MCCRS Alignment for High School Science

Conceptual Academy for
Foundations of Biology, Biology, Chemistry, Earth and Space Science, Physics, Physical Science

PocketLab
BY MYRIAD SENSORS, INC.

Curriculum Scope and Sequence for MCCRS for Science

This document contains a description of the *Conceptual Academy* High School Program Scope and Sequence for six courses with the corresponding program title in the table below.

Approved Courses for the Secondary Schools of Mississippi	Conceptual Academy Program Name
Foundations of Biology	*Conceptual Academy Biology*
Biology	*Conceptual Academy Biology*
Chemistry	*Conceptual Academy Chemistry*
Earth and Space Science	*Conceptual Academy Earth and Space Science*
Physical Science	*Conceptual Academy Physics and Chemistry Integrated*
Physics	*Conceptual Academy Physics*

The scope and sequence summarizes how the high school program textbook chapters and activities are organized in relation to the MCCRS for Science. The chapter sequencing is designed to build on prior ideas and integrate the three dimensions of the *Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*.

Course Sequence

The Conceptual Academy High School scope and sequence can ideally progress through the Mississippi Best Practices for CCR Sequencing in Science.

Grade	9	10	11	12
Course	Biology (260131)	Chemistry 1 (400519)	Physics (400820) or Earth and Space (260629)	Physics (400820) or Earth and Space (260629)

Additionally, the Foundations of Biology program is available for students to gain the basic knowledge needed prior to attempting the rigorous Biology course required for graduation. Combined with the Biology program at 10th grade and the Physical Science program at 11th grade, this sequence would give students the breadth of knowledge across the three core science disciplines in a three-year sequence. If students opted for a fourth year of science they could go into more depth with the Chemistry of Physics programs or gain further breadth with Earth and Space Science.

Grade	9	10	11	12
Course	Foundations of Biology (260628)	Biology (260131)	Physical Science (400700)	Chemistry 1 (400519) or Physics (400820) or Earth and Space (260629)

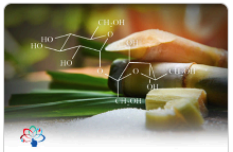
The order of the standards within each program reflects a purposeful consideration of how to build disciplinary core ideas (DCIs), science and engineering practices (SEPs), and crosscutting concepts (CCCs) through three-dimensional learning, while also maintaining a logical progression through the core content knowledge and covering 100% of the MCCRS for Science.

Scope and Sequence: Foundations of Biology and Biology

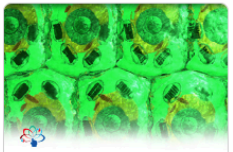
Conceptual Academy Biology applies to courses for Foundations of Biology and Biology, with different MCCRS Alignment for each course.Beginning with the chemistry essential to life at the molecular level, we build toward cells, genetics, and inheritance—laying the groundwork for evolution and the remarkable diversity of life. From there, the journey moves into human anatomy and physiology, culminating in an exploration of populations, communities, and ecosystems of which we are an integral part. Throughout, biological concepts connect to real-world examples from medicine, nutrition, health, and biotechnology.

About This Program

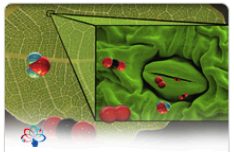
Chapter 01: About Science



Chapter 02: The Chemistry of Life



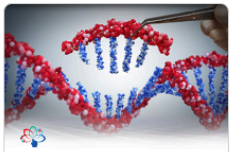
Chapter 03: The Cell



Chapter 04: How Cells Work

Chapter 05: DNA and Genes

Chapter 06: Inheritance



Chapter 07: Genetic Technologies

Chapter 08: Natural Selection

Chapter 09: Evidence of Evolution

Chapter 10: Diversity of Life 1

Chapter 11: Diversity of Life 2

Chapter 12: The Nervous System

Chapter 13: Control and Movement

Chapter 14: Maintaining the Body

Chapter 15: Protecting Health

Chapter 16: Populations

Chapter 17: Communities

Chapter 18: Ecosystems

MCCRS Correlation - Foundations of Biology

Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	FB.1: History of Bio & Impacts on Society				FB.2: Chemistry of Life							FB.3: Organization and Energy in Living Systems							FB.4: Molecular Basis of Heredity						FB.5: Biological Evolution					FB.6: Ecological Principals						
	FB.1.1	FB.1.2	FB.1.3	FB.1.4	FB.2.1	FB.2.2	FB.2.3	FB.2.4	FB.2.5	FB.2.6	FB.2.7	FB.3.1	FB.3.2	FB.3.3	FB.3.4	FB.3.5	FB.3.6	FB.3.7	FB.4.1	FB.4.2	FB.4.3	FB.4.4	FB.4.5	FB.4.6	FB.5.1	FB.5.2	FB.5.3	FB.5.4	FB.5.5	FB.6.1	FB.6.2	FB.6.3	FB.6.4	FB.6.5	FB.6.6	FB.6.7
Chapter 1: Science and Biology																																			
1.1 What Is Life?																																			
1.2 The Scientific Method	2.3		3.3																															2.5	
1.3 Science and Technology			2.5	3.0																															
1.4 Facts, Laws, and Theories																																			
1.5 Working with Numbers																																			
1.6 Quantitative and Qualitative Data			2.3																																
Living Earth Essay: Biogeology—An Introducti																													2.3		3.5				
Chapter 2: The Chemistry of Life																																			
2.1 Atoms and Molecules			2.3		4.0	4.0	4.0																												
2.2 Chemical Compounds						2.5	3.3				3.0																									
2.3 Mixtures							2.7		4.0																											
2.4 Chemical Reactions			4.0				2.5																												
2.5 Types of Reactions			3.0		2.3	3.0	3.0	4.0			2.3																									
2.6 Organic Molecules																																			
2.7 Macromolecules Needed for Life										4.0	2.2		2.3						2.5	3.3															
2.8 Physical and Conceptual Models			2.7		2.3																														
2.9 Vitamins and Minerals			3.0				2.5																												
Living Earth Essay: Isotopic Dating			4.0		3.0	3.0																													
Chapter 3: The Cell																																			
3.1 What is a Cell?												4.0																		3.0					
3.2 Cell Theory	3.5	2.5	2.3	3.0																															
3.3 Looking at Cells		2.3	4.0																																
3.4 Eukaryotic Cell												4.0	3.3																						
3.5 The Cell Membrane									4.0	2.3	3.5		4.0	4.0																					
3.6 Cell Organelles												2.5	4.0																						
Living Earth Essay: Geologic Time		3.5	3.7																						2.7										

MCCRS Correlation - Foundations of Biology

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	FB.1: History of Bio & Impacts on Society				FB.2: Chemistry of Life							FB.3: Organization and Energy in Living Systems							FB.4: Molecular Basis of Heredity						FB.5: Biological Evolution					FB.6: Ecological Principals						
	FB.1.1	FB.1.2	FB.1.3	FB.1.4	FB.2.1	FB.2.2	FB.2.3	FB.2.4	FB.2.5	FB.2.6	FB.2.7	FB.3.1	FB.3.2	FB.3.3	FB.3.4	FB.3.5	FB.3.6	FB.3.7	FB.4.1	FB.4.2	FB.4.3	FB.4.4	FB.4.5	FB.4.6	FB.5.1	FB.5.2	FB.5.3	FB.5.4	FB.5.5	FB.6.1	FB.6.2	FB.6.3	FB.6.4	FB.6.5	FB.6.6	FB.6.7
Chapter 4: How Cells Work																																			
4.1 Cellular Transport											2.3		2.8	4.0																					
4.2 Cell Communication												3.0																							
4.3 ATP and Chemical Reactions									2.5		4.0		2.3			4.0																				
4.4 Enzymes			3.0							4.0	4.0																								
4.5 Photosynthesis						3.0				2.3			2.3		4.0					2.5										2.4	2.5			3.0		
4.6 Cellular Respiration										2.3			3.3		4.0															2.3	2.3					
Living Earth Essay: Plate Tectonics	2.5	3.5	3.7	2.7																					3.0									2.5	
Chapter 5: DNA and Genes																																			
5.1 What is a Gene?										2.5									4.0	4.0															
5.2 Chromosomes																			4.0	4.0															
5.3 The Structure of DNA											2.5								4.0	4.0															
5.4 How DNA Is Copied											3.0								2.3	2.5															
5.5 How Proteins Are Built										3.5	2.7								2.5	3.8															
5.6 Genetic Mutations			2.3							3.0	2.5								2.8	3.7		4.0					2.3								
Living Earth Essay: The Great Oxygenation		4.0	4.0	2.5		3.0		2.5							2.5												2.8		2.5	3.7	4.0			3.0	
Chapter 6: Inheritance																																			
6.1 How Cells Reproduce										2.5							3.0			2.5															
6.2 Cell Division and Genetic Diversity													2.3				4.0	3.0	2.3	2.5															
6.3 Traits and Inheritance	3.0		2.5																		4.0									2.5						
6.4 First Law of Inheritance																			2.5	2.3	4.0														
6.5 Second Law of Inheritance			4.0	2.5															2.7	2.3	4.0	3.5					2.3								
6.6 Beyond Mendel			4.0																2.3	2.8	4.0	3.3					2.3								
Living Earth Essay: Life in the Trenches			2.3																								4.0		3.0		3.5			2.3	
Chapter 7: Genetic Technologies																																			
7.1 The Human Genome			2.5																	2.8															
7.2 Genetic Testing			3.7															4.0	2.3		2.3	4.0	2.7												

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7.3 Cancer			3.0	3.0														4.0	2.3			3.5						2.3				2.5				
7.4 DNA Technology			3.5	2.5						2.3										2.8			4.0							3.0						
7.5 Genetically Engineered Mosquitoes			4.0	3.0						2.5										2.3		4.0	4.0	4.0												
7.6 Genome Editing with CRISPR-Cas9		2.5	3.5	4.0						4.0	2.3									3.2		2.3	4.0	4.0												
7.7 Concerns about DNA Technology			3.3	4.0																			4.0	4.0				2.3			2.5				
Living Earth Essay: Supervolcanoes		2.7	3.7	3.7																															
Chapter 8: Natural Selection																																			
8.1 The Origin of Life	3.0	3.0	3.3	2.5						2.5										2.5					4.0											
8.2 Is there life on Mars or Venus?			3.7	2.7																															
8.3 Charles Darwin	4.0	3.5	3.0	3.0																					4.0	2.7	2.5	3.3						2.7	
8.4 Natural Selection			3.0																			2.5					4.0							2.7	
8.5 Examples of Natural Selection		3.0	3.3	4.0																		2.5		2.5			4.0	4.0		3.0		3.5		3.0	2.3
8.6 Adaptation																												3.3		2.4		4.0	2.3	2.3	
Living Earth Essay: Magnetoreception		2.7	4.0	4.0							2.3																	2.8		3.0		3.0	2.5			
Chapter 9: Evidence of Evolution																																			
9.1 Mechanisms of Evolution																				2.3	3.0	2.3					2.5	4.0		2.8						
9.2 How New Species Form																											2.5	3.7								
9.3 Natural Selection in Action			4.0	2.3																					3.0		3.0	3.7		3.0						
9.4 Fossils		3.0																								4.0	4.0	2.8								
9.5 Body Structures and Genetics																									3.0		2.5	2.3	3.0	2.5						
9.6 Biogeography and Punctuated Equilibriun		4.0	4.0																								3.0			2.7				2.5		
9.7 The Evolution of Humans		3.5	3.0	3.0																						4.0	3.5	2.5		2.5				2.5		
Living Earth Essay: Living Under the Ice			2.5	3.0					2.5																			2.5		2.3		4.0			2.5	
Chapter 10: Diversity of Life 1																																			
10.1 Classifying Life																										2.3										
10.2 Evolutionary Trees		2.7	3.5																						2.5	4.0	2.7		4.0						

