

Table of Contents: Lab Work

SCH4UE 08-09

IA Legend: Planning = Design criteria

DCP = Data Collection and Processing criteria

CE = Conclusion and Evaluation

MS = Manipulative skills

Lab #	Title of Investigation	Course Unit	Criteria Tested
1	Thickness of Aluminum Foil	Measurement + Data	
2	Number of molecules in H ₂ O, Chalk, and Candy	Quantitative Chemistry	
3	Percent Composition of MgO	Quantitative Chemistry	
4	Formula of a hydrate, Epsom salt	Quantitative Chemistry	Planning
5	Empirical Formula of MgCl ₂	Quantitative Chemistry	
6	Simulation of an Air Bag	States of Matter	Planning
7	Volume vs. Temperature Graph: Computer Analysis	States of Matter	DCP, ICT
8	% Sodium hydrogen carbonate in an Alka-Seltzer Tablet	States of Matter	
9	Pressure required to pop popcorn	States of Matter	Planning
10	Mass Relationship in an equation: Aluminum and Copper (II) chloride dihydrate	Quantitative Chemistry	MS, DCP
11	Determination of Solubility of a Salt	Solution Chemistry / Acids and Bases	MS
12	Making a Solution	Solution Chemistry / Acids and Bases	MS
13	Dilution of a Solution	Solution Chemistry / Acids and Bases	MS
14	Determination of Volume of gas at STP: Mg + HCl	States of Matter	MS
15	Determination of Molar Volume from experimental Data	States of Matter	
16	Estimation of concentration of a Solution using a spectroscope	Solution Chemistry / Acids and Bases	DCP
17	Double Displacement Reactions: Using Solubility Rules	Solution Chemistry / Acids and Bases	

18	Using Solubility Graphs: Computer Analysis	Solution Chemistry / Acids and Bases	ICT
19	Gravimetric Analysis: $\text{Pb}(\text{NO}_3)_2(\text{aq}) + \text{KI}(\text{aq})$	Solution Chemistry / Acids and Bases	DCP, CE
20	Stoichiometry of a Reaction: $\text{Na}_2\text{CO}_3 + \text{CaCl}_2$	Solution Chemistry / Acids and Bases	Planning, Lab Quiz
21	Titration: Standardization of NaOH using HCl	Acids and Bases	
22	Observing the Hydrogen Spectrum	Atomic Structure	
23, 24, 25	Qualitative Analysis: 3 hours		
26	Electrolytes: Strong and Weak Acid-Base	Acids and Bases	ICT
27	Titration Curve for strong acid and strong base	Acids and Bases	
28	Lab: Testing for Polarity of Compounds	Bonding and Atomic Structure	
29	Lab Activity: Polarity of Molecules and IMFA's	Bonding and Atomic Structure	
30	Testing the structure of Ionic, molecular covalent, Network and metallic substances	Bonding and Atomic Structure	Planning
31	Enthalpy of Ionic substances: Lattice Energy vs. Hydration Energy	Atomic Structure / Energetics	
32	Enthalpy of a reaction: $\text{Zn} + \text{CuSO}_4$	Energetics	
33	Hess's Law: $\text{NaOH} + \text{HCl}$	Energetics	
34	Assignment: Molecules and Networks	Bonding and Atomic Structure	
35	How Much Lab	Quantitative Chemistry	Planning
36	Enthalpy of a chemical reaction: $\text{Mg} + \text{HCl}$	Energetics	
37	Paraffin Wax Lab	Energetics	Planning, CE
38	Lattice Energy	Energetics	ICT
39	Alcohols	Energetics	ICT
40	Comparison of Energies Physical/Chemical/Nuclear Charge	Energetics	
41	Icebergs / Lifesavers	Energetics	
42	Maxwell-Boltzmann	Kinetics / Energetics	ICT
43	GROUP IV PROJECT (REFLECTION)		
44	Study of Reaction Rates: Clock Reaction: IO_3^- & HSO_3^-	Kinetics	

45	Factors that Affect the Rates of Reaction: MnO_4^- & $\text{C}_2\text{O}_4^{2-}$	Kinetics	
46	To determine Order of Reaction	Kinetics	
47	Determination of Energy of Combustion for Alcohols	Kinetics / Energetics	
48	Determining the activation energy of a reaction	Kinetics	
49	Enthalpy of Combustion of Foods	Kinetics / Energetics	
50	Lab Activity: Equilibrium Constant: $\text{NO}_2 + \text{N}_2\text{O}_4$	Equilibrium	
51	Equilibrium Simulation (Aquaria + Cheerios)	Equilibrium	
52	A Case Study of the Haber Process	Equilibrium	ICT

53	Le Chateliers Principle	Equilibrium	
54	IA Lab I		
55	IA Lab II		
56	Oxidation Numbers of MnO_4^-	Redox	
57	Electrochemical Cells	Redox	
58	Electrolysis of KI (aq)	Redox	
59	reactions of alkanes and alkenes	Organic	
60	Hydrolysis of Halogeno alkanes	Organic	

IB2 Labs begin at #35.