Science Department

Semester: 1 **2026-2027**

Grade Level	12	**Subject: AP Chemistry**
Teacher(s) Name	Maitham Sh Jawad	
Textbook	**Brown, Chemistry: The Central Science, Global Edition, 15th Editi**	

Week #	Dates		Lesson Title / Pages	CCSS / NGSS Code / MOE
1	Aug 31	Sept 4	Revise the concept of naming chemical compounds, ions formations, and organic compounds. **Unit-1: Atomic Structure and properties** 1.1 Moles and Molar Mass 1.2 Mass Spectroscopy of Elements 1.3 Elemental Composition of Pure Substances	BIG IDEA 1 BIG IDEA 2 SPQ-1 The mole allows different units to be compared
2	Sept 7	Sept 11	1.4 Composition of Mixtures 1.5 Atomic Structure and Electron Configuration 1.6 Photo electron Spectroscopy 1.7 Periodic Trends 1.8 Valence Electrons and Ionic Compounds	BIG IDEA 1 BIG IDEA 2 SAP-1 Atoms and molecules can be identified by their electron distribution and energy.
3	Sept 14	Sept 18	Unit2: Molecular and Ionic Compound Structure and Properties	BIGIDEA1 BIGIDEA2 SAP-1 Atoms and molecules can be

			2.1 Types of Chemical Bonds 2.2 Intramolecular Force and Potential Energy 2.3 Structure of Ionic Solids 2.4 Structure of Metals and Alloys 2.5 Lewis Diagrams	identified by their electron distribution and energy. Structure and Properties SAP
4	**Sept 21**	**Sept 25**	2.6 Resonance and Formal Charge 2.7 VSEPR and Bond Hybridization UNIT3: Intermolecular Forces and Properties 3.1 Intermolecular Forces 3.2 Properties of Solids 3.3 Solids, Liquids, and Gases	BIGIDEA1 BIGIDEA2 SAP-1 Atoms and molecules can be identified by their electron distribution and energy. Structure and Properties SAP
5	**Sept 28**	**Oct 2**	3.4 Ideal Gas Law 3.5 Kinetic Molecular Theory 3.6 Deviation from Ideal Gas Law 3.7 Solutions and Mixtures 3.8 Representations of Solutions	BIG IDEA 2 SAP-7 Gas properties are explained macroscopically—using the relationships among pressure, volume, temperature, moles, gas constant—and molecularly by the motion of the gas
6	**Oct 5**	**Oct 9**	3.9 Separation of Solutions and Mixtures Chromatography 3.10 Solubility 3.11 Spectroscopy and the Electromagnetic Spectrum 3.12 Photoelectric Effect 3.13 Beer-Lambert Law	BIG IDEA 1 BIG IDEA 2 SAP-7 Gas properties are explained macroscopically—using the relationships among pressure, volume, temperature, moles,

				gas constant—and molecularly by the motion of the gas.
	Oct 12	Oct 16	**1st Semester Break**	
7	Oct 19	Oct 23	Unit4: Chemical reactions 4.1 Introduction for Reactions 4.2 Net Ionic Equations 4.3 Representations of Reactions 4.4 Physical and Chemical Changes 4.5 Stoichiometry	BIGIDEA1 BIGIDEA2 TRA-2 A substance can change into another substance through different processes, and the change itself can be classified by the sort of processes.
8	Oct 26	Oct 30 **Oct 30 End of Quarter 1**	Continue: 4.5 Stoichiometry 4.6 Introduction to Titration 4.7 Types of Chemical Reactions 4.8 Introduction to Acid-Base Reactions	BIGIDEA1 BIGIDEA2 TRA-2 A substance can change into another substance through different processes, and the change itself can be classified by the sort of processes.
9	Nov 2	Nov 6	4.9 Oxidation-Reduction (Redox)Reactions Unit5: Reaction kinetics 5.1 Reaction Rates 5.2 Introduction to Rate Law 5.3 Concentration Changes Over Time	BIGIDEA-3 TRA-3 Some reactions happen quickly, while others happen more slowly and depend on reactant concentrations and temperature.
10	Nov 9	Nov 13	5.4 Elementary Reactions 5.5 Collision Model 5.6 Reaction Energy Profile	BIGIDEA-3 TRA-3 Some reactions happen quickly,

			5.7 Introduction to Reaction Mechanisms	while others happen more slowly and depend on reactant concentrations and temperature
11	**Nov 16**	**Nov 20**	5.8 Reaction Mechanism and Rate Law 5.9 Steady-State Approximation 5.10 Multi step Reaction Energy Profile 5.11 Catalysis	BIGIDEA-3 TRA-4 There is a relationship between the speed of a reaction and the collision frequency of particle collisions TRA-5 Many chemical reactions occur through elementary reactions.
12	**Nov 23**	**Nov 27** **(1 day for National Day Celebration)**	Unit6: Thermodynamics 6.1 Endothermic and Exothermic Processes 6.2 Energy Diagrams 6.3 Heat Transfer and Thermal Equilibrium 6.4 Heat Capacity and Calorimetry	
13	**Nov 30**	**Dec 4** **(Dec 2-Dec 4 National Day Holiday)**	6.5 Energy of Phase Changes 6.6 Introduction to Enthalpy of Reaction 6.7 Bond Enthalpies	BIG IDEA 4 ENE-2 Changes in a substance's properties or change Into a different substance requires an exchange of energy
14	**Dec 7**	**Dec 11**	6.8 Enthalpy of Formation 6.9 Hess's Law	BIG IDEA 4 ENE-2 Changes in a substance's properties or change Into a different substance requires

				an exchange of energy
	Dec 14	Jan 1	**Winter Break for All Students**	
15	Jan 4	Jan 8	Unit7: Equilibrium 7.1 Introduction to Equilibrium 7.2 Direction of Reversible Reactions 7.3 Reaction Quotient and Equilibrium Constant 7.4 Calculating the Equilibrium Constant	BIG IDEA 1 BIG IDEA 3
16	Jan 11	Jan 15	7.5 Magnitude of the Equilibrium Constant 7.6 Properties of the Equilibrium Constant 7.7 Calculating Equilibrium Concentrations 7.8 Representations of Equilibrium	BIG IDEA 1 BIG IDEA 3
17	Jan 18	Jan 22	**Semester 1 Exams (French, Civics, Social studies) followed by regular Teaching Days for Revision.**	
18	Jan 25	Jan 29	**Semester 1 Exams**	

**** Map Test week will be assigned throughout the semester for every grade level.**