

Name: \_\_\_\_\_  
A & P

Date: \_\_\_\_\_  
Ms. Hartnett

## Chapter 2, Part 1: Intro to Basic Chemistry

### I. WHY STUDY CHEMISTRY IN A&P?

- Everything around you, including \_\_\_\_\_, is made of \_\_\_\_\_
- How those chemicals \_\_\_\_\_ with each other, in chemical \_\_\_\_\_, allows your body to \_\_\_\_\_ properly
- \_\_\_\_\_, movement, digestion, pumping of your heart, all occur because of \_\_\_\_\_ and chemical \_\_\_\_\_

### II. MATTER

- \_\_\_\_\_ = anything that has \_\_\_\_\_ and takes up \_\_\_\_\_
- Matter comes in \_\_\_\_\_ forms: \_\_\_\_\_, liquid, and gas
- Matter can \_\_\_\_\_ in two ways: physical and chemical
  - \_\_\_\_\_ change = identity of substance remains the \_\_\_\_\_
  - \_\_\_\_\_ change = \_\_\_\_\_ identity or new substance(s) formed

### III. ENERGY

- \_\_\_\_\_ = ability to do \_\_\_\_\_ or put matter into \_\_\_\_\_
  - Is \_\_\_\_\_ a form of matter, but \_\_\_\_\_ matter
- \_\_\_\_\_ **energy** = energy for \_\_\_\_\_ objects, including molecules
- \_\_\_\_\_ **energy** = \_\_\_\_\_ energy
- Other types of energy:
  - \_\_\_\_\_
  - Electrical
  - \_\_\_\_\_
  - Radiant

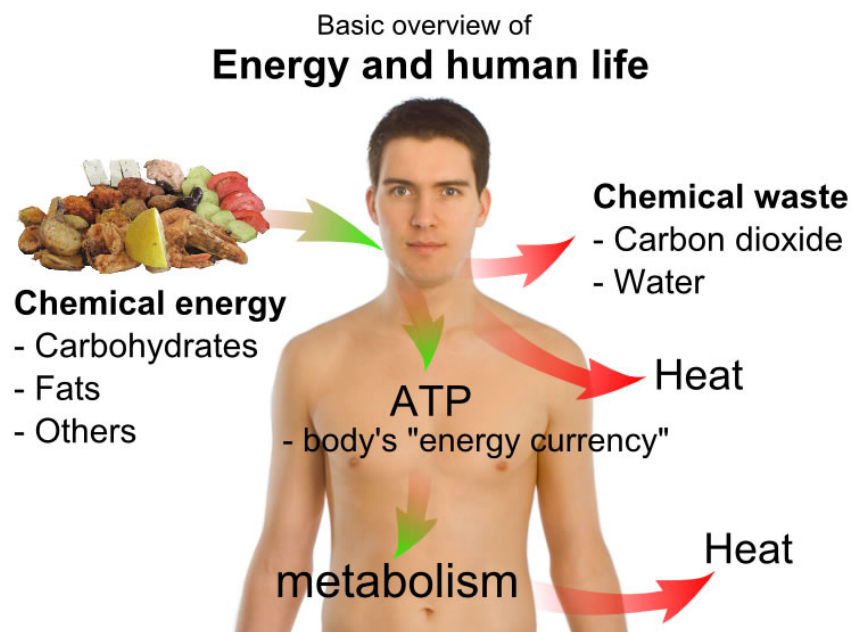


## Energy From Conversions

- Energy is \_\_\_\_\_ created or destroyed, but it can turn into \_\_\_\_\_ forms
  - \_\_\_\_\_ energy in gasoline turns into \_\_\_\_\_ energy to power your car

For our purposes:

- \_\_\_\_\_ energy of the food we eat is trapped in the \_\_\_\_\_ of the very high-energy chemical adenosine triphosphate (\_\_\_\_\_)
  - ATP's \_\_\_\_\_ energy can be transformed into \_\_\_\_\_ energy to send a nerve \_\_\_\_\_ or \_\_\_\_\_ energy for \_\_\_\_\_ muscles



