

# AP Chemistry Curriculum Organization

Over the years College Board has repeatedly reorganized the AP Chemistry curriculum – meaning they change the order of the chapters, give chapters new titles, try to “chunk” topics into Big Ideas etc. This has resulted in lots of great online resources and textbooks being “out of order” compared to what College Board publishes. This makes it hard when trying to use these resources since the numbering of chapters/units/topics no longer match. This document is intended to help you keep track of these different systems so you know what you are looking at, or where to find things. I will use my own personal preference of what order to teach the topics in – over the years I have found an order that seems to be the most logical for students and seems to set them up for success the most. While my order may differ than other teachers’ or College Board’s order, the content and topics should be essentially the same. Remember...the chemistry will be the same no matter what number or title we give the chapter! ☺

DVHS AP Chem Unit Order	College Board Unit Order	College Board’s “Big Four Ideas”
<b>0</b> – Honors Chemistry Review <b>1</b> – Thermochemistry <b>2</b> – Thermodynamics <b>3</b> – Kinetics <b>4</b> – Equilibrium <b>5</b> – Atomic Structure & Periodicity <b>6</b> – Bonding <b>7</b> – Gases <b>8</b> – Intermolecular Forces <b>9</b> – Solutions <b>10</b> – Acid Base <b>11</b> – Electrochemistry <b>12</b> – Full Exam Review	<b>1</b> – Atomic Structure & Properties <b>2</b> – Molecular & Ionic Compound Structure & Properties <b>3</b> – Intermolecular Forces & Properties <b>4</b> – Chemical Reactions <b>5</b> – Kinetics <b>6</b> – Thermodynamics <b>7</b> – Equilibrium <b>8</b> – Acids and Bases <b>9</b> – Applications of Thermodynamics	<b>1</b> – Scale Proportion & Quantity <b>2</b> – Structure & Properties <b>3</b> – Transformations <b>4</b> – Energy <i>The current way they chunk the Big Ideas.</i>
		College Board’s “Big Six Ideas”
		<b>1</b> – Atoms <b>2</b> – Bonds <b>3</b> – Reactions <b>4</b> – Rates <b>5</b> – Thermodynamics <b>6</b> – Equilibrium <i>This was an old way of chunking the Big Ideas.</i>

Tro Textbook Unit Order		
<b>1</b> – Matter, Measurement <b>2</b> – Atoms and Elements <b>3</b> – Molecules, Compounds & Chemical Equations <b>4</b> – Chemical Quantities and Aqueous Reactions <b>5</b> – Gases <b>6</b> – Thermochemistry <b>7</b> – The Quantum Mechanical Model of the Atom	<b>8</b> – Periodic Properties of the Elements <b>9</b> – Chemical Bonding I: The Lewis Model <b>10</b> – Chemical Bonding II: Molecular Shapes, Valence Bond Theory, and Molecular Orbital Theory <b>11</b> – Liquids, Solids, and Intermolecular Forces	<b>13</b> – Solutions <b>14</b> – Chemical Kinetics <b>15</b> – Chemical Equilibrium <b>16</b> – Acids and Bases <b>17</b> – Aqueous Ionic Equilibrium <b>18</b> – Free Energy and Thermodynamics <b>19</b> – Electrochemistry <i>Chapters 12, 20-25 are skipped</i>

College Board “Science Practices”	DVHS Honors Chem Unit Order	
<b>1</b> – Models & Representations <b>2</b> – Question & Method <b>3</b> – Representing Data & Phenomena <b>4</b> – Model Analysis <b>5</b> – Mathematical Routines <b>6</b> – Argumentation	<b>1</b> – Chemistry Basics & Atomic Structure <b>2</b> – Nuclear Chemistry <b>3</b> – Electrons <b>4</b> – Periodic Table <b>5</b> – Bonding & Structure <b>6</b> – Reactions <b>7</b> – Stoichiometry	<b>8</b> – Advanced Chemical Ratios <b>9</b> – Gas Laws <b>10</b> – Thermochemistry <b>11</b> – Solutions <b>12</b> – Kinetics <b>13</b> – Equilibrium <b>14</b> – Acids and Bases

## Website Links

Here are some links to things that will be helpful related to the Course Description and the topics that are taught during the year.

College Board Course Description	“Condensed” Course Content List	Mrs. Farmer’s Class Website
<a href="https://tinyurl.com/jcv5z5sf">https://tinyurl.com/jcv5z5sf</a> 	<a href="https://tinyurl.com/26k9y5ae">https://tinyurl.com/26k9y5ae</a> 	<a href="http://www.mychemistryclass.net">www.mychemistryclass.net</a> 

# AP Chemistry Course at a Glance

This is a list of the broad "learning objectives" in College Board's Course Description. It is not a full list of every fact, skill, piece of info you need to learn this year. The order here is not the order we go in the class. As always, see the full Course Description and the class website for more details.

