Chemical Kinetics		
Three (3) things I have learned	Two (2) interesting things I found	One (1) question I still have
• Chemical kinetics focuses on studying reaction rates and factors that influence them, such as temperature, concentration, catalysts, and surface area. • Rate laws are mathematical expressions that describe the relationship between reactant concentrations and reaction rates, helping predict reaction rates under different conditions. • The collision theory explains that for a reaction to occur, particles must collide with sufficient energy (activation energy) and in the correct orientation.	• Reaction mechanisms provide a detailed understanding of the step-by-step processes and intermediates involved in a chemical reaction. • Determining reaction orders helps understand how the concentration of a reactant affects the reaction rate, guiding reaction conditions and predictions.	• Are there practical applications of chemical kinetics in everyday life?

Chemical **Thermodynamics**		
Three (3) things I have learned	Two (2) interesting things I found	One (1) question I still have
• Energy and its transformations play a central role in Chemical Thermodynamics, where we study how energy changes in chemical systems. • The Laws of Thermodynamics, including the conservation of energy and the concept of entropy, provide fundamental principles for understanding energy transfer and transformation. • Thermodynamic equilibrium and spontaneity are crucial concepts, as they help predict the stable state of a system and the direction of chemical reactions.	• Phase transitions and critical phenomena reveal intriguing behaviour near phase transition points, shedding light on the principles underlying these transformations. • Thermochemistry, a branch of Chemical Thermodynamics, is fascinating as it explores heat changes in reactions and their applications in energy storage.	• How does Chemical Thermodynamics contribute to the design and optimization of industrial processes?

Chemical Equilibrium		
Three (3) things I have learned	Two (2) interesting things I found	One (1) question I still have
• Chemical equilibrium occurs when the rates of the forward and reverse reactions are equal, resulting in a dynamic state where concentrations of reactants and products remain constant over time. • The equilibrium constant (K) is a ratio of product to reactant concentrations and provides information about the composition and extent of the equilibrium mixture. • Le Chatelier's principle states that a system at equilibrium will respond to changes in temperature, pressure, or concentration by shifting the equilibrium to counteract the change and establish a new equilibrium.	• Equilibrium can be achieved rapidly or over extended periods, depending on factors such as reactant nature and conditions like temperature and pressure. • Equilibrium can occur in systems with reactants and products in different phases, not just homogeneous systems.	• How does the equilibrium constant (K) change with temperature? Is there a general trend, or does it vary depending on the reaction?

Acid Base		
Three (3) things I have learned	Two (2) interesting things I found	One (1) question I still have
• Acids release hydrogen ions (H+), while bases release hydroxide ions (OH-) when dissolved in water (Arrhenius theory). • Acids donate protons (H+), and bases accept protons (Brønsted-Lowry theory). • pH is a measure of acidity or basicity, with pH below 7 being acidic and above 7 being basic.	• Acid-base indicators change color based on the pH of a solution. • Acid rain is caused by pollutants combining with water vapor to form acids, leading to ecological and structural damage.	• How do buffers work? I would like to understand the mechanism behind how buffers help maintain the pH of a solution relatively stable even when small amounts of acid or base are added.

Electro Chemistry		
Three (3) things I have learned	Two (2) interesting things I found	One (1) question I still have
• Electrochemistry deals with the study of redox (reduction-oxidation) reactions. These reactions involve the transfer of electrons between species, where one species is oxidized (loses electrons) while another species is reduced (gains electrons). Understanding redox reactions is crucial in electrochemistry. • Electrolysis is a process that utilizes an electric current to drive non-spontaneous redox reactions for various applications. • Electrochemical cells, such as galvanic and electrolytic cells, are used to convert chemical energy into electrical energy or vice versa.	• The application of electrochemistry in batteries, which store and release electrical energy through redox reactions. • Understanding corrosion and employing electrochemistry to prevent it, protecting metals from deteriorating due to chemical reactions.	• Can you explain the concept of electrode potential? How is it measured, and what factors affect it?