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	FB.1.1	FB.1.2	FB.1.3	FB.1.4	FB.2.1	FB.2.2	FB.2.3	FB.2.4	FB.2.5	FB.2.6	FB.2.7	FB.3.1	FB.3.2	FB.3.3	FB.3.4	FB.3.5	FB.3.6	FB.3.7	FB.4.1	FB.4.2	FB.4.3	FB.4.4	FB.4.5	FB.4.6	FB.5.1	FB.5.2	FB.5.3	FB.5.4	FB.5.5	FB.6.1	FB.6.2	FB.6.3	FB.6.4	FB.6.5	FB.6.6	FB.6.7
10.3 Three Domains of Life												4.0																							
10.4 Bacteria			2.5									4.0													2.3		2.3		2.4		2.5				
10.5 Archaea			3.0																								3.0								
10.6 Protists			2.3																										3.0		2.5				
10.7 Plants													2.7														3.5		2.5		3.0	2.3		2.3	
Living Earth Essay: The Wonder of Wind			2.5																																
Chapter 11: Diversity of Life 2																																			
11.1 Fungi			3.0																										2.3					2.5	
11.2 Animals Part 1			3.5	2.5				2.5							2.5												2.5		2.8	2.7	4.0			3.0	
11.3 Animals Part 2			2.5																						2.7		2.3		2.8		3.5			2.3	
11.4 Animals Part 3										2.5	2.5																								
11.5 Viruses and Prions			2.3							2.7																									
11.6 Life is Interconnected			2.3																			3.0						4.0						2.7	
Living Earth Essay: Interconnectedness			2.7												2.5														3.7	4.0	3.5	2.3		3.0	2.3
Chapter 12: The Nervous System																																			
12.1 Organization of the Human Body																																			
12.2 Homeostasis																													3.0						
12.3 The Brain																																			
12.4 The Nervous System																																			
12.5 How Neurons Fire											2.3		2.3	2.5																					
12.6 How Neurons Communicate																																			
12.7 The Senses																																			
Living Earth Essay: Plant Nutrients						3.0				2.8	2.8		2.3																2.2	2.8	4.0				
Chapter 13: Control and Development																																			
13.1 Hormones										2.3	2.5																		3.0						
13.2 Reproduction													2.5																						

MCCRS Correlation - Foundations of Biology

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	FB.1.1	FB.1.2	FB.1.3	FB.1.4	FB.2.1	FB.2.2	FB.2.3	FB.2.4	FB.2.5	FB.2.6	FB.2.7	FB.3.1	FB.3.2	FB.3.3	FB.3.4	FB.3.5	FB.3.6	FB.3.7	FB.4.1	FB.4.2	FB.4.3	FB.4.4	FB.4.5	FB.4.6	FB.5.1	FB.5.2	FB.5.3	FB.5.4	FB.5.5	FB.6.1	FB.6.2	FB.6.3	FB.6.4	FB.6.5	FB.6.6	FB.6.7
13.3 Development																																			
13.4 The Skeleton																																			
13.5 Muscles										2.5	2.8		3.7							2.5									3.0						
Living Earth Essay: Soil Fertility								3.5																							3.5				
Chapter 14: Maintaining the Body																																			
14.1 The Circulatory System																													4.0						
14.2 The Path of Blood Flow																																			
14.3 Blood			2.5					2.5		2.7	3.3									2.3							2.3		3.0		2.5				
14.4 Respiration			2.8																																
14.5 Digestion										2.7																			2.5						
14.6 A Healthy Diet			2.3							3.5	2.7																								
14.7 Living Earth Essay: Pesticide Bioaccumula		2.5	3.3	4.0						2.5	2.8												3.0				2.8		3.0	2.5	4.0	2.3		2.7	2.3
Chapter 15: Protecting Health																																			
15.1 Nutrition, Exercise, and Health			3.0	2.3						2.3																									
15.2 The Excretory System																																			
15.3 The Innate Immune System										2.3																									
15.4 The Acquired Immune System			2.5							3.0	2.5																		2.3						
15.5 Living Earth Essay: Topsoil in Trouble			2.7	3.0																										4.0	4.0				2.7
Chapter 16: Populations																																			
16.1 Organisms and Their Environments																													4.0	4.0	3.0				
16.2 Population Growth																													2.7						
16.3 Life History																											2.3		2.5						
16.4 Human Population Growth			2.5	2.5																									2.5		2.5				
16.5 Living Earth Essay: Topsoil Regenerated			4.0	4.0																							2.3		2.2	4.0	4.0			2.7	2.5
Chapter 17: Communities																																			
17.1 Food Webs																													4.0				4.0	2.5	

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	FB.1.1	FB.1.2	FB.1.3	FB.1.4	FB.2.1	FB.2.2	FB.2.3	FB.2.4	FB.2.5	FB.2.6	FB.2.7	FB.3.1	FB.3.2	FB.3.3	FB.3.4	FB.3.5	FB.3.6	FB.3.7	FB.4.1	FB.4.2	FB.4.3	FB.4.4	FB.4.5	FB.4.6	FB.5.1	FB.5.2	FB.5.3	FB.5.4	FB.5.5	FB.6.1	FB.6.2	FB.6.3	FB.6.4	FB.6.5	FB.6.6	FB.6.7
17.2 Competition			2.5																								3.7		2.3					4.0	
17.3 Symbiosis																													2.5					4.0	
17.4 Invasive Species																											2.7		2.8		2.5			4.0	
17.5 Living Earth Essay: Ocean Acidification			3.0	2.5		4.0	2.5	4.0	3.0		2.5												2.5						2.4	3.3	4.0				4.0
Chapter 18: Ecosystems																																			
18.1 Terrestrial Biomes																											2.7		2.8		2.5	4.0			
18.2 Aquatic Biomes																											2.5		3.0		2.5	4.0		2.5	
18.3 Biogeochemical Cycles			3.0				2.5								3.0														2.3	4.0	4.0			3.0	
18.4 Energy Flow in Ecosystems															2.5														2.6		2.5		4.0		
18.5 Ecological Succession																													3.0		3.5				4.0
18.6 Living Earth Essay: Global Climate Change			4.0	3.5																										3.7	3.5			2.5	4.0

MCCRS Correlation - Biology

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	BIO.1: Cells as a System															BIO.2: Energy Transfer						BIO.3: Reproduction and Heredity													BIO.4: Adaptations and Evolution							BIO.5: Organisms and Environments								
	BIO.1A.1	BIO.1A.2	BIO.1A.3	BIO.1A.4	BIO.1B.1	BIO.1B.2	BIO.1C.1	BIO.1C.2	BIO.1C.3	BIO.1D.1	BIO.1D.2	BIO.1E.1	BIO.1E.2	BIO.1E.3	BIO.1E.4	BIO.2.1	BIO.2.2	BIO.2.3	BIO.2.4	BIO.2.5	BIO.2.6	BIO.3A.1	BIO.3A.2	BIO.3A.3	BIO.3B.1	BIO.3B.2	BIO.3B.3	BIO.3B.4	BIO.3C.1	BIO.3C.2	BIO.3C.3	BIO.3C.4	BIO.3C.5	BIO.4.1	BIO.4.2	BIO.4.3	BIO.4.4	BIO.4.5	BIO.4.6	BIO.4.7	BIO.5.1	BIO.5.2	BIO.5.3	BIO.5.4	BIO.5.5	BIO.5.6	BIO.5.7	BIO.5.8	BIO.5.9
Chapter 1: Science and Biology																																																	
1.1 What Is Life?	4.0																																								2.7								
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1.6 Quantitative and Qualitative Data						3.0																																										
Living Earth Essay: Biogeology—An Introduction																																									2.5								
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2.9 Vitamins and Minerals																																																
Living Earth Essay: Isotopic Dating																																																
Chapter 3: The Cell																																																
3.1 What is a Cell?								4.0																																								
3.2 Cell Theory		4.0																																															
3.3 Looking at Cells								3.0																																								
3.4 Eukaryotic Cell								2.7																																								
3.5 The Cell Membrane					2.7			2.5		2.3																																						
3.6 Cell Organelles							4.0	2.5																																								
Living Earth Essay: Geologic Time																																		2.7	2.3															
Chapter 4: How Cells Work																																																
4.1 Cellular Transport					2.7					4.0	4.0																																					
4.2 Cell Communication								2.5																																								
4.3 ATP and Chemical Reactions					3.0					2.5	3.0					4.0		4.0																														
4.4 Enzymes					2.5	4.0																																										
4.5 Photosynthesis																	4.0																											2.3	2.3							
4.6 Cellular Respiration										2.3						4.0		4.0	4.0	4.0	4.0																							2.5							
Living Earth Essay: Plate Tectonics																																		4.0															
Chapter 5: DNA and Genes																																																	
5.1 What is a Gene?					2.5																							4.0																					
5.2 Chromosomes					2.5																							4.0																					
5.3 The Structure of DNA					4.0																							4.0																					

MCCRS Correlation - Biology

Alignment Rating Scale
0 - 2: Minimal (not shown)
2: Partial
3: Moderate
4: Extensive

	BIO.1: Cells as a System																BIO.2: Energy Transfer						BIO.3: Reproduction and Heredity														BIO.4: Adaptations and Evolution							BIO.5: Organisms and Environments									
	BIO.1A.1	BIO.1A.2	BIO.1A.3	BIO.1A.4	BIO.1B.1	BIO.1B.2	BIO.1C.1	BIO.1C.2	BIO.1C.3	BIO.1D.1	BIO.1D.2	BIO.1E.1	BIO.1E.2	BIO.1E.3	BIO.1E.4	BIO.2.1	BIO.2.2	BIO.2.3	BIO.2.4	BIO.2.5	BIO.2.6	BIO.3A.1	BIO.3A.2	BIO.3A.3	BIO.3B.1	BIO.3B.2	BIO.3B.3	BIO.3B.4	BIO.3C.1	BIO.3C.2	BIO.3C.3	BIO.3C.4	BIO.3C.5	BIO.4.1	BIO.4.2	BIO.4.3	BIO.4.4	BIO.4.5	BIO.4.6	BIO.4.7	BIO.5.1	BIO.5.2	BIO.5.3	BIO.5.4	BIO.5.5	BIO.5.6	BIO.5.7	BIO.5.8	BIO.5.9
5.4 How DNA Is Copied					3.0									2.5														4.0																							
5.5 How Proteins Are Built					3.0		2.5																					2.3	4.0																						
5.6 Genetic Mutations					2.7																								2.5	4.0																				
5.7 Living Earth Essay: The Great Oxygenation																																3.0	2.3		2.8			3.0		4.0									
Chapter 6: Inheritance																																																		
6.1 How Cells Reproduce												4.0	4.0	4.0														2.3																						
6.2 Cell Division and Genetic Diversity												3.0		3.0								4.0	4.0					2.7								3.0														
6.3 Traits and Inheritance																								3.0																										
6.4 First Law of Inheritance																								4.0	4.0			3.0																						
6.5 Second Law of Inheritance																										4.0	2.7	2.3								2.5		3.0											
6.6 Beyond Mendel																										4.0	2.7									2.3		3.0											
Living Earth Essay: Life in the Trenches																																								3.2				2.5					
Chapter 7: Genetic Technologies																																																	
7.1 The Human Genome																															2.5																			
7.2 Genetic Testing																							4.0				4.0																						
7.3 Cancer													4.0														2.3												2.5									
7.4 DNA Technology					2.3																							2.3		4.0									2.5									
7.5 Genetically Engineered Mosquitoes																											2.3	2.5		4.0	4.0						4.0				2.3			3.0		
7.6 Genome Editing with CRISPR-Cas9															4.0															4.0	4.0																	
7.7 Concerns about DNA Technology																														4.0																2.7		
Living Earth Essay: Supervolcanoes																																																
Chapter 8: Natural Selection																																																	
8.1 The Origin of Life					2.7																											4.0																	
8.2 Is there life on Mars or Venus?																																																
8.3 Charles Darwin																																				4.0	4.0	2.5		3.0								
8.4 Natural Selection																																				4.0	4.0		4.0	2.5			2.5					
8.5 Examples of Natural Selection																											2.3						2.5		4.0	4.0		4.0	3.0			2.8	2.7		2.5		
8.6 Adaptation																																				3.0	3.0			2.2			2.3					
Living Earth Essay: Magnetoreception			2.3																																					2.7								4.0
Chapter 9: Evidence of Evolution																																																
9.1 Mechanisms of Evolution																												2.3		2.3						4.0	4.0			2.7								
9.2 How New Species Form																																	3.0		3.3	2.3	4.0										2.5	
9.3 Natural Selection in Action																																			3.3	3.0		3.0									
9.4 Fossils																																	4.0		2.5												
9.5 Body Structures and Genetics																																	3.5		2.5												
9.6 Biogeography and Punctuated Equilibrium																																	4.0					4.0		2.5			2.5				
9.7 The Evolution of Humans																																	3.0							2.5							
Living Earth Essay: Living Under the Ice																																								2.3				2.5				