## Energy Transformations Produce Heat

- Energy is not created or destroyed, but in chemical \_\_\_\_\_ some of the energy is transformed into \_\_\_\_\_ or thermal energy and “\_\_\_\_\_” to the environment
- When this happens in the body, it gives us our \_\_\_\_\_ body temperature that is essential for proper \_\_\_\_\_ and more chemical \_\_\_\_\_

- For chemical reactions in the body, up to a certain point, the \_\_\_\_\_ the temperature, the \_\_\_\_\_ the reactions happen
  - Means your food is \_\_\_\_\_ faster, body \_\_\_\_\_ faster

#### IV. COMPOSITION OF MATTER

- All \_\_\_\_\_ is composed of substances called \_\_\_\_\_
- \_\_\_\_\_ = unique substances that \_\_\_\_\_ be \_\_\_\_\_ down into simpler substances
- We've identified \_\_\_\_\_ elements so far, but only \_\_\_\_\_ are naturally occurring on Earth
- Most important elements for our purposes and makes up \_\_\_\_\_ of our body weight:

**Periodic Table of Elements**

Legend: Solid (C), Liquid (Hg), Gas (H), Unknown (Rf)

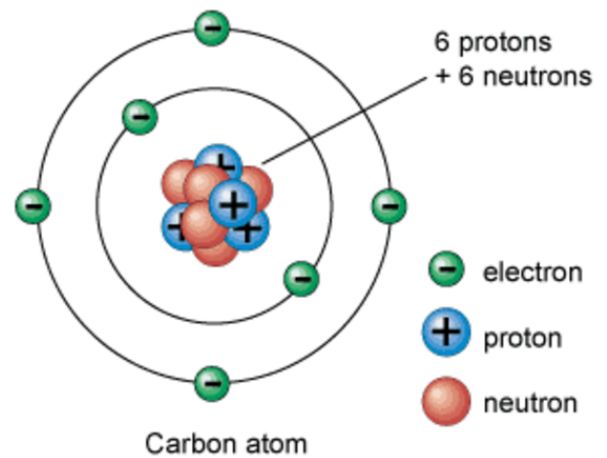
Categories: Metals (Alkali metals, Alkaline earth metals, Lanthanoids, Actinoids, Transition metals, Post-transition metals), Nonmetals (Metalloids, Noble gases)

For elements with no stable isotopes, the mass number of the isotope with the longest half-life is in parentheses.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

#### Atoms

- Each \_\_\_\_\_ is made up of its \_\_\_\_\_ kind of \_\_\_\_\_
- \_\_\_\_\_ = \_\_\_\_\_ blocks of an element
- Atoms are made up of:
  - \_\_\_\_\_ that are \_\_\_\_\_ charged
  - \_\_\_\_\_ that don't have a charge
  - \_\_\_\_\_ that are \_\_\_\_\_ charged

