STUDENT OUTLINE **Unit 1: *Matter, Chemical Trends, and Chemical Bonding***

Big Ideas:

- Every element has predictable chemical and physical properties determined by its structure.
- The type of chemical bond in a compound determines the physical and chemical properties of that compound.
- It is important to use chemicals properly to minimize the risks to human health and the environment.

Assessment for/as Learning	Assessment of Learning
• Regular HW checks • Chapter Quizzes	• Observations/Conversations: HW Q's on board • Lab Report: Intro to Laboratory • Unit Test

Day	Topic / Section	Homework	Completed	Level
1	• Course Intro (syllabus, texts) • Lab expectations • Lab safety and WHMIS	read p.xvi-1 p.4 #1,2,5-8		
2	• 1.1 Atomic structure and isotopes, radio-isotopes	p.14 #1,2,5 p.21 #5-7,14 read p.614-15 (sig digs)		
3	• Significant digits (p.614-15) • 1.1 Calculating average atomic mass	p.19 #2,4,6,8 p.21 #10,11		
4	• 1.2 Development and structure of the Periodic Table	p.26 #7-10 p.30 #1-3,8,12		
5	• 1.3 Trends in the Periodic Table	p.34#15-18 p.40 #4,5,7,8,11,13		
6	• Graphing activity: Trends in the PT • Lab prep: Intro to Laboratory	Do ONE of Activity 1.3 (p.33) Activity 1.4 (p.38)		
7	• Lab Investigation – Intro to Laboratory	Full Lab Report		
8	• Chapter 1 Review and Quiz	Ch.1 Review: p.45 #1-9,19,22,26,37 p.48 #1-10,15,23		
9	• 2.1 Ionic Bonding	Worksheet		
10	• 2.1 Covalent Bonding	p.59 #2,6 p.63 #4,7,9,10,11,16		
11-13	• 2.2 Nomenclature of Inorganic compounds	Worksheets p.70 #8-12 p.73 #1-10 p.75 #5-7,9-11		
14	• 2-B Building Molecular Models	p.84-85 + handout		
15	• 2.3 Properties of Ionic/Cov Compounds	p.79 #13,14,17 p.82#3-6,10,11,14,15		
16	• Chapter 2 and Unit 1 Review Chapter 2 Review p.89#1-8,10,16,17,19-24,29,32,35 and p.90#1-10,15,21 Unit 1 Review p.97#1-10,12,13,27,37,44,57,58,61 and p.102#1-10,13,24			
17	Unit 1 TEST			

STUDENT OUTLINE **Unit 2: *Chemical Reactions***

Time: 20 hours

Big Ideas:

- Chemicals react in predictable ways.
- Chemical reactions and their applications have significant implications for society and the environment.

Day	Topic / Section	Homework	Completed	Level
1	• Introduce new unit • Launch Lab p.111	read 3.1		
2	• 3.1 Writing Chemical Equations	p.115,120 #1-19odd p.123 #5,10-12		
3	• 3.2 Synth and Decomp Reactions	GOLD worksheet 1 p.127,134 #21-39odd p.132#13,17 p.136 #3,8,10,11		
4	• 3.3 Combustion Reactions	p.141 #41,43,46 p.143 #23-26 p.145 #2,10,15		
5	• Chapter 3 Review p.155 #1-9,11,14,17,18,20,21,34-36 p.158 #1-11,16-18,22			
6	• 4.1 Single Displacement Reactions	GOLD worksheet 2 p.165 #2,3,5 p.169 #1-9odd p.170 #4-6,12		
7	• 4.2 Double Displacement Reactions	p.173 #11,12 p.175,179 #11-29odd p.180 #1,3,6,9,10		
8-9	• Reaction Types Labs: Investigation of all reactions types studied so far.	Full Lab Report for ONE of the investigations		
10	• Chapter 4 Review p.201 #1-8,9,17-20,34,40 p.204 #1-10,14,17,25			
11	• 4.3 Industrial and Green Chemistry	read 4.3		
12	• Chapter 4 Quiz and Unit 2 Review Unit 2 Review p.209 #1-10,13,16-20,24-26,28-30,49,51,54 and p.214 #1-10,12,13,15,18,20,23			
13	Unit 2 TEST			

STUDENT OUTLINE Unit 3: *Quantities in Chemical Reactions*

Big Ideas:

- Relationships in chemical reactions can be described quantitatively.
- The efficiency of chemical reactions can be determined and optimized by applying an understanding of quantitative relationships in such reactions.