MCCRS Correlation - Biology

Alignment Rating Scale
0 - 2: Minimal (not shown)
2: Partial
3: Moderate
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	BIO.1: Cells as a System															BIO.2: Energy Transfer						BIO.3: Reproduction and Heredity													BIO.4: Adaptations and Evolution							BIO.5: Organisms and Environments								
	BIO.1A.1	BIO.1A.2	BIO.1A.3	BIO.1A.4	BIO.1B.1	BIO.1B.2	BIO.1C.1	BIO.1C.2	BIO.1C.3	BIO.1D.1	BIO.1D.2	BIO.1E.1	BIO.1E.2	BIO.1E.3	BIO.1E.4	BIO.2.1	BIO.2.2	BIO.2.3	BIO.2.4	BIO.2.5	BIO.2.6	BIO.3A.1	BIO.3A.2	BIO.3A.3	BIO.3B.1	BIO.3B.2	BIO.3B.3	BIO.3B.4	BIO.3C.1	BIO.3C.2	BIO.3C.3	BIO.3C.4	BIO.3C.5	BIO.4.1	BIO.4.2	BIO.4.3	BIO.4.4	BIO.4.5	BIO.4.6	BIO.4.7	BIO.5.1	BIO.5.2	BIO.5.3	BIO.5.4	BIO.5.5	BIO.5.6	BIO.5.7	BIO.5.8	BIO.5.9
Chapter 10: Diversity of Life 1																																																
10.1 Classifying Life																																																
10.2 Evolutionary Trees																																		2.3	4.0													
10.3 Three Domains of Life																																																
10.4 Bacteria														3.0																				4.0							2.7								
10.5 Archaea																																		4.0														
10.6 Protists																																									2.8							
10.7 Plants			3.7					2.5																																	2.4				2.5				
Living Earth Essay: The Wonder of Wind																																																
Chapter 11: Diversity of Life 2																																													2.5				
11.1 Fungi																																																
11.2 Animals Part 1			2.7									2.5																								2.3					2.8	3.0	3.3		3.3		2.7		
11.3 Animals Part 2																																									2.8								
11.4 Animals Part 3	3.0			3.0	2.7				4.0																														2.5								
11.5 Viruses and Prions	2.5			4.0	2.7				4.0																																							
11.6 Life is Interconnected																																		4.0	2.5													
Living Earth Essay: Interconnectedness	2.5											2.5																													3.2	3.7			3.7		2.3		
Chapter 12: The Nervous System																																																
12.1 Organization of the Human Body			4.0																																													
12.2 Homeostasis																																									3.0								
12.3 The Brain																																																
12.4 The Nervous System			4.0																																													
12.5 How Neurons Fire										3.8	3.3																														3.0								
12.6 How Neurons Communicate																																																
12.7 The Senses			2.3																																													
12.8 Living Earth Essay: Plant Nutrients												2.5								3.0																					2.3	2.6			2.3	2.5		2.5		
Chapter 13: Control and Development																																																
13.1 Hormones			2.5																																													
13.2 Reproduction																						2.3																												
13.3 Development																																																
13.4 The Skeleton			2.7																																													
13.5 Muscles			3.0		3.0		3.7																																									
Living Earth Essay: Soil Fertility																																										2.3								
Chapter 14: Maintaining the Body																																																
14.1 The Circulatory System			2.7																																													
14.2 The Path of Blood Flow																																																
14.3 Blood					3.0																																											
14.4 Respiration			3.7																																													
14.5 Digestion			3.3									2.5																																					

MCCRS Correlation - Biology

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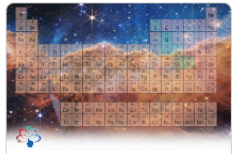
	BIO.1: Cells as a System															BIO.2: Energy Transfer						BIO.3: Reproduction and Heredity													BIO.4: Adaptations and Evolution							BIO.5: Organisms and Environments								
	BIO.1A.1	BIO.1A.2	BIO.1A.3	BIO.1A.4	BIO.1B.1	BIO.1B.2	BIO.1C.1	BIO.1C.2	BIO.1C.3	BIO.1D.1	BIO.1D.2	BIO.1E.1	BIO.1E.2	BIO.1E.3	BIO.1E.4	BIO.2.1	BIO.2.2	BIO.2.3	BIO.2.4	BIO.2.5	BIO.2.6	BIO.3A.1	BIO.3A.2	BIO.3A.3	BIO.3B.1	BIO.3B.2	BIO.3B.3	BIO.3B.4	BIO.3C.1	BIO.3C.2	BIO.3C.3	BIO.3C.4	BIO.3C.5	BIO.4.1	BIO.4.2	BIO.4.3	BIO.4.4	BIO.4.5	BIO.4.6	BIO.4.7	BIO.5.1	BIO.5.2	BIO.5.3	BIO.5.4	BIO.5.5	BIO.5.6	BIO.5.7	BIO.5.8	BIO.5.9
14.6 A Healthy Diet					2.7																																											
Living Earth Essay: Pesticide Bioaccumulation																																			3.3			2.5	2.3				2.3				
Chapter 15: Protecting Health																																																
15.1 Nutrition, Exercise, and Health					2.5																																			2.5								
15.2 The Excretory System																																															
15.3 The Innate Immune System			2.5																																												
15.4 The Acquired Immune System					2.5				2.5																																							
Living Earth Essay: Topsoil in Trouble																																								2.3	2.5			2.5	2.3	2.5		
Chapter 16: Populations																																																
16.1 Organisms and Their Environments																																								4.0								
16.2 Population Growth																																								2.7					4.0			
16.3 Life History																																					2.3			3.0								
16.4 Human Population Growth																																								2.5					2.3		2.5	
Living Earth Essay: Topsoil Regenerated																																									2.8	2.3		2.7		2.3	3.5	
Chapter 17: Communities																																																
17.1 Food Webs																																								4.0			4.0	2.5				
17.2 Competition																																					2.3	3.7			2.8				2.5				
17.3 Symbiosis																																									3.0				4.0				
17.4 Invasive Species																																					2.5	2.3			2.5				4.0		2.5	2.5	
17.5 Living Earth Essay: Ocean Acidification																																					2.3				2.2	3.3	4.0		2.5		2.3	2.7	
Chapter 18: Ecosystems																																																
18.1 Terrestrial Biomes																																								3.0								2.5
18.2 Aquatic Biomes																																								3.0								
18.3 Biogeochemical Cycles																																								2.3	4.0	2.3			4.0			
18.4 Energy Flow in Ecosystems																																								2.3			4.0					
18.5 Ecological Succession																																			2.3					3.3			2.3		2.8	2.5	
18.6 Living Earth Essay: Global Climate Change																																								2.3	3.0	4.0					3.7	

Scope and Sequence: Chemistry

Conceptual Academy Chemistry emphasizes the interconnected ideas that make the molecular world understandable. Beginning with the submicroscopic world of atoms, we explore atomic structure and the periodic table and lay the groundwork for understanding how atoms bond to form molecules. From there, the journey moves into solutions, chemical reactions, and the behavior of acids, bases, and electrons, culminating in the diverse world of organic compounds and polymers. Throughout, chemical concepts connect to real-world examples from materials science, medicine, environmental protection, and energy.

About this Program

Chapter 01: About Science

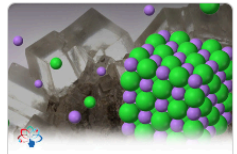


Chapter 02: Particles of Matter

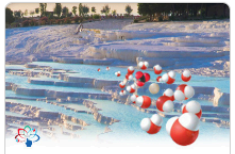
Chapter 03: Elements of Chemistry

Chapter 04: Subatomic Particles

Chapter 05: The Atomic Nucleus

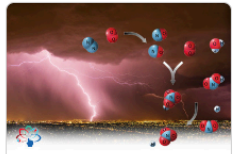


Chapter 06: How Atoms Bond



Chapter 07: How Molecules Mix

Chapter 08: How Water Behaves



Chapter 09: Chemical Reactions

Chapter 10: Acids and Bases

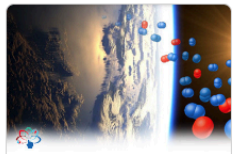
Chapter 11: Oxidations and Reductions

Chapter 12: Organic Compounds

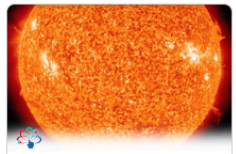
Chapter 13: Nutrients of Life

Chapter 14: Medicinal Chemistry

Chapter 15: Optimizing Food Production



Chapter 16: Water and Air Resources



Chapter 17: Capturing Energy

MCCRS Correlation - Chemistry

Alignment Rating Scale
0 - 2: Minimal (not shown)
2: Partial
3: Moderate
4: Extensive