<b>Unit 1</b> <b>Atomic Structure and Properties</b>		<b>Unit 2</b> <b>Molecular/Ionic Structure/Properties</b>		<b>Unit 3</b> <b>Intermolecular Forces and Properties</b>	
1.1	Moles and Molar Mass	2.1	Types of Chemical Bonds	3.1	Intermolecular Forces
1.2	Mass Spectroscopy of Elements	2.2	Intermolecular Force and Potential Energy	3.2	Properties of Solids
1.3	Elemental Composition of Pure Substances	2.3	Structure of Ionic Solids	3.3	Solids, Liquids, and Gases
1.4	Composition of Mixtures	2.4	Structure of Metals and Alloys	3.4	Ideal Gas Law
1.5	Atomic Structure and Electron Configuration	2.5	Lewis Diagrams	3.5	Kinetics Molecular Theory
1.6	Photoelectron Spectroscopy	2.6	Resonance and Formal Charge	3.6	Deviation from Ideal Gas Law
1.7	Periodic Trends	2.7	VSEPR and Bond Hybridization	3.7	Solutions and Mixtures
1.8	Valence Electrons and Ionic Compounds	<b>Unit 5</b> <b>Kinetics</b>		3.8	Representations of Solutions
<b>Unit 4</b> <b>Chemical Reactions</b>		5.1	Reaction Rates	3.9	Separation of Solutions and Mixtures Chromatography
4.1	Introduction for Reactions	5.2	Introduction to Rate Law	3.10	Solubility
4.2	Net Ionic Equations	5.3	Concentration Changes Over Time	3.11	Spectroscopy and the Electromagnetic Spectrum
4.3	Representations of Reactions	5.4	Elementary Reactions	3.12	Photoelectric Effect
4.4	Physical and Chemical Changes	5.5	Collision Model	3.13	Beer-Lambert Law
4.5	Stoichiometry	5.6	Reaction Energy Profile	<b>Unit 6</b> <b>Thermodynamics</b>	
4.6	Introduction to Titration	5.7	Introduction to Reaction Mechanisms	6.1	Endothermic and Exothermic Processes
4.7	Types of Chemical Reactions	5.8	Reaction Mechanism and Rate Law	6.2	Energy Diagrams
4.8	Introduction to Acid-Base Reactions	5.9	Steady-State Approximation	6.3	Heat Transfer and Thermal Equilibrium
4.9	Oxidation-Reduction (Redox) Reactions	5.10	Multistep Reaction Energy Profile	6.4	Heat Capacity and Calorimetry
<b>Unit 7</b> <b>Equilibrium</b>		5.11	Catalysis	6.5	Energy of Phase Changes
7.1	Introduction to Equilibrium	<b>Unit 8</b> <b>Acids and Bases</b>		6.6	Introduction to Enthalpy of Reaction
7.2	Direction of Reversible Reactions	8.1	Introduction to Acids and Bases	6.7	Bond Energies
7.3	Reaction Quotient and Equilibrium Constant	8.2	pH and pOH of Strong Acids and Bases	6.8	Enthalpy of Formation
7.4	Calculating the Equilibrium Constant	8.3	Weak Acid and Base Equilibria	6.9	Hess's Law
7.5	Magnitude of the Equilibrium Constant	8.4	Acid-Base Reactions and Buffers	<b>Unit 9</b> <b>Applications of Thermodynamics</b>	
7.6	Properties of the Equilibrium Constant	8.5	Acid-Base Titrations	9.1	Introduction to Entropy
7.7	Calculating Equilibrium Concentrations	8.6	Molecular Structure of Acids and Bases	9.2	Absolute Entropy and Entropy Change
7.8	Representations of Equilibrium	8.7	pH and pKa	9.3	Gibbs Free Energy and Thermodynamic Favorability
7.9	Introduction to Le Chatelier's Principle	8.8	Properties of Buffers	9.4	Thermodynamic and Kinetic Control
7.10	Reaction Quotient and Le Chatelier's Principle	8.9	Henderson-Hasselbalch Equation	9.5	Free Energy and Equilibrium
7.11	Introduction to Solubility Equilibria	8.10	Buffer Capacity	9.6	Coupled Reactions
7.12	Common-Ion Effect			9.7	Galvanic (Voltaic) and Electrolytic Cells
7.13	pH and Solubility			9.8	Cell Potential and Free Energy
7.14	Free Energy of Dissolution			9.9	Cell Potential Under Nonstandard Conditions
				9.10	Electrolysis and Faraday's Law