* The mid-term exam will cover all the topics covered in class for the 1st semester *(both the 1st and 2nd 9 weeks).*
* *You will be allowed one large notecard and the use of your periodic table*
* The topics include the following:

**Chemical Reactions** (this will be approximately 40% of the exam).The project we are working on will serve as a review of this information.

* **Identify example as either physical or chemical changes**
* **6 indicators of Chemical Reactions**
* **The 4 types of Chemical Reactions**
  + **Define each**(Synthesis, Decomposition, Single Replacement Double Replacement)
  + **Identify each** (Synthesis, Decomposition, Single Replacement Double Replacement)
  + **BONUS:** Combustion
* **Balance Chemical Equations**
  + Count atoms and balance equations
* Identify and/or define:
  + **Coefficient**
  + **Subscript**
  + **Catalyst**
  + **Activation energy**
  + **Law of Conservation of Mass**
  + **Endothermic and Exothermic Reactions**
* ***Rates of Reactions***
  + Identify the **two factors** that **affect the rate** of a chemical reaction
  + Identify and explain **how and why** each of the following factors affect the rate of a chemical reaction.
    - **Temperature**
    - **Surface Area**
    - **Concentration and Pressure**
    - **Catalyst**
  + Interpret graphs related to the rates of reactions
  + Determine the rate of reaction according to a graph. (i.e. amount of product/time)

Previous Topics that will be included on the mid-term EXAM: (this will be approximately 60% of the exam).

* **Steps of the scientific method**
  + Know the steps in order
  + Describe each step
* **Atomic Theory**
  + Rutherford’s discovery/model/experiment
  + Dalton’s model
  + Thompson’s discovery/model
  + Bohr model
* **Atomic Structure**
  + Nucleus-protons and neutrons
  + Electron locations
  + Charge of electron, neutron and proton
* **Periodic Table**
  + Determine number of protons, neutrons and electrons in a given element
  + Determine the mass number of an element
  + Determine the number of energy levels of an element
  + Determine the number of valence electrons in an atom
* **Bonding**
  + Determine the charge of an ion
    - Cation, charge? Lose or gain electron? Metal or non-metal?
    - Anion, charge? Lose or gain electron? Metal or non-metal?
  + Define Ionic Bond
  + Define Covalent Bond
  + Identify an ionic bond
  + Identify a covalent bond