	CHE.1: Math & Comp Analysis			CHE.2: Atomic Theory				CHE.3: Periodic Table			CHE.4: Bonding							
	CHE.1.1	CHE.1.2	CHE.1.3	CHE.2.1	CHE.2.2	CHE.2.3	CHE.2.4	CHE.3.1	CHE.3.2	CHE.3.3	CHE.4.1	CHE.4.2	CHE.4.3	CHE.4.4	CHE.4.5	CHE.4.6	CHE.4.7	CHE.4.8
Chapter 1: About Science																		
1.1 Understanding the Natural World																		
1.2 Investigating the Sea Butterfly		3.0																
1.3 Technology Is Applied Science																		
1.4 The Natural World																		
1.5 Chemistry Is Integral to Our Lives																		
1.6 Measuring with Units	3.0	2.3															4.0	
1.7 Scientific Notation																		
1.8 Significant Figures	4.0	4.0																
1.9 Chemistry Essay: Did We Land on the Moo			3.8															
Chapter 2: Particles of Matter																		
2.1 The Submicroscopic World																		
2.2 Discovering the Atom			3.0	3.0				2.3										
2.3 Mass and Volume																		
2.4 Density Is a Ratio	3.0																	
2.5 Energy Moves Matter																		
2.6 Temperature and Heat		4.0																
2.7 Phases of Matter																		
2.8 Gas Laws	3.3	4.0																
Chemistry Essay: Green Chemistry			2.3															
Chapter 3: Elements of Chemistry																		
3.1 Physical and Chemical Properties																		
3.2 Elements Are Made of Atoms																		
3.3 The Periodic Table								4.0	4.0									
3.4 Elements to Compounds								2.7										
3.5 Naming Compounds								3.7	2.5	2.5			3.0	2.5				
3.6 Most Materials Are Mixtures																		
3.7 Classifying Matter	2.7	2.3														2.5	2.3	2.5
3.8 Nanotechnology																		
Chemistry Essay: Extending the Human Life S																		
Chapter 4: Subatomic Particles																		
4.1 Physical and Conceptual Models				2.3														
4.2 Discovering the Electron		3.3		4.0		2.3												2.5
4.3 Discovering the Atomic Nucleus		2.5		3.5														
4.4 Protons and Neutrons	2.3				4.0													
4.5 Light Is a Form of Energy						4.0												
4.6 Atomic Spectra and the Quantum Hypoth				2.7		3.8	4.0			3.0								
4.7 Electrons Exhibit Wave Properties				2.3		2.5				3.0								
4.8 Orbitals and Energy-Level Diagrams						4.0		2.3		4.0								
4.9 The Shell Model and the Periodic Table								2.7	4.0	4.0			2.5					
4.10 Quantum Phenomena		2.5																
Chemistry Essay: Forensic Chemistry																		
Chapter 5: The Atomic Nucleus																		
5.1 Unstable Nuclei																		
5.2 Radioactivity Is Natural																		
5.3 An Imbalance of Forces																		

	CHE.5: Naming Comp.			CHE.6: Chemical Reactions							CHE.7: Gas Laws							
	CHE.5.1	CHE.5.2	CHE.5.3	CHE.6.1	CHE.6.2	CHE.6.3	CHE.6.4	CHE.6.5	CHE.6.6	CHE.6.7	CHE.7.1	CHE.7.2	CHE.7.3	CHE.7.4	CHE.7.5	CHE.7.6	CHE.7.7	CHE.7.8
Chapter 1: About Science																		
1.1 Understanding the Natural World																		
1.2 Investigating the Sea Butterfly																		
1.3 Technology Is Applied Science																		
1.4 The Natural World																		
1.5 Chemistry Is Integral to Our Lives		2.5																
1.6 Measuring with Units																		
1.7 Scientific Notation																		
1.8 Significant Figures																		
1.9 Chemistry Essay: Did We Land on the Moo																		
Chapter 2: Particles of Matter																		
2.1 The Submicroscopic World											2.3							
2.2 Discovering the Atom								4.0										
2.3 Mass and Volume																		
2.4 Density Is a Ratio							2.5				2.8							
2.5 Energy Moves Matter																		
2.6 Temperature and Heat											2.7						3.0	
2.7 Phases of Matter											3.0	3.7						
2.8 Gas Laws								2.5	3.0		4.0	3.3		4.0	4.0		2.3	3.0
Chemistry Essay: Green Chemistry		3.5		2.3			2.5											
Chapter 3: Elements of Chemistry																		
3.1 Physical and Chemical Properties		3.0		2.3	2.3		2.5					2.5						
3.2 Elements Are Made of Atoms																		
3.3 The Periodic Table																		
3.4 Elements to Compounds		2.3					2.5											
3.5 Naming Compounds	4.0	4.0	3.5				2.3											
3.6 Most Materials Are Mixtures		3.5																
3.7 Classifying Matter		3.0																
3.8 Nanotechnology																		
Chemistry Essay: Extending the Human Life S																		
Chapter 4: Subatomic Particles																		
4.1 Physical and Conceptual Models																		
4.2 Discovering the Electron								3.0										
4.3 Discovering the Atomic Nucleus								3.0										
4.4 Protons and Neutrons							2.5											
4.5 Light Is a Form of Energy																		
4.6 Atomic Spectra and the Quantum Hypoth																		
4.7 Electrons Exhibit Wave Properties																		
4.8 Orbitals and Energy-Level Diagrams																		
4.9 The Shell Model and the Periodic Table																		
4.10 Quantum Phenomena																		
Chemistry Essay: Forensic Chemistry																		
Chapter 5: The Atomic Nucleus																		
5.1 Unstable Nuclei																		
5.2 Radioactivity Is Natural																		
5.3 An Imbalance of Forces																		

	CHE.8: Solutions								CHE.9 Acids & Bases (Enrichment)						CHE.10 Thermo-chemistry (Enrich.)				CHE.11 Equil. (Enrich.)			CHE.12: Org. Nomencl. (Enrich.)		
	CHE.8.1	CHE.8.2	CHE.8.3	CHE.8.4	CHE.8.5	CHE.8.6	CHE.8.7	CHE.8.8	CHE.9.1	CHE.9.2	CHE.9.3	CHE.9.4	CHE.9.5	CHE.9.6	CHE.10.1	CHE.10.2	CHE.10.3	CHE.10.4	CHE.11.1	CHE.11.2	CHE.11.3	CHE.12.1	CHE.12.2	CHE.12.3
Chapter 1: About Science																								
1.1 Understanding the Natural World																								
1.2 Investigating the Sea Butterfly																								
1.3 Technology Is Applied Science																								
1.4 The Natural World																								
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2.4 Density Is a Ratio															3.0									
2.5 Energy Moves Matter																								
2.6 Temperature and Heat															4.0									
2.7 Phases of Matter															4.0									
2.8 Gas Laws			2.5												3.7									
Chemistry Essay: Green Chemistry																								
Chapter 3: Elements of Chemistry																								
3.1 Physical and Chemical Properties															2.7									
3.2 Elements Are Made of Atoms																								
3.3 The Periodic Table																								
3.4 Elements to Compounds																								
3.5 Naming Compounds																							2.5	
3.6 Most Materials Are Mixtures																								
3.7 Classifying Matter	3.0				2.7	2.5		3.0																
3.8 Nanotechnology																								
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Chapter 4: Subatomic Particles																								
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4.3 Discovering the Atomic Nucleus																								
4.4 Protons and Neutrons																								
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4.6 Atomic Spectra and the Quantum Hypoth															2.3									
4.7 Electrons Exhibit Wave Properties																								
4.8 Orbitals and Energy-Level Diagrams																								
4.9 The Shell Model and the Periodic Table																								
4.10 Quantum Phenomena																								
Chemistry Essay: Forensic Chemistry																								
Chapter 5: The Atomic Nucleus																								
5.1 Unstable Nuclei																								
5.2 Radioactivity Is Natural																								
5.3 An Imbalance of Forces																								

MCCRS Correlation - Chemistry

Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	CHE.1: Math & Comp Analysis			CHE.2: Atomic Theory				CHE.3: Periodic Table			CHE.4: Bonding							
	CHE.1.1	CHE.1.2	CHE.1.3	CHE.2.1	CHE.2.2	CHE.2.3	CHE.2.4	CHE.3.1	CHE.3.2	CHE.3.3	CHE.4.1	CHE.4.2	CHE.4.3	CHE.4.4	CHE.4.5	CHE.4.6	CHE.4.7	CHE.4.8
5.4 Transmutation																		
5.5 Radioactive Half-Life																		
5.6 Isotopic Dating		2.3																
5.7 Nuclear Fission																		
5.8 Mass and Energy		2.3			3.0													
5.9 Nuclear Fusion																		
Chemistry Essay: Safer Fission Reactors																		
Chapter 6: How Atoms Bond																		
6.1 Electron-Dot Structures										3.3	3.3	4.0		3.0				
6.2 Ion Formation								2.7	2.7	3.3								
6.3 Ionic Bonds										3.0	2.3	4.0	3.0	2.3		3.0		4.0
6.4 Metallic Bonds									2.8									
6.5 Covalent Bonds									2.5	2.7	4.0	4.0	3.0	3.0				
6.6 Molecular Shape											4.0	3.7		4.0				
6.7 Polar Covalent Bonds								2.3	3.0		4.0	3.7	4.0	4.0				
6.8 Molecular Polarity									3.0		4.0	2.3	4.0	4.0				
6.9 Chemistry Essay: Water Fluoridation		2.5	4.0														2.5	
Chapter 7: How Molecules Mix																		
7.1 Dipole Attractions													4.0	3.3				
7.2 Solutions																		2.3
7.3 Concentration and the Mole	3.3	2.3																2.3
7.4 Solubility		2.3																
7.5 How Soap Works														2.5				
7.6 Softening Hard Water																		
7.7 Purifying Drinking Water																		
Chemistry Essay: The Story of the Superfund A																		
Chapter 8: How Water Behaves																		
8.1 Open Structured Crystals																		
8.2 Melting and Freezing		2.3																
8.3 The Stickiness of Water																		
8.4 Liquid and Gaseous Phases																		
8.5 Water's Specific Heat	3.0	2.5	2.3															
8.6 Phase Changes and Energy		2.3																
Chemistry Essay: Winds from Water																		
Chapter 9: How Chemicals React																		
9.1 Chemical Equations																		
9.2 Measuring Molecules		2.8			4.0													2.5
9.3 Grams to Moles	3.3	3.0														4.0		2.3
9.4 Exothermic or Endothermic		4.0																
9.5 Entropy and Chemical Reactions																		
9.6 Chemical Kinetics																		
9.7 Chemical Catalysts		2.3																
9.8 Chemical Equilibrium																		
9.9 Chemistry Essay: Mercury Emissions			4.0															
Chapter 10: Acids and Bases																		

