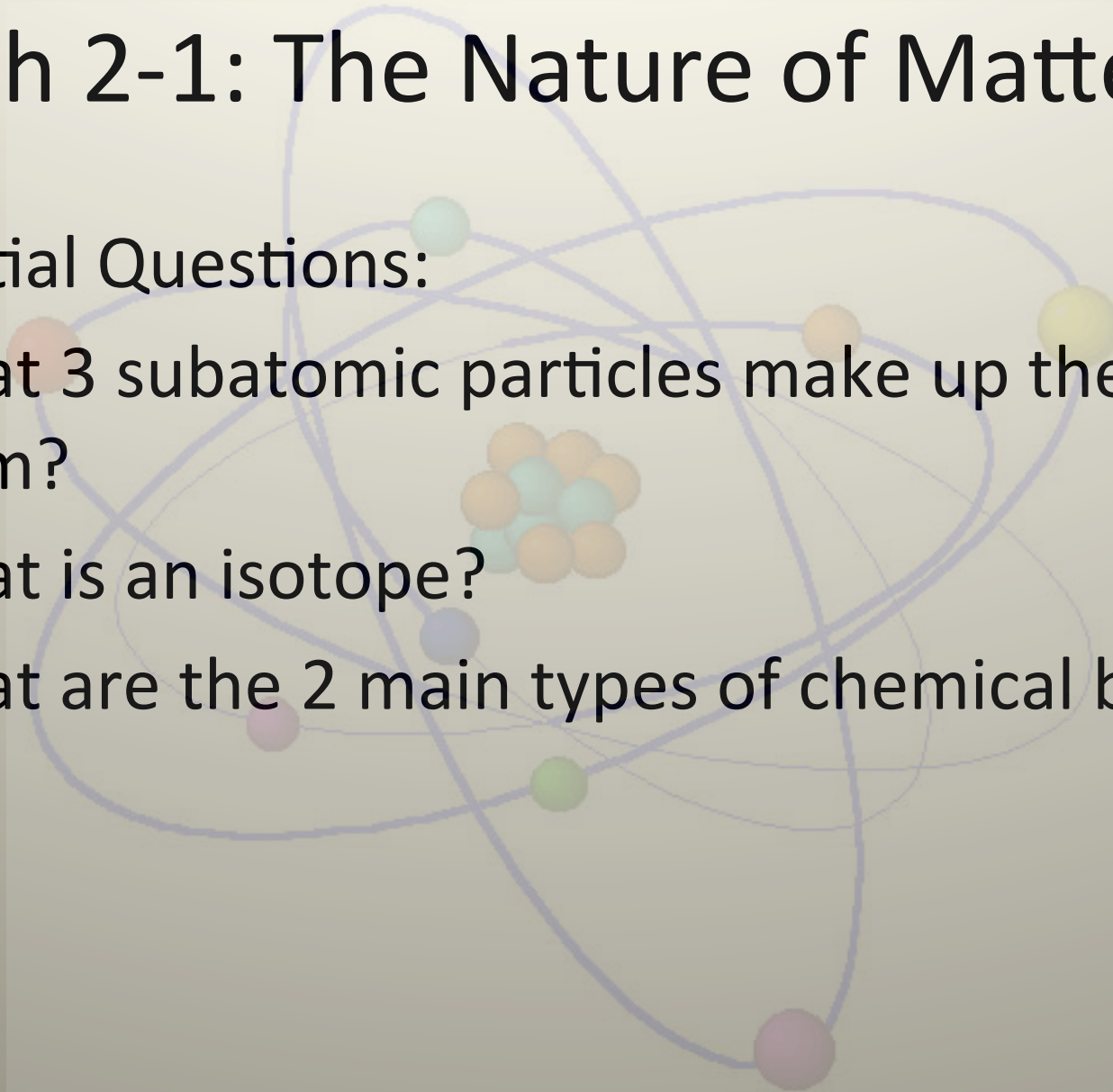


Ch 2-1: The Nature of Matter

Essential Questions:

- What 3 subatomic particles make up the atom?
- What is an isotope?
- What are the 2 main types of chemical bonds?