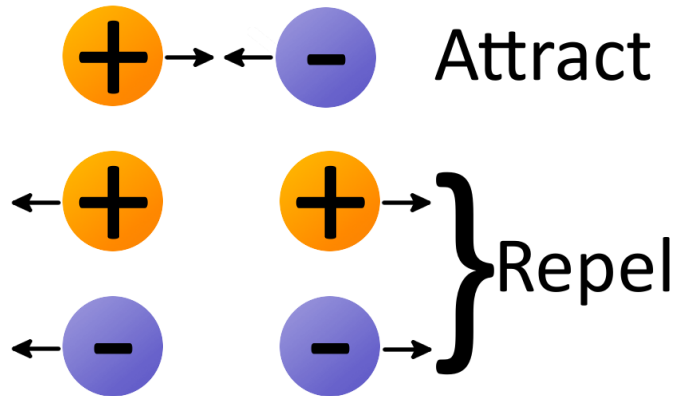


■ Sometimes an atom or particle's overall charge may be \_\_\_\_\_ or

\_\_\_\_\_

■ Particles with the \_\_\_\_\_ type of charge \_\_\_\_\_ each other

■ Particles with \_\_\_\_\_ charges (+ and -) are \_\_\_\_\_ to each other



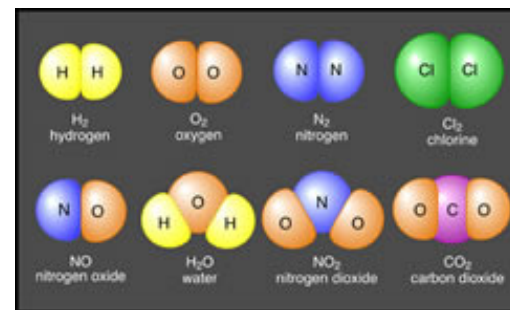
## Molecules and Compounds

■ \_\_\_\_\_ = when two or more \_\_\_\_\_ combine \_\_\_\_\_

■  $H(\text{_____}) + H(\text{_____}) \rightarrow H_2(\text{_____})$

■ \_\_\_\_\_ = when two or more \_\_\_\_\_ atoms \_\_\_\_\_ together

■  $4H(\text{_____}) + C(\text{_____}) \rightarrow CH_4(\text{_____})$



## Properties of Compounds

■ Compounds \_\_\_\_\_ have properties very \_\_\_\_\_ than the individual \_\_\_\_\_ making up the compound:

■ \_\_\_\_\_ (Na) is a \_\_\_\_\_ that is extremely explosive

■ \_\_\_\_\_ (Cl) is a poisonous green \_\_\_\_\_

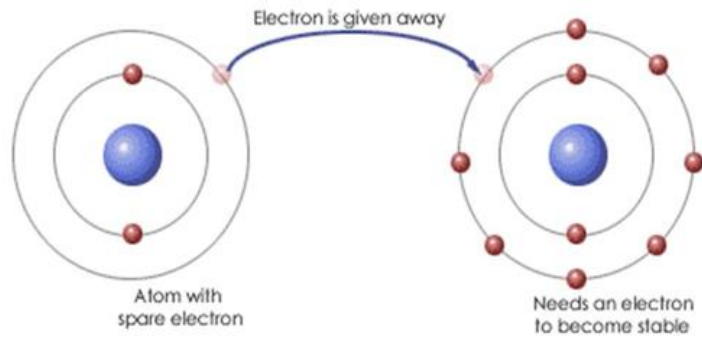
■ \_\_\_\_\_ (NaCl) is a very delicious crystalline \_\_\_\_\_ that we sprinkle on food... \_\_\_\_\_!

## V. CHEMICAL REACTIONS AND CHEMICAL BONDS

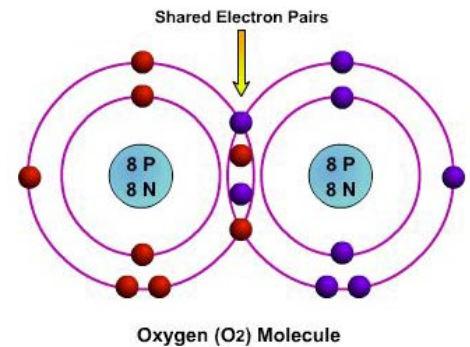
- \_\_\_\_\_ = whenever atoms \_\_\_\_\_ or \_\_\_\_\_ from other atoms
  - Either \_\_\_\_\_ bonds or \_\_\_\_\_ bonds
- \_\_\_\_\_ = when atoms \_\_\_\_\_ chemically
- Chemical bonds are \_\_\_\_\_ a physical structure
  - It's the \_\_\_\_\_ between \_\_\_\_\_ of each atom that \_\_\_\_\_ them together

### Types of Chemical Bonds

- \_\_\_\_\_ = electrons are from one atom to another
  - One atom \_\_\_\_\_ the electrons, the other one \_\_\_\_\_ the electrons
  - Happens between a \_\_\_\_\_ and a \_\_\_\_\_



- \_\_\_\_\_ = electrons are \_\_\_\_\_ between atoms
  - Happens between a \_\_\_\_\_ and a \_\_\_\_\_



- Causes the \_\_\_\_\_ to have a specific \_\_\_\_\_ shape, which then determines which other \_\_\_\_\_ it can interact with

- \_\_\_\_\_ = extremely \_\_\_\_\_ bonds between a molecule with \_\_\_\_\_ in it and other molecule with either \_\_\_\_\_ or \_\_\_\_\_
  - Gives water its \_\_\_\_\_