	CHE.5: Naming Comp.			CHE.6: Chemical Reactions							CHE.7: Gas Laws								CHE.8: Solutions							
	CHE.5.1	CHE.5.2	CHE.5.3	CHE.6.1	CHE.6.2	CHE.6.3	CHE.6.4	CHE.6.5	CHE.6.6	CHE.6.7	CHE.7.1	CHE.7.2	CHE.7.3	CHE.7.4	CHE.7.5	CHE.7.6	CHE.7.7	CHE.7.8	CHE.8.1	CHE.8.2	CHE.8.3	CHE.8.4	CHE.8.5	CHE.8.6	CHE.8.7	CHE.8.8
5.4 Transmutation							3.0																			
5.5 Radioactive Half-Life																										
5.6 Isotopic Dating																										
5.7 Nuclear Fission																										
5.8 Mass and Energy							2.3																			
5.9 Nuclear Fusion							2.3										2.3									
Chemistry Essay: Safer Fission Reactors																										
Chapter 6: How Atoms Bond																										
6.1 Electron-Dot Structures																										
6.2 Ion Formation																						3.0				
6.3 Ionic Bonds	2.5	3.3																								
6.4 Metallic Bonds		3.3																								2.5
6.5 Covalent Bonds		2.3																				3.0				
6.6 Molecular Shape		2.3																								
6.7 Polar Covalent Bonds												2.5								2.5		3.0				
6.8 Molecular Polarity		3.0										3.3										4.0				
6.9 Chemistry Essay: Water Fluoridation		2.8						2.5									2.5									3.7
Chapter 7: How Molecules Mix																										
7.1 Dipole Attractions		3.0										3.5								3.5						
7.2 Solutions		3.5										2.3							4.0	3.5	2.5	2.8	4.0	4.0		
7.3 Concentration and the Mole						2.5	3.5	2.5											4.0				4.0	3.0	4.0	
7.4 Solubility		2.8									2.3	2.5								3.5	4.0					
7.5 How Soap Works		3.3		2.5			2.5					2.3								3.5						
7.6 Softening Hard Water		3.0		2.5	2.5		2.5													2.5	3.0					
7.7 Purifying Drinking Water		3.3				4.0																				3.0
Chemistry Essay: The Story of the Superfund A																										
Chapter 8: How Water Behaves																										
8.1 Open Structured Crystals												3.0														
8.2 Melting and Freezing		2.5										4.0	2.5													
8.3 The Stickiness of Water												4.0														
8.4 Liquid and Gaseous Phases											3.3	4.0	3.5													
8.5 Water's Specific Heat							3.0					2.5	3.0													
8.6 Phase Changes and Energy												3.0	4.0													
Chemistry Essay: Winds from Water											3.3															
Chapter 9: How Chemicals React																										
9.1 Chemical Equations		2.3		4.0			3.3										2.5									
9.2 Measuring Molecules						4.0	3.7				2.5						2.5									
9.3 Grams to Moles		2.7			2.3	4.0	3.7	2.5	4.0	4.0						4.0	4.0	4.0								
9.4 Exothermic or Endothermic		2.3		2.3	4.0		4.0	2.1																		
9.5 Entropy and Chemical Reactions																										
9.6 Chemical Kinetics											2.5	2.3														
9.7 Chemical Catalysts		2.5		2.5			2.5																			
9.8 Chemical Equilibrium		2.5		2.3	2.3		2.3				3.8						2.3									
9.9 Chemistry Essay: Mercury Emissions		3.0		2.5			2.5																			4.0
Chapter 10: Acids and Bases																										

	CHE.9 Acids & Bases (Enrichment)						CHE.10 Thermo-chemistry (Enrich.)				CHE.11 Equil. (Enrich.)			CHE.12: Org. Nomencl. (Enrich.)		
	CHE.9.1	CHE.9.2	CHE.9.3	CHE.9.4	CHE.9.5	CHE.9.6	CHE.10.1	CHE.10.2	CHE.10.3	CHE.10.4	CHE.11.1	CHE.11.2	CHE.11.3	CHE.12.1	CHE.12.2	CHE.12.3
5.4 Transmutation																
5.5 Radioactive Half-Life																
5.6 Isotopic Dating												3.0				
5.7 Nuclear Fission																
5.8 Mass and Energy																
5.9 Nuclear Fusion								2.5	2.5							
Chemistry Essay: Safer Fission Reactors																
Chapter 6: How Atoms Bond																
6.1 Electron-Dot Structures																
6.2 Ion Formation																
6.3 Ionic Bonds	3.0															
6.4 Metallic Bonds																
6.5 Covalent Bonds														3.5		
6.6 Molecular Shape																
6.7 Polar Covalent Bonds	2.5															
6.8 Molecular Polarity																
6.9 Chemistry Essay: Water Fluoridation	3.0															
Chapter 7: How Molecules Mix																
7.1 Dipole Attractions							3.0									
7.2 Solutions																
7.3 Concentration and the Mole																
7.4 Solubility	3.5						3.5									
7.5 How Soap Works																2.3
7.6 Softening Hard Water	3.0															
7.7 Purifying Drinking Water																
Chemistry Essay: The Story of the Superfund A																
Chapter 8: How Water Behaves																
8.1 Open Structured Crystals							2.3									
8.2 Melting and Freezing							4.0			2.5	3.0	3.0				
8.3 The Stickiness of Water							2.5									
8.4 Liquid and Gaseous Phases							4.0	3.0		3.5	2.5					
8.5 Water's Specific Heat							4.0	2.5		3.7						
8.6 Phase Changes and Energy	2.5						3.5	4.0		4.0						
Chemistry Essay: Winds from Water							4.0									
Chapter 9: How Chemicals React																
9.1 Chemical Equations																
9.2 Measuring Molecules																
9.3 Grams to Moles																
9.4 Exothermic or Endothermic							4.0	4.0	4.0							
9.5 Entropy and Chemical Reactions							3.0	4.0								
9.6 Chemical Kinetics							3.3									
9.7 Chemical Catalysts																
9.8 Chemical Equilibrium	3.0						3.7				4.0	4.0	4.0			
9.9 Chemistry Essay: Mercury Emissions	2.5															
Chapter 10: Acids and Bases																

MCCRS Correlation - Chemistry

Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	CHE.1: Math & Comp Analysis			CHE.2: Atomic Theory				CHE.3: Periodic Table			CHE.4: Bonding								CHE.5: Naming Comp.			CHE.6: Chemical Reactions							CHE.7: Gas Laws								CHE.8: Solutions								CHE.9 Acids & Bases (Enrichment)						CHE.10 Thermo-chemistry (Enrich.)				CHE.11 Equil. (Enrich.)			CHE.12: Org. Nomencl. (Enrich.)		
	CHE.1.1	CHE.1.2	CHE.1.3	CHE.2.1	CHE.2.2	CHE.2.3	CHE.2.4	CHE.3.1	CHE.3.2	CHE.3.3	CHE.4.1	CHE.4.2	CHE.4.3	CHE.4.4	CHE.4.5	CHE.4.6	CHE.4.7	CHE.4.8	CHE.5.1	CHE.5.2	CHE.5.3	CHE.6.1	CHE.6.2	CHE.6.3	CHE.6.4	CHE.6.5	CHE.6.6	CHE.6.7	CHE.7.1	CHE.7.2	CHE.7.3	CHE.7.4	CHE.7.5	CHE.7.6	CHE.7.7	CHE.7.8	CHE.8.1	CHE.8.2	CHE.8.3	CHE.8.4	CHE.8.5	CHE.8.6	CHE.8.7	CHE.8.8	CHE.9.1	CHE.9.2	CHE.9.3	CHE.9.4	CHE.9.5	CHE.9.6	CHE.10.1	CHE.10.2	CHE.10.3	CHE.10.4	CHE.11.1	CHE.11.2	CHE.11.3	CHE.12.1	CHE.12.2	CHE.12.3
10.1 Exchanging Protons																				3.0		2.5	2.3		2.5																				4.0			4.0												
10.2 Acid and Base Strength																				2.8			2.3															4.0		2.5					3.7	3.7										2.5				
10.3 Acidic, Basic, or Neutral		2.3																		2.5			4.0		2.5																				3.3	2.3	3.0		4.0						2.5		4.0			
10.4 Buffers Resist pH Changes																				2.8		2.3																							2.8	4.0				4.0						3.0				
10.5 Rainwater Is Acidic																				3.0		2.3	4.0		2.5																			2.5	3.3	4.0	2.5													
10.7 Chemistry Essay: Ocean Acidification		2.3																		2.8		3.0	2.7		3.0				2.3						2.5			3.0						4.0	3.7					4.0					2.3	3.5				
Chapter 11: Oxidations and Reductions																																																												
11.1 Losing and Gaining Electrons										2.5		2.3		2.3						2.3			2.3																																					
11.2 Harnessing the Energy																						2.5																																						
11.3 Electricity from Batteries																				3.3		3.5	2.3		2.5																																			
11.4 Electricity from Fuel Cells																				3.0		2.3	2.3		3.5											2.5																								
11.5 Energy from Photovoltaics									3.0	3.0	2.5	2.7		2.3																																														
11.6 Electrolysis Produces Change																				2.3		2.3			2.3																																			
11.7 Producing Metals								2.3	2.5					2.3						2.3		2.7			2.5																				2.7															
11.8 Corrosion and Combustion												2.5	3.0	2.5						2.8		2.5	4.0		2.5					2.5																														
Chemistry Essay: The Wonder Chemical, but.			2.5																	3.3		2.8	2.3		2.5																			2.3	2.3															
Chapter 12: Organic Compounds																																																												
12.1 Hydrocarbons											2.3	2.5		2.3	4.0					3.7																																						4.0	4.0	
12.2 Unsaturated Hydrocarbons											2.3	3.0		2.5	4.0					3.3																																						4.0	3.0	
12.3 Functional Groups																				2.3																																						2.7		2.5
12.4 Alcohols, Phenols, and Ethers														2.3						3.3		2.3																							2.5	2.5												3.0		3.0
12.5 Amines and Alkaloids																				3.0		2.3																3.0	2.5						2.7															4.0
12.6 Carbonyl Compounds																				3.3		2.5	2.0																						2.3													4.0		3.2
12.7 Organic Synthesis																				3.0			2.3		2.5																																			
12.8 Polymer Chemistry												2.3		3.3						3.3		3.0	2.5		2.5																																	4.0		2.3
12.9 A Brief History of Plastics																				4.0		2.3	2.3																																					
Chemistry Essay: Hair and Skin Care														2.7						4.0																		2.5																						
Chapter 13: Nutrients of Life																																																												
13.1 Biomolecules																																																												
13.2 Carbohydrates																				4.0		2.5			2.5																																	4.0		
13.3 Lipids																				3.3										2.7																					2.5							4.0		2.3
13.4 Proteins											2.3			2.3						3.0			2.3																						2.8															3.0
13.5 Nucleic Acids																																																												
13.6 Vitamins and Minerals																				3.3																																								
13.7 Metabolism																						2.5																																						
13.8 A Healthy Diet			2.3																	2.5																																								
Chemistry Essay: The Genetics of Muscle Fitne																																																												
Chapter 14: Medicinal Chemistry																																																												
14.1 Medicines Improve Health																				2.5																																								
14.2 The Lock-and-Key Model											2.5									3.5																																								
14.3 Chemotherapy																				4.0																																								
14.4 The Nervous System																				3.0																																								2.3
14.5 Psychoactive Drugs														2.3						3.3			2.5																												2.5									
14.6 Pain Relievers																				4.0		2.5																																				4.0		
14.7 Medicines for the Heart																				3.3																																								
Chemistry Essay: Mind-Enhancing Drugs																				3.5																																						3.5		