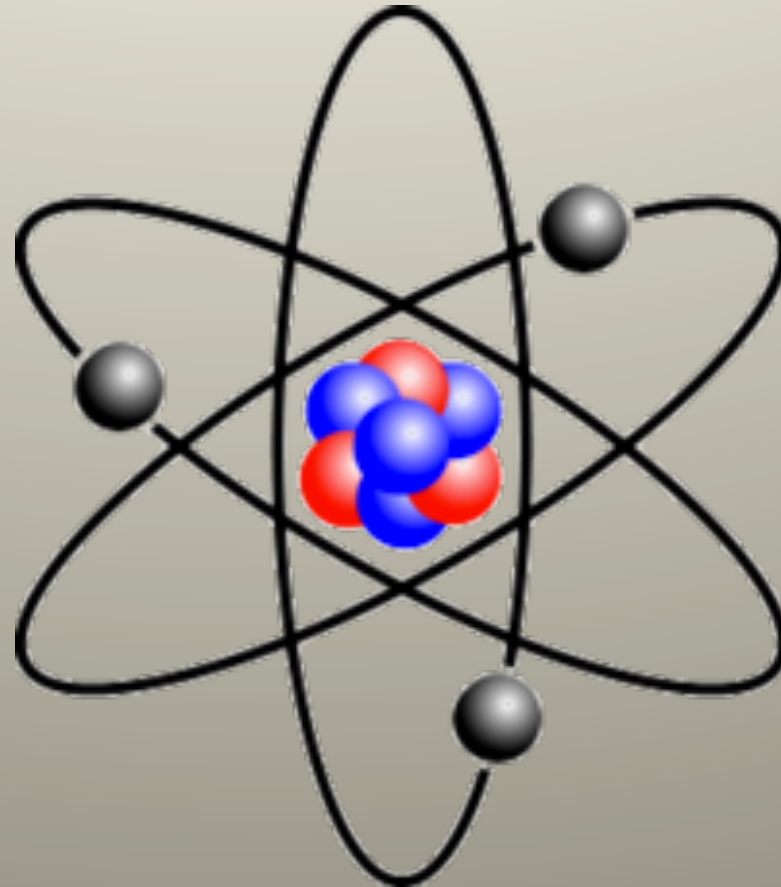


- Atoms:

- Center of the atom is the _____

- In the nucleus: _____ & _____

- Surrounding the protons & neutrons are _____



- Elements & Isotopes

- Element: consists of only 1 type of atom

- Isotope

- atom of an element with different # of neutrons

- All isotopes have same # of electrons, so have same chemical properties

Isotopes of Carbon



^{12}C

Carbon-12

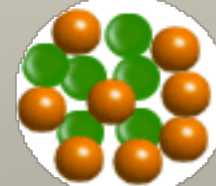
6 protons
6 neutrons



^{13}C

Carbon-13

6 protons
7 neutrons

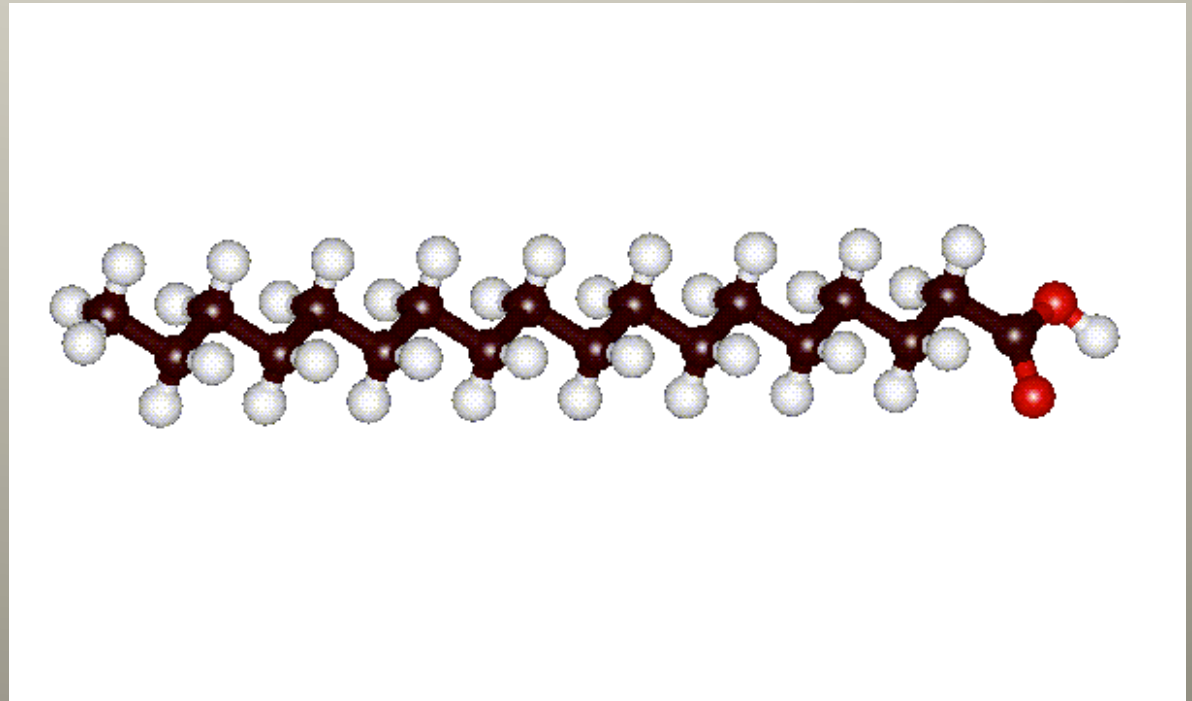
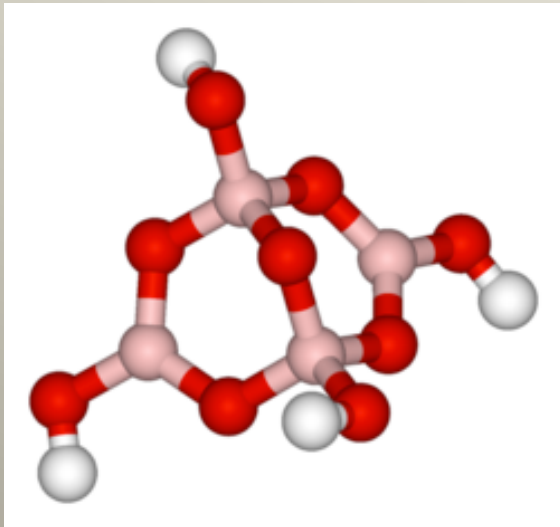


^{14}C

Carbon-14

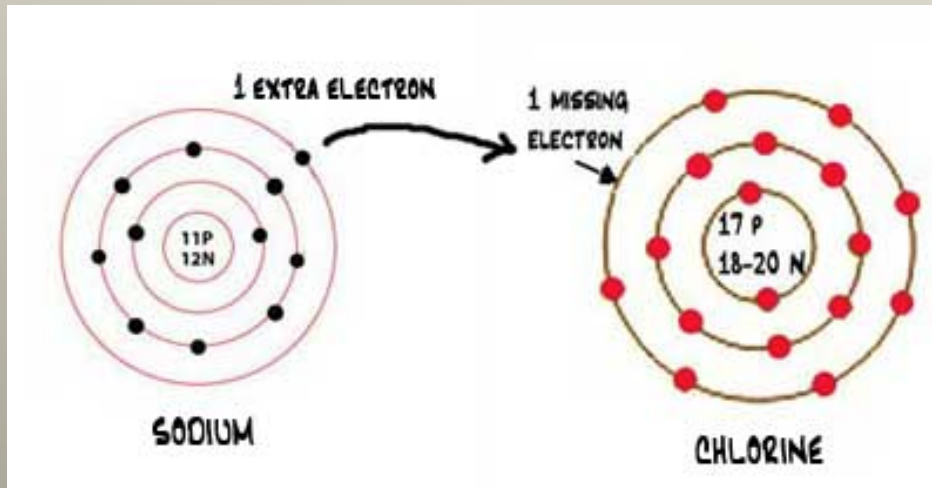
6 protons
8 neutrons

- Chemical compounds
 - Compound: subst. formed by chem. combination of 2 or more elements in definite proportions



- Chemical Bonds

- Ionic bonds: 1 or more e^- transferred from 1 atom to another
- Covalent bonds: e^- shared between atoms



1e



•H



•
2e
•



H:H
H - H

– Van der Waals forces:

- Covalent sharing of e^- not always equal
- Fast e^- movement can create regions of + or – charges in molecules
- Slight attraction can develop between oppositely-charged regions of nearby molecules

