

Correlation to Show Compatibility of *Chemistry: Concepts and Applications* with the Next Generation Science Standards Disciplinary Core Ideas

Chemistry: Concepts and Applications provides optimal flexibility for the initial implementation of the Next Generation Science Standards (NGSS) into your curriculum. This correlation to the Disciplinary Core Ideas (DCIs) will help guide and inform your curriculum decisions as you transition the NGSS into your science instruction.

Lesson Title	Disciplinary Core Ideas	Pages
Chapter 1 • Chemistry: The Science of Matter		
1 The Puzzle of Matter	PS1.A	4-31
2 Properties and Changes of Matter	PS1.B	32-47
Chapter 2 • Matter is Made of Atoms		
1 Atoms and Their Structures	PS1.A, PS1.B	50-66
2 Electrons in Atoms	PS1.A, PS3.A, PS4.A, PS4.B	67-81
Chapter 3 • Introduction to the Periodic Table		
1 Development of the Periodic Table	PS1.A	84-92
2 Using the Periodic Table	PS1.A, PS1.B, PS2.B	93-115
Chapter 4 • Formation of Compounds		
1 The Variety of Compounds	PS1.A	118-127
2 How Elements Form Compounds	PS1.A, PS1.B, PS2.B, PS3.B	128-149
Chapter 5 • Types of Compounds		
1 Ionic Compounds	PS2.B	152-167
2 Covalent Compounds	PS2.B	168-185
Chapter 6 • Chemical Equations and Reactions		
1 Chemical Equations	PS1.A, PS1.B, PS3.A	188-199
2 Types of Reactions	PS1.B	200-207
3 Nature of Reactions	PS1.A, PS1.B, PS3.A, PS3.B	208-225
Chapter 7 • Completing the Model of the Atom		
1 Present-Day Atomic Theory	PS1.A, PS2.B, PS4.A, PS4.B	228-240
2 The Periodic Table and Atomic Structure	PS1.A	241-254

Lesson Title	Disciplinary Core Ideas	Pages
Chapter 8 • Periodic Properties of the Elements		
1 Main Group Elements	PS1.A, PS1.B, PS2.B, PS3.A	256-279
2 Transition Elements	PS3.A	280-297
Chapter 9 • Chemical Bonding		
1 Bonding of Atoms	PS1.A, PS2.B	300-312
2 Molecular Shape and Polarity	PS1.A	313-335
Chapter 10 • The Kinetic Theory of Matter		
1 Physical Behavior of Matter	PS2.A, PS3.B	338-345
2 Energy and Changes of State	PS1.A, PS2.B, PS3.A	346-367
Chapter 11 • Behavior of Gases		
1 Gas Pressure	PS1.B, PS3.A, PS3.B	368-379
2 The Gas Laws	This topic is an extension of PS1.A.	380-401
Chapter 12 • Chemical Quantities		
1 Counting Particles of Matter	This topic is an extension of PS1.B.	403-412
2 Using Moles	This topic is an extension of PS1.B.	413-433
Chapter 13 • Water and Its Solutions		
1 Uniquely Water	PS1.A, PS2.B, PS3.A	434-450
2 Solutions and Their Properties	This topic is an extension of PS1.A.	451-477
Chapter 14 • Acids, Bases, and pH		
1 Acids and Bases	This topic is an extension of PS1.A and PS1.B.	480-496
2 Strengths of Acids and Bases	This topic is an extension of PS1.A and PS1.B.	497-513
Chapter 15 • Acids and Bases React		
1 Acid and Base Reactions	This topic is an extension of PS1.A and PS1.B.	516-530
2 Applications of Acid-Base Reactions	This topic is an extension of PS1.A and PS1.B.	531-551

Lesson Title	Disciplinary Core Ideas	Pages
Chapter 16 • Oxidation-Reduction Reactions		
1 The Nature of Oxidation-Reduction Reactions	This topic is an extension of PS1.A and PS1.B.	554-562
2 Applications of Oxidation-Reduction Reactions	This topic is an extension of PS1.A and PS1.B.	563-581
Chapter 17 • Electrochemistry		
1 Voltaic Cells: Electricity from Chemistry	PS3.A, PS3.A, PS3.B	582-599
2 Electrolysis: Chemistry from Electricity	PS3.A, PS3.B	600-619
Chapter 18 • Organic Chemistry		
1 Hydrocarbons	This topic is an extension of PS1.A and PS1.B.	622-639
2 Substituted Hydrocarbons	This topic is an extension of PS1.A and PS1.B.	640-646
3 Plastics and Other Polymers	This topic is an extension of PS1.A and PS1.B.	647-663
Chapter 19 • The Chemistry of Life		
1 Molecules of Life	PS1.A, PS1.B, LS1.C	666-688
2 Reactions of Life	PS1.A, PS1.B, LS1.C, LS2.B	689-701
Chapter 20 • Chemical Reactions and Energy		
1 Energy Changes in Chemical Reactions	PS1.B, PS3.A, PS3.B	704-714
2 Measuring and Using Energy Changes	PS3.A, PS3.B, PS3.D, PS4.B	715-728
3 Photosynthesis	PS1.A, PS1.B, LS1.C, LS2.B	729-737
Chapter 21 • Nuclear Chemistry		
1 Types of Radioactivity	PS1.A, PS1.C	740-755
2 Nuclear Reactions and Energy	PS1.C, PS2.B, PS3.A, PS3.B, PS4.B	756-762
3 Nuclear Tools	PS4.B	763-777