MCCRS Correlation - Chemistry

Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	CHE.1: Math & Comp Analysis			CHE.2: Atomic Theory				CHE.3: Periodic Table			CHE.4: Bonding								CHE.5: Naming Comp.			CHE.6: Chemical Reactions							CHE.7: Gas Laws								CHE.8: Solutions								CHE.9 Acids & Bases (Enrichment)						CHE.10 Thermo-chemistry (Enrich.)				CHE.11 Equil. (Enrich.)			CHE.12: Org. Nomencl. (Enrich.)		
	CHE.1.1	CHE.1.2	CHE.1.3	CHE.2.1	CHE.2.2	CHE.2.3	CHE.2.4	CHE.3.1	CHE.3.2	CHE.3.3	CHE.4.1	CHE.4.2	CHE.4.3	CHE.4.4	CHE.4.5	CHE.4.6	CHE.4.7	CHE.4.8	CHE.5.1	CHE.5.2	CHE.5.3	CHE.6.1	CHE.6.2	CHE.6.3	CHE.6.4	CHE.6.5	CHE.6.6	CHE.6.7	CHE.7.1	CHE.7.2	CHE.7.3	CHE.7.4	CHE.7.5	CHE.7.6	CHE.7.7	CHE.7.8	CHE.8.1	CHE.8.2	CHE.8.3	CHE.8.4	CHE.8.5	CHE.8.6	CHE.8.7	CHE.8.8	CHE.9.1	CHE.9.2	CHE.9.3	CHE.9.4	CHE.9.5	CHE.9.6	CHE.10.1	CHE.10.2	CHE.10.3	CHE.10.4	CHE.11.1	CHE.11.2	CHE.11.3	CHE.12.1	CHE.12.2	CHE.12.3
Chapter 15: Optimizing Food Production																																																													
15.1 Humans Eat at All Trophic Levels																																																												
15.2 Plants Require Nutrients																			3.0	2.5		2.3																							2.3																			
15.3 Soil Fertility																			2.5																										2.5													3.0						
15.4 Natural and Synthetic Fertilizers																2.5	3.0		3.0			2.3																				2.5																							
15.5 Pesticides Kill Pests			2.2																3.3																										2.3																			3.0		
15.6 Past Agricultural Practices																																				2.3							2.3																					
15.7 Quality Agricultural Practices																			2.5																																													
Chemistry Essay: Genetically Modified Foods																																																													
Chapter 16: Water and Air Resources																																																													
16.1 Water on the Move																																																													
16.2 The Water We Consume																																																													
16.3 How We Pollute Water																			2.5			2.5																							2.3																					
16.4 WastewaterTreatment																						2.5			2.5																																								
16.5 The Earth's Atmosphere																													3.8							2.5																												
16.6 How We Pollute Air																			3.0			2.3			2.5				2.3																																			
16.7 Global Warming		2.5	3.8																3.5			2.5			2.7																				3.0																				
Chemistry Essay: Debating Climate Change		2.7	3.0																2.5							2.5												2.5								2.3													2.3					
Chapter 17: Capturing Energy																																																												
17.1 Energy through Electricity																																																												
17.2 Fossil Fuels																			3.3				2.3		2.5					2.5																																		
17.3 The Nuclear Industry			2.3																																																										
17.4 Sustainable Energy Sources																																																												
17.5 Hydroelectricity																																																												
17.6 Biomass Is Chemical Energy																			2.5			2.5			2.5																																						
17.7 Direct Solar Energy		2.5																																																										
17.8 Hydrogen Fuel																			2.5						2.5																																						
Chemistry Essay: Fracking			2.6																3.0										2.3																3.3																				

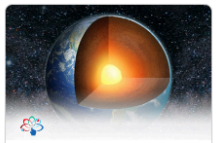
Scope and Sequence: Earth and Space Science

Conceptual Academy Earth and Space Science begins with Earth's deep history and interior structure, we explore plate tectonics, minerals, rocks, and the surface processes that shape our world. From there, the journey moves through oceans, atmosphere, weather, and climate before venturing outward to the solar system, stellar life cycles, galaxies, and cosmology. Foundational physics—from Newton's laws to relativity—is woven throughout.

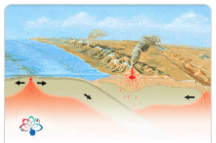
About this Program

ESS 1: The Scientific Perspective

ESS 2: Earth's History



ESS 3: Earth's Structure



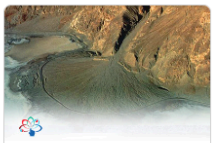
ESS 4: Plate Tectonics

ESS 5: Minerals

ESS 6: Rocks

ESS 7: Landforms

ESS 8: Earth's Waters



ESS 9: Surface Processes (Part 1)

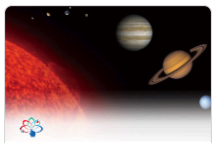
ESS 10: Surface Processes (Part 2)

ESS 11: The Atmosphere

ESS 12: Understanding Weather and Climate: Moving Air and Water

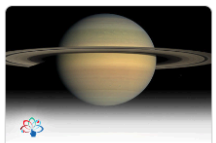
ESS 13: Environmental Geology

ESS 14: Climate Dynamics



ESS 15: The Solar System

ESS 16: The Inner Solar System



ESS 17: The Outer Solar System

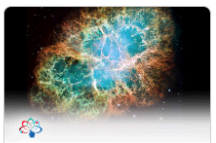
ESS 18: Newton's Laws of Motion

ESS 19: Gravity

ESS 20: Atoms, Heat, and Light

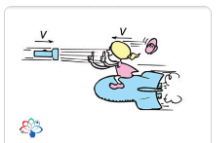
ESS 21: Nuclear Energy

ESS 22: Stars

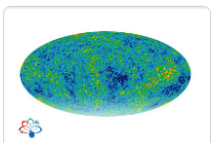


ESS 23: Superstars

ESS 24: Galaxies



ESS 25: Relativity



ESS 26: Cosmology

MCCRS Correlation - Earth and Space Science

Alignment Rating Scale
0 - 2: Minimal (not shown)
2: Partial
3: Moderate
4: Extensive

	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History											ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7	ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
Chapter 1: The Scientific Perspective																														
1.1 Copernicus and Galileo																														
1.2 Scientific Methods																														
1.3 Scientific Hypotheses																														
1.4 Scientific Attitude																														
1.5 Science and Technology																														
1.6 Skepticism and Denialism					3.0																									
1.7 Scientific Notation																														
Chapter 2: Earth's Place in Spacetime																														
2.1 The Age of Earth																														
2.2 Relative Dating													4.0													4.0					
2.3 Isotopic Dating					2.5			2.5						4.0											2.5		2.7	2.5			
2.5 The Geologic Time Scale																														
2.6 The Eras																														
Chapter 3: Earth's Structure																														
3.1 Earth Science Is an Integrated Science																											2.3				4.0
3.2 Earth's Compositional Layers								4.0	3.0						2.3																
3.3 Earth's Structural Layers									3.5																						
3.4 Seismology and Earth's Interior								4.0	4.0			4.0				4.0													2.5		
Chapter 4: Plate Tectonics																														
4.1 Continental Drift												4.0														4.0					
4.2 Seafloor Spreading								2.3	3.5		2.3				3.3							3.0									
4.3 Plate Tectonics									2.5						2.3																
4.4 What Forces Drive the Plates?								2.7							2.5							3.0									
4.5 Plate Boundaries															4.0													3.0	3.0		

MCCRS Correlation - Earth and Space Science

Alignment Rating Scale
0 - 2: Minimal (not shown)
2: Partial
3: Moderate
4: Extensive

	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History											ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7	ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
Chapter 5: Minerals																														
5.1 What Is a Mineral?										3.0																				
5.2 Mineral Properties										4.0																				
5.3 Types of Minerals										3.0																				
5.4 How Do Minerals Form?																														
Chapter 6: Rocks																														
6.1 What Is Rock?											2.5																			
6.2 Igneous Rock											3.5				2.3												2.5				
6.3 Sedimentary Rock											4.0																			
6.4 Metamorphic Rock											4.0											3.5									
6.5 The Rock Cycle											2.5																			
Chapter 7: Landforms																														
7.1 A Survey of Earth's Surface																														
7.2 Folds															2.5															
7.3 Faults															2.7															
7.4 Mountains											2.5				4.0													2.5			
7.5 Plains and Plateaus																														
Chapter 8: Earth's Waters																														
8.1 The Hydrosphere																					2.3	2.5								
8.2 The Oceans																														
8.3 The Composition of Ocean Water																														
8.4 Ocean Acidification																														
8.5 Surface Fresh Water																														
8.6 Groundwater and Glaciers																					2.5	3.3	2.3				2.5			

MCCRS Correlation - Earth and Space Science

Alignment Rating Scale
0 - 2: Minimal (not shown)
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	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History											ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7	ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
8.7 Water Pollution																						3.0									
Chapter 9: Surface Processes (Part 1)																															
9.1 Sculpting Earth's Surface											2.5																2.3	3.0			
9.2 Weathering											2.5						4.0										2.7				
9.3 Soil: A Rich Resource																															
9.4 The Impact of Running Water																	3.0										2.5				
9.5 Glaciers: Earth's Bulldozers																															
Chapter 10: Surface Processes (Part 2)																															
10.1 Gravity and Mass Movement																												2.5			
10.2 Groundwater, Caves, and Caverns											2.3							4.0									2.5	2.3			
10.3 Wave Effects																															
10.4 Wind—Agent of Change																											3.5	3.0	2.3		
Chapter 11: The Atmosphere																															
11.1 The Atmosphere																											2.5				
11.2 Atmospheric Pressure																															
11.3 The Structure of the Atmosphere																															
11.4 The Great Oxygenation																							2.5	4.0			4.0	2.5			
11.5 The Greenhouse Effect																						2.5		3.0			4.0				
11.6 Temperature and Latitude																			2.7			3.0									
11.7 Seasons						3.0													3.0												
Chapter 12: Wind and Water on the Move																															
12.1 Wind and Wind Chill																												2.3			
12.2 Winds from Water																						4.0	3.5				2.5	2.5			
12.3 The World of Wind																						3.0	2.7				2.3				

MCCRS Correlation - Earth and Space Science

Alignment Rating Scale
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2: Partial
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	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History											ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7	ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
12.4 The Coriolis Effect																						3.0								
12.5 Ocean Currents Distribute Heat																					4.0	3.0				3.0				
12.6 Water in the Atmosphere																						2.7	2.5							
12.7 Changing Weather																							4.0			2.5				
Chapter 13: Environmental Geology																														
13.1 Earthquakes									2.5						3.0												3.0	4.0		
13.2 Tsunami															3.5												4.0	3.3		
13.3 Volcanoes											2.5				2.7							2.7				2.5	3.3	2.5		
13.4 Supervolcanoes															2.3												2.3	2.7		
13.5 Hurricanes																						2.3	2.7				4.0	2.8		
Chapter 14: Climate Dynamics																														
14.1 Earth's Climate Over Time															2.5							2.3		2.7	4.0	2.3	2.5	3.7			
14.2 Natural Climate Change						3.0													3.3		2.7	2.3		3.3			2.3	2.7			
14.3 Industrial Climate Change																								3.0			2.5				
14.4 Our Carbon Footprint																				4.0				4.0			3.8				
14.5 Climate Change Uncertainties																								2.3			4.0	2.5		4.0	
Chapter 15: The Solar System																														
15.1 Solar System Formation						3.0																								
15.2 Nebular Theory					4.0	2.5																								
15.3 Nebulae																														
15.4 The Sun				3.0		2.5																								
Chapter 16: The Inner Solar System																														
16.1 Mercury						3.0																								
16.2 Venus						3.5																2.3								

MCCRS Correlation - Earth and Space Science

Alignment Rating Scale
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	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History											ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7	ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
16.3 Earth																			4.0								2.5				
16.4 Earth's Moon						3.5																									
16.5 Lunar Phases						3.0																									
16.6 Eclipses						3.5																									
16.7 Mars						3.0																									
Chapter 17: The Outer Solar System																															
17.1 Jupiter						3.5																									
17.2 Saturn						2.5																									
17.3 Uranus and Neptune						2.5																									
17.4 The Asteroid Belt and Meteors						3.5																									
17.5 Failed Planet Formations						4.0																						2.3			
Chapter 18: Newton's Laws of Motion																															
18.1 Speed and Velocity																															
18.2 The Law of Inertia																															
18.3 Net Force																															
18.4 Support Force																															
18.5 Acceleration																															
18.6 Newton's Second Law																															
18.7 Free Fall																															
18.8 Interactions																															
18.9 Action and Reaction																															
Chapter 19: Gravity																															
19.1 Newton's Insights						2.5	2.5																								
19.2 Inverse-Square Law							2.5																								
19.3 The Mass of Earth							3.0																								