Day	Topic / Section	Homework	Completed	Level
1	• 5.1 Introduce the mole • convert # of particles ↔ moles	read 5.1 p.230-31 #11,17,20,21,23,27 p.232 #1,7,8,11,15		
2	• 5.2 Mass and the mole • convert mass ↔ moles	p.237-42 #45-47,55-57,64		
3	• 6.1 Definite Proportions and Percent Composition	p.260-64 #3,6,11,16 p.262 #1,6 p.267 #7,13		
4	• 6.2 Empirical and Molecular Formulas	p.270 #9,10 p.273-75 #31-47odd p.278 #56,57		
5	• 6-A Lab: Determining %Comp and Empirical formula of magnesium oxide	*Lab report: Calculations and Error Analysis*		
6-7	• Chapter 5 Review p.251 #1-8,16,19-22 p.254 #1-10,12-14,22 • Chapter 6 Review p.289 #1-,11,14,19,22,31,33,39,40 p.292#1-10 • Chapter 5-6 Quiz			
8	• 7.1 Intro to Stoichiometry	Front of worksheet p.300 #11,12,15,18		
9	• 7.1 Reaction Stoichiometry – Calculating quantities in chemical reactions	Back of worksheet p.304 #25-28 p.305#1,6,11		
10	• 7.2 Limiting and Excess Reactants	p.309 #8,10 p.311 #42,45,48 p.313 #1,2,4,6,11		
11	• 7.3 Reaction Yields	p.316 #14, p.321 #5,9,10 p.319 #51,55,58		
12-13	• % Yield Lab (2 days) Choose one reaction from 7-A, 7-B, 7-C	*Full lab report*		
14	• Chapter 7 Review p.331 #1-8,10,12,16-18,24,27 and quiz p.334 #1-10,12,22			
15	• Unit 3 Review p.339 #1-11,18,19,22,35,38 and p.344 #1-10,13*,19			
16	Unit 3 TEST			

STUDENT OUTLINE Unit 4: *Solutions and Solubility*

Big Ideas:

- Properties of solutions can be described qualitatively and quantitatively, and can be predicted.
- Living things depend for their survival on the unique physical and chemical properties of water.
- People have a responsibility to protect the integrity of Earth's water resources

Day	Topic / Section	Homework	Completed	Level
1	• 8.1 Introduction to solutions	read 8.1 p.357 #1-3,5,6 p.358 #2,9,12		
2	• 8.2 What makes something a liquid and other properties of liquids/solutions	p.368#7-9 p.370 #1,2,9,12,16		
3-4	• 8.3 Concentrations of Solutions	p.373-381 #3,9,13,17, 23,27,33,37,43,47 p.382 #9,10,13,15		
5	• 8.4 Preparation of Solutions - by dissolving solids and by dilution of existing solutions	p.386 #53,55,57 p.388 #14,17 p.390 #1,2,8,12		
6	• Lab activity: prepare a solution by dissolving a solid	*Lab report: Calculations and Error Analysis*		
6-7	• Chapter 8 Review p.399 #1-8,12,13,19,25,28 Chapter 8 Quiz p.402 #1-10,11,19,25			
8	• 9.1 Net Ionic Equations (also intro to qualitative analysis and prep for lab exam)	p.410 #1-3,6,8 p.413 #1,4 p.414 #1,8,10,13,14		
9	• 9.2 Solution Stoichiometry	p.417 #13,19p.418#11 p.420 #22,24 p.421 #1,11,13		
10	• 9.3 Water Quality Issues (*students* bring samples of hard and softened water for *next* lesson)	p.424 #13=15 p.429 #1,3,8,10-12		
11	• 9.4 Water treatment (drinking water, sewage, stormwater)	p.431#19,22-24 p.436 #1,8,11,16		
12	• Chapter 9 Review p.447 #1-,11,13,15,17,20,34 and quiz p.450 #1-10,15,18,22,24			
13	• 10.1 Acids and bases (Arrhenius theory; strong and weak acids and bases)	p.462 #8 p.463 #1,5,7,9,11,13		
14	• 10.2 Acid-Base Neutralizations and Stoichiometry	p.466 #2,5 p.467 #15 plan your titration		
15	• Lab – Titration of solution from lesson 6	*Lab Report – observations and calcs*		
16	• Chapter 10 Review p.479 #1-10,12,14,18,20,26,29 p.482 #1-10,14,15 • Unit 4 Review p.487 #1-10,12,14,20,23,28,45,50,59 p.492#1-11,14,19			
17	Unit 4 TEST			

STUDENT OUTLINE Unit 5: *Gases and Atmospheric Chemistry*

Big Ideas:

- Properties of gases can be described qualitatively and quantitatively, and can be predicted.
- Air quality can be affected by human activities and technology.
- People have a responsibility to protect the integrity of Earth's atmosphere.

Day	Topic / Section	Homework	Complete	Level
1	• 11.1 Intro to gases (properties and behaviour)	read 11.1 p.503 #2,4 p.506 #2,4,13,14		
2	• 11.2 Gases and pressure	p.510 #7,9 p.515 #2,6.8.10.11		
3	• 11.2 Boyle's Law	p.514 #1,4,6		
4	• 11.3 Gases and temperature (Charles' Law, Gay-Lussac's Law)	p.518 #14,16,17 p.522-25 #12,18,24,29 p.527 #1,4-6,14		
5	• Lab Investigation: Relationship Between Pressure and Volume of a Gas (Handout)	Full Lab Report		
6	• Chapter 11 Review p.533 #1-10,16,21,29 Chapter 11 Quiz p.536 #1-10,18,21			
7	• 12.1 Combined Gas Law and Molar Gas Volume (MGV)	p.542/49 #2,7,13,16,19 p.545 #5,6 p.550 #2,7,12		
8-9	• 12.2 The Ideal Gas Law (PV=nRT) and Gas Stoichiometry	p.556/60 #22,23,33,38 p.557 #9,10,12 p.563#12		
10	• 12.3 The Atmosphere and Air Quality	p.569 #5-9		
11	• Chapter 12 Review p.577 #1-9,11,15,19,26 and quiz p.580 #1-14,22			
12	• Unit 5 Review p.585 #1-10,12,13,20,23,28,34,36,46 p.590 #1-10,15,19			
13	Unit 5 TEST			