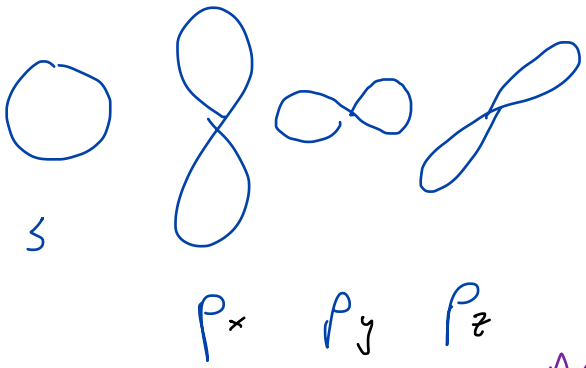
[1] https://en.wikipedia.org/wiki/Chemical_element

Bohr



Schrödinger/Wave Mechanics/
Quantum Mechanics

Models



Energy Level Diagram O 8e⁻

ground state e⁻ config

$1s^2\ 2s^2\ 2p^4$

we will use these names