MCCRS Correlation - Earth and Space Science

Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History												ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7		ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
19.4 Projectile Motion																																
19.5 Satellites						2.5	2.5																									
19.6 Elliptical Orbits						3.0	4.0																									
19.7 Escape Speed																																
Chapter 20: Atoms and Light																																
20.1 The Submicroscopic																																
20.2 Elements and the Periodic Table																																
20.3 Temperature and Heat																																
20.4 Phases and Matter																																
20.5 The Atomic Nucleus																																
20.6 Protons and Neutrons																																
20.7 Light is Energy																																
20.8 Atomic Spectra																																
Chapter 21: Nuclear Energy																																
21.1 Unstable Nuclei																																
21.2 Radioactivity is Natural								2.5															2.5			2.5						
21.3 Imbalanced Forces																																
21.4 Transmutation																																
21.5 Radioactive Half-Life																																
21.6 Isotopic Dating														2.5														3.0				
21.7 Nuclear Fission																																
21.8 Mass and Energy																																
21.9 Nuclear Fusion				4.0																								2.3			2.3	
Chapter 22: Stars																																
22.1 Observing the Night Sky						2.5																										

MCCRS Correlation - Earth and Space Science

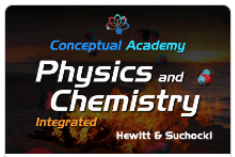
Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History												ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7	ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
22.2 The Light-Year																														
22.3 Brightness and Color		2.5																												
22.4 The Hertzsprung-Russell Diagram		4.0	3.3																											
22.5 The Life Cycles of Stars (Part 1)			3.7	3.0																										
22.6 The Life Cycles of Stars (Part 2)		3.5	3.7	3.5																										
Chapter 23: Superstars																														
23.1 Stellar Afterlives			3.7	3.0																										
23.2 Supernovae			4.0	3.0																										
23.3 Black Holes							2.5																							
23.4 Black Hole Geometry																														
Chapter 24: Galaxies																														
24.1 Galaxies	2.7																													
24.2 Elliptical, Spiral, and Irregular Galaxies																														
24.3 Active Galaxies																														
24.4 Clusters and Superclusters																														
Chapter 25: Relativity																														
25.1 General Relativity						2.5																								
25.2 The Principle of Equivalence																														
25.3 Tests of General Relativity						2.5																								
25.4 Special Relativity																														
25.5 Different Views of Spacetime																														
Chapter 26: Cosmology																														
26.1 Introduction to Cosmology	2.5																													
26.2 The Big Bang	3.7																													

MCCRS Correlation - Earth and Space Science

Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	ESS.1: Earth in the Universe							ESS.2: Earth Structure and History												ESS.3: Earth's Systems and Cycles								ESS.4: Earth's Resources & Human Activity				
	ESS.1A.1	ESS.1A.2	ESS.1A.3	ESS.1A.4	ESS.1B.1	ESS.1B.2	ESS.1B.3	ESS.2A.1	ESS.2A.2	ESS.2A.3	ESS.2A.4	ESS.2B.1	ESS.2B.2	ESS.2B.3	ESS.2B.4	ESS.2B.5	ESS.2B.6	ESS.2B.7	ESS.3.1	ESS.3.2	ESS.3.3	ESS.3.4	ESS.3.5	ESS.3.6	ESS.3.7	ESS.3.8	ESS.4.1	ESS.4.2	ESS.4.3	ESS.4.4	ESS.4.5
26.3 Cosmic Background Radiation	3.5																													
26.4 Big Bang Helium	2.8			2.5																										
26.5 Cosmic Inflation	4.0																													
26.6 Dark Matter						2.5																								
26.7 Dark Energy	3.0					2.5																								
26.8 The Fate of the Universe	2.5																													

Scope and Sequence: Physical Science

Conceptual Academy Physics and Chemistry Integrated is designed as an introductory-level program for a comprehensive course in physical science. Beginning with Newton's laws of motion, we explore momentum, energy, and heat then progress to electricity, magnetism, and waves. From there, the journey moves into the submicroscopic world of atoms, the periodic table, and how atoms bond to form molecules. We then examine solutions and chemical reactions, culminating in environmental science applications such as water quality, air pollution, climate, and sustainable energy.



About This Program

Chapter 01: About Science

Chapter 02: Newton's First Law

Chapter 03: Newton's Second Law

Chapter 04: Newton's Third Law

Chapter 05: Momentum

Chapter 06: Energy

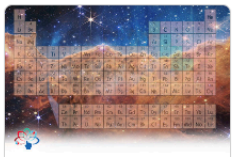
Chapter 07: Heat

Chapter 08: Electricity

Chapter 09: Magnetism

Chapter 10: Waves and Sound

Chapter 11: Light and Color

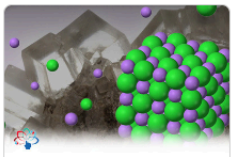


Chapter 12: Particles of Matter

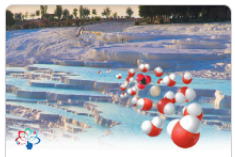
Chapter 13: Elements of Chemistry

Chapter 14: Subatomic Particles

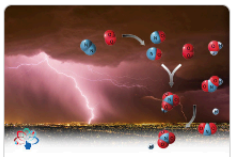
Chapter 15: The Atomic Nucleus



Chapter 16: How Atoms Bond

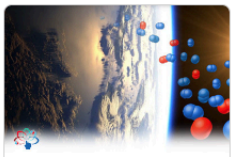


Chapter 17: How Molecules Mix



Chapter 18: Chemical Reactions

Chapter 19: Acid/Base and Redox



Chapter 20: Environmental Science

MCCRS Correlation - Physical Science

Alignment Rating Scale
0 - 2: Minimal (not shown)
2: Partial
3: Moderate
4: Extensive

	PHS.1: Nature of Matter						Atomic	PHS.3 Periodic Table					PHS.4: Law of Conserv of Matter and Energy						PHS.5: Netwon's Laws of Motion								PHS.6 Waves								PHS.7 Energy				PHS.8 Thermal Energy				PHS.9 Electricity			
	PHS.1.1	PHS.1.2	PHS.1.3	PHS.1.4	PHS.1.5	PHS.1.6	PHS.2.1	PHS.3.1	PHS.3.2	PHS.3.3	PHS.3.4	PHS.3.5	PHS.4.1	PHS.4.2	PHS.4.3	PHS.4.4	PHS.4.5	PHS.4.6	PHS.5.1	PHS.5.2	PHS.5.3	PHS.5.4	PHS.5.5	PHS.5.6	PHS.5.7	PHS.5.8	PHS.6.1	PHS.6.2	PHS.6.3	PHS.6.4	PHS.6.5	PHS.6.6	PHS.6.7	PHS.6.8	PHS.7.1	PHS.7.2	PHS.7.3	PHS.7.4	PHS.8.1	PHS.8.2	PHS.8.3	PHS.8.4	PHS.9.1	PHS.9.2	PHS.9.3	PHS.9.4
Chapter 1: About Science																																													
1.1 Understanding the Natural World																																													
1.2 Investigating the Sea Butterfly																																													
1.3 Science, Technology, and Risk																																													
1.4 Facts, Hypothesis, Law, Theory														3.0		3.0																													
1.5 Physics, Chemistry, and Biology																																													
1.6 Skepticism and Denialism																																													
1.7 Measuring with Units				4.0		3.0																																							
1.8 Scientific Notation																																													
1.9 Significant Figures																																													
Chapter 2: Newton's First Law																																													
2.1 Motion																			2.5																											
2.2 Speed and Velocity																			2.5	2.8	4.0																									
2.3 The Law of Inertia																			2.3																											
2.4 The Life of Isaac Newton																			2.7																											
2.5 Net Force																																													
2.6 Static Equilibrium																			3.0																											
2.7 Support Force																			3.5																											
2.8 Dynamic Equilibrium																			2.5	2.3																											
2.9 Moving Together																			2.5																											
Chapter 3: Newton's Second Law																																													
3.1 Acceleration																			3.5	3.0	2.5																											
3.2 Net Force Causes Acceleration																			4.0	4.0		2.5	2.3																									
3.3 Mass, Inertia, Volume, and Weight				4.0															3.0			4.0	3.0																									
3.4 Mass Resists Acceleration																			2.5	2.3		3.0	4.0																									
3.5 Newton's Second Law																			3.0	2.3		4.0																									
3.6 Friction																			3.0	2.5		3.0																									
3.7 Free Fall																			3.7	4.0		4.0	2.5																									
3.8 Falling through Air																			2.5	3.7		3.0	2.5																									
Chapter 4: Newton's Third Law																																													
4.1 Interactions																			2.7																											
4.2 Action and Reaction																			3.5																											
4.3 Different Masses																			3.0			4.0		2.5																									
4.4 Different Objects																			2.5																											
4.5 Horse-Cart Problem																			3.5	2.3		4.0				3.0																					
4.6 Action Equals Reaction																			3.0																											

MCCRS Correlation - Physical Science

Alignment Rating Scale
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2: Partial
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4: Extensive

	PHS.1: Nature of Matter						Atomic	PHS.3 Periodic Table					PHS.4: Law of Conserv of Matter and Energy						PHS.5: Netwon's Laws of Motion								PHS.6 Waves								PHS.7 Energy				PHS.8 Thermal Energy				PHS.9 Electricity			
	PHS.1.1	PHS.1.2	PHS.1.3	PHS.1.4	PHS.1.5	PHS.1.6	PHS.2.1	PHS.3.1	PHS.3.2	PHS.3.3	PHS.3.4	PHS.3.5	PHS.4.1	PHS.4.2	PHS.4.3	PHS.4.4	PHS.4.5	PHS.4.6	PHS.5.1	PHS.5.2	PHS.5.3	PHS.5.4	PHS.5.5	PHS.5.6	PHS.5.7	PHS.5.8	PHS.6.1	PHS.6.2	PHS.6.3	PHS.6.4	PHS.6.5	PHS.6.6	PHS.6.7	PHS.6.8	PHS.7.1	PHS.7.2	PHS.7.3	PHS.7.4	PHS.8.1	PHS.8.2	PHS.8.3	PHS.8.4	PHS.9.1	PHS.9.2	PHS.9.3	PHS.9.4
Chapter 5: Momentum																																														
5.1 Inertia in Motion																			3.0																													
5.2 Impulse																						2.5	4.0																									
5.3 Changing Momentum																			4.0	2.5			3.0	4.0																							
5.4 Bouncing																							3.0													2.5											
5.5 Momentum Conservation																			3.5				4.0	4.0																							
5.6 Collisions																			3.5	2.8				4.0											2.5			2.5								
Chapter 6: Energy																																														
6.1 Work and Power																			2.7						4.0										2.5											
6.2 Mechanical Energy																																			3.0											
6.3 Potential Energy																			3.0						4.0										3.0	3.0	4.0	3.0								
6.4 Kinetic Energy																				2.5					4.0												4.0									
6.5 Work-Energy Theorem																			2.5						2.5										3.3	3.0		3.0								
6.6 Conservation of Energy																																			4.0	3.5		3.3			2.5			2.3		
6.7 Machines																									2.7	4.0												4.0								
6.8 Efficiency																										4.0									3.5	4.0		4.0								
6.9 Energy Sources																																			3.0	3.0										
Chapter 7: Heat																																														
7.1 Thermal Energy	4.0	2.5																							2.3										3.5	2.5				3.0						
7.2 Temperature	2.5																																						4.0							
7.3 Absolute Zero	4.0	2.3		4.0																																			4.0	2.3						
7.4 Heat				4.0																															2.5			3.0			2.5					
7.5 Specific Heat		2.5																																	2.7						2.7					
7.6 Thermal Expansion	3.5																								2.5										3.0					3.5	2.5					
7.7 Conduction	2.5	3.0																																							4.0					
7.8 Convection	2.5																		2.5																3.0	3.0		3.0			4.0					
7.9 Radiation				2.5																							3.3		3.5			3.7			3.3	4.0		3.0			4.0					
Chapter 8: Electricity																																														
8.1 Electric Charge	2.5																																		3.0								2.3			
8.2 Coulomb's Law																																														
8.3 Electric Current from Voltage																																			3.0	3.0							2.3			
8.4 Electrical Resistance		2.5																																	2.5								3.5			
8.5 Electrical Shock																															2.5					2.3										
8.6 AC/DC																												2.5								2.5							2.5			
8.7 Series Circuits																																			2.5	3.0		3.0					3.0			
8.8 Parallel Circuits																									2.3																			4.0			

