**Dougherty Valley HS AP Chemistry**

**Test Objectives: Thermo -chem, -dynamics, Kinetics**

**Directions:**

* Rank each of the following according to a 1 – 5 scale, where a “5” means you can teach another student and a “1” means I never learned this. **You need to be *HONEST* with yourself on these rankings**.
* Highlight each objective that you gave a 1 or 2.
* Circle each objective that you gave a 3
* Box each objective that is gave a 4 and 5
* \_\_\_\_\_ Use **Collision Theory** to describe how chemical reactions occur
* \_\_\_\_\_ Describe the difference between **effective & ineffective collisions**
* \_\_\_\_\_ Know the **factors that influence reaction rate**
* \_\_\_\_\_ Describe how changes in temp, pressure, concentration & surface area effect reaction rate
* \_\_\_\_\_ Describe how the **nature of the reactants** influences reaction rate
* \_\_\_\_\_ Describe how the presence of a **catalyst** affects reaction rate
* \_\_\_\_\_ Be able to write **thermochemical equations** for **endothermic and exothermic** reactions
  + \_\_\_\_\_ Draw, label & interpret **potential energy diagrams** for both endothermic & exothermic reactions
  + Be able to Label:
    - \_\_\_\_\_ **PE of reactants, products & activated complex**
    - \_\_\_\_\_ **Activation energy of forward & reverse reactions**
    - \_\_\_\_\_ **Heat of reaction**
* \_\_\_\_\_ Be able to indicate the effect of a catalyst on a PE diagram
* \_\_\_\_\_ Be able to calculate the heat of reaction (∆H) given the heats for formation for products & reactants
* \_\_\_\_\_ Be able to use Hess’s Law to calculate (∆H) for a reaction/process
* \_\_\_\_\_ Be able to tell from the ∆H if a reaction is endothermic or exothermic
* \_\_\_\_\_ Define **enthalpy**
  + \_\_\_\_\_ Linear relationship with equilibrium constant and T in Kelvin (Gibbs-Helmhotz eq. = -RTLn(K))
* \_\_\_\_\_ Define **entropy**
* \_\_\_\_\_ Define **spontaneity**
* \_\_\_\_\_ Define ∆**G**
* \_\_\_\_\_ Know under what conditions a change will always be spontaneous or never be spontaneous
* \_\_\_\_\_ Understand what factors increase or decrease entropy of the system
* \_\_\_\_\_ Given a thermochemical equation for a chemical or physical change, be able to predict the spontaneity by assessing the signs of ∆H & ∆S
* \_\_\_\_\_ Know how thermodynamics and equilibrium are related conceptually and mathematically
* \_\_\_\_\_ Method of Initial Rates to determine the rate law
  + \_\_\_\_\_ Determine orders of each reactant
  + \_\_\_\_\_ Determine numerical value of rate constant
  + \_\_\_\_\_ Determine units of the rate constant
* \_\_\_\_\_ How does concentration affect the rate of a reaction
* \_\_\_\_\_Factors that affect rate of reaction
* \_\_\_\_\_Graphical analysis for determination of rate order
* \_\_\_\_\_Integrated rate law determination
* \_\_\_\_\_Activation Energy (Ea)
  + \_\_\_\_\_ Linear relation with rate constant and T in Kelvin
* \_\_\_\_\_Half-life
* \_\_\_\_\_Relationship of kinetics with equilibrium (challenging)
* \_\_\_\_\_Pseudo -1st -2nd -0th integrated rate law

**Now for Coggle**: [Add to your current coggle from Thermo]

* Create a coggle diagram for the MIDTERM (use this as your center word, include NAME/PERIOD as well)
* Post this coggle in google classroom.
* Your coggle should be more focused on the lower rankings from above, however all should be included
* In the end, BE DETAILED as much as you can – get creative individually
* You may have some time in class to work on this. Bring your computer/device