Y12 – Rates checklist

Stick this checklist into your yellow book at the beginning of the topic. Tick off the topics as you cover them.		
In this module you are expected to be able to…	In Notes	Revised

• Define:
  ○ Rate of reaction
  ○ Catalyst
  ○ Order
  ○ Overall Order
  ○ Rate constant, k
  ○ Half life
  ○ Rate determining step		

• Use collision theory to explain the effect of surface area and increased concentration of chemicals on reaction rate in terms of collision frequency.		
• Sketch mass/time, volume/time, concentration/time graphs for a given practical experiment that produces products, or uses reactants up. Explain the shape of the graph.		
• Explain the effect of temperature on reaction rate using and referencing the Boltzmann distribution.		
• Explain the difference in the way heterogeneous and homogeneous catalysts work, and show how catalysts affect reaction rate using and referring to a Boltzmann distribution. Explain how this makes catalysts important for a sustainable future.		
• Give examples of ways to measure reaction rate and interpret and process results, including the use of tangents to calculate rate.		
• Be able to deduce the order of a reaction by inspection of initial rates data, by inspection of the rate law, and by continuous monitoring of rates.		
• Calculate the rate constant, k, from initial rates data, from graphs of concentration vs time, from graphs of rate vs concentration, and from half-life. Be able to determine the units of k.		
• Explain the proper use of colorimetry including the use of calibration curve to monitor the rate of a reaction.		
• For a multi-step reaction, determine the rate determining step, and plausible other steps in a mechanism from the balanced equation and the rate equation.		
• Explain how temperature affects rate constant. Use the Arrhenius equation to determine Ea from rate data, and manipulate the equation.		

Pre-test Evaluation

I have…	
Updated my yellow book notes	
Ensured I understand all of my notes	
Looked on the open drive for additional work	
Asked my teacher for guidance	
Confidence rating	I'm doomed! -- - = + ++ I am the BOSS!