MCCRS Correlation - Physical Science

Alignment Rating Scale
0 - 2: Minimal (not shown)
2: Partial
3: Moderate
4: Extensive

	PHS.1: Nature of Matter						Atomic	PHS.3 Periodic Table					PHS.4: Law of Conserv of Matter and Energy						PHS.5: Netwon's Laws of Motion								PHS.6 Waves								PHS.7 Energy				PHS.8 Thermal Energy				PHS.9 Electricity			
	PHS.1.1	PHS.1.2	PHS.1.3	PHS.1.4	PHS.1.5	PHS.1.6	PHS.2.1	PHS.3.1	PHS.3.2	PHS.3.3	PHS.3.4	PHS.3.5	PHS.4.1	PHS.4.2	PHS.4.3	PHS.4.4	PHS.4.5	PHS.4.6	PHS.5.1	PHS.5.2	PHS.5.3	PHS.5.4	PHS.5.5	PHS.5.6	PHS.5.7	PHS.5.8	PHS.6.1	PHS.6.2	PHS.6.3	PHS.6.4	PHS.6.5	PHS.6.6	PHS.6.7	PHS.6.8	PHS.7.1	PHS.7.2	PHS.7.3	PHS.7.4	PHS.8.1	PHS.8.2	PHS.8.3	PHS.8.4	PHS.9.1	PHS.9.2	PHS.9.3	PHS.9.4
Chapter 9: Magnetism																																														
9.1 Magnetic Poles																																												3.0		
9.2 Magnetic Fields																														2.5														2.7		
9.3 Electromagnets																																			3.0								3.0		4.0	
9.4 Magnetic Forces																														2.5												2.7	4.0		
9.5 Induction																												3.0		3.0			2.4	4.0							2.5	4.0		
9.6 Power Production																			2.5														3.0	4.0	4.0								4.0		
9.7 Electromagnetic Waves																												3.0						3.0											
Chapter 10: Waves and Sound																																														
10.1 Vibrations and Waves																				2.5							3.5	3.7	3.0						2.5											
10.2 Wave Motion																											3.6	3.7	4.0																
10.3 Sound Waves	3.5																		2.5								3.6	2.5	4.0	4.0					2.5		2.5								
10.4 Reflection and Refraction																												2.5			4.0	3.0													
10.5 Forced Vibrations and Resonance																				2.3							4.0		4.0	2.5															
10.6 Wave Interference																											4.0	4.0	4.0	2.5	2.5														
10.7 The Doppler Effect																											4.0	2.3	4.0		4.0	2.3			2.5										
10.8 Bow and Shock Waves																			2.5	2.3							2.8	2.7	4.0		3.5	4.0													
Chapter 11: Light and Color																																													
11.1 Electromagnetic Spectrum																												2.5	3.0			4.0			2.5										
11.2 Transparency		3.3																	2.5								2.7	2.3	3.5			3.8		3.0	2.6	4.0		4.0			2.5				
11.3 Light Reflection																			3.5													2.7													
11.4 Light Refraction																				2.3							3.5		3.0									2.3						
11.5 Color		3.0																									3.5		2.5			2.5	4.0		2.5	2.3		3.0			3.0				
11.6 Mixing Colors																			2.5								2.3					3.3			3.0										
11.7 Colors of the Sky	2.3	2.3																	2.5													3.3			2.5	3.0		3.0							
Chapter 12: Particles of Matter																																														
12.1 The Submicroscopic	2.7			2.3																																									
12.2 Discovering the Atom	4.0	4.0					2.3							4.0																															
12.3 Mass and Volume		2.5		2.8																																									
12.4 Density: Mass to Volume	2.3	2.3		4.0	4.0	4.0																																							
12.5 Phases of Matter	4.0	2.5											2.5																											4.0						
12.6 Gas Laws	3.5	3.7			4.0	2.5							2.7																											4.0						
Chapter 13: Elements of Chemistry																																														
13.1 Physical and Chemical Properties	4.0	4.0	2.5										4.0																																	
13.2 Elements Are Made of Atoms	2.5	3.0						3.0																																					

MCCRS Correlation - Physical Science

Alignment Rating Scale
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	PHS.1: Nature of Matter						Atomic	PHS.3 Periodic Table					PHS.4: Law of Conserv of Matter and Energy						PHS.5: Netwon's Laws of Motion								PHS.6 Waves								PHS.7 Energy				PHS.8 Thermal Energy				PHS.9 Electricity			
	PHS.1.1	PHS.1.2	PHS.1.3	PHS.1.4	PHS.1.5	PHS.1.6	PHS.2.1	PHS.3.1	PHS.3.2	PHS.3.3	PHS.3.4	PHS.3.5	PHS.4.1	PHS.4.2	PHS.4.3	PHS.4.4	PHS.4.5	PHS.4.6	PHS.5.1	PHS.5.2	PHS.5.3	PHS.5.4	PHS.5.5	PHS.5.6	PHS.5.7	PHS.5.8	PHS.6.1	PHS.6.2	PHS.6.3	PHS.6.4	PHS.6.5	PHS.6.6	PHS.6.7	PHS.6.8	PHS.7.1	PHS.7.2	PHS.7.3	PHS.7.4	PHS.8.1	PHS.8.2	PHS.8.3	PHS.8.4	PHS.9.1	PHS.9.2	PHS.9.3	PHS.9.4
13.3 The Periodic Table		3.3						4.0	2.5																																					
13.4 Elements to Compounds		4.0						2.3	2.3																																					
13.5 Naming Compounds		2.3	2.5					3.5	4.0	4.0	4.0																																			
13.6 Most Materials Are Mixtures	4.0	3.5		2.5									2.3																																	
13.7 Classifying Matter	2.3	2.8	4.0	2.7																																									
13.8 The Advent of Nanotechnology																				2.5																											
Chapter 14: Subatomic Particles																																														
14.1 Physical and Conceptual Models	3.5	3.0																																											
14.2 The Electron		2.3		2.3					3.0																																					
14.3 The Atomic Nucleus	2.5	3.0					4.0																																						
14.4 Protons and Neutrons	2.5						4.0	3.0				3.0																																			
14.5 Light Is a Form of Energy																											2.5	3.0			2.7			2.5											
14.6 Atomic Spectra and the Quantum		3.5	2.7				2.3						2.3													3.0		3.5			3.0		2.5	2.7	2.5		2.3								
14.7 Electrons Exhibit Wave Properties							3.0																			2.5	2.5	4.0			2.5		4.0												
14.8 The Shell Model	3.0	2.7					4.0	3.5																																					
14.9 Understanding Periodic Trends		3.7					3.0	3.4	2.7																																					
Chapter 15: The Atomic Nucleus																																														
15.1 Unstable Nuclei																	2.3																													
15.2 Radioactivity Is Natural																	2.3																													
15.3 An Imbalance of Forces	3.0						2.5																																						
15.4 Transmutation								3.0						3.0																																
15.5 Radioactive Half-Life																																													
15.6 Isotopic Dating																																													
15.7 Nuclear Fission		2.3															4.0	4.0																												
15.8 Mass and Energy																	3.3	3.0																												
15.9 Nuclear Fusion		2.3												3.0			3.2	4.0																												
Chapter 16: How Atoms Bond																																														
16.1 Electron-Dot Structures									2.3																																					
16.2 Ion Formation	3.0	2.3						3.2	3.0																																					
16.3 Ionic Bonds	2.5	3.7						2.3	4.0	2.7	2.5																																			
16.4 Metallic Bonds	3.3	4.0																																												
16.5 Covalent Bonds	2.3	2.7						2.3	4.0		2.5																																			
16.6 Molecular Shape		2.5					2.5		2.3																																					
16.7 Polar Covalent Bonds	3.0	2.5						2.2	3.3																																					
16.8 Molecular Polarity	2.5	2.7							3.0																																					
Chapter 17: How Molecules Mix																																														

MCCRS Correlation - Physical Science

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	PHS.1: Nature of Matter						Atomic	PHS.3 Periodic Table					PHS.4: Law of Conserv of Matter and Energy						PHS.5: Netwon's Laws of Motion								PHS.6 Waves								PHS.7 Energy				PHS.8 Thermal Energy				PHS.9 Electricity			
	PHS.1.1	PHS.1.2	PHS.1.3	PHS.1.4	PHS.1.5	PHS.1.6	PHS.2.1	PHS.3.1	PHS.3.2	PHS.3.3	PHS.3.4	PHS.3.5	PHS.4.1	PHS.4.2	PHS.4.3	PHS.4.4	PHS.4.5	PHS.4.6	PHS.5.1	PHS.5.2	PHS.5.3	PHS.5.4	PHS.5.5	PHS.5.6	PHS.5.7	PHS.5.8	PHS.6.1	PHS.6.2	PHS.6.3	PHS.6.4	PHS.6.5	PHS.6.6	PHS.6.7	PHS.6.8	PHS.7.1	PHS.7.2	PHS.7.3	PHS.7.4	PHS.8.1	PHS.8.2	PHS.8.3	PHS.8.4	PHS.9.1	PHS.9.2	PHS.9.3	PHS.9.4
17.1 Dipole Attractions	3.5	2.3							3.3																																					
17.2 Solutions	4.0	3.3	2.7										2.5																														2.5			
17.3 Concentration and the Mole	2.5	2.7		2.5																																									
17.4 Solubility	4.0	2.5	2.7	2.5					2.3		2.3																																			
17.5 How Soap Works	2.5	2.5							2.7																																					
17.6 Softening Hard Water	3.5	2.5						2.3	2.5																																					
17.7 Purifying Drinking Water		2.5											2.3																																	
Chapter 18: How Chemicals React																																														
18.1 Chemical Equations														4.0	4.0	2.3																														
18.2 Measuring Molecules	3.0	2.3		2.3					2.3			3.0				3.0																														
18.3 Grams to Moles				2.7						2.7		4.0		3.5	2.5	4.0																														
18.4 Exothermic or Endothermic		2.3							2.3																																		4.0			
18.5 Entropy and Chemical Reactions																																													
18.6 Chemical Catalysts		2.3																																											
Chapter 19: Acid/Base and Redox																																														
19.1 Exchanging Protons		2.3									4.0		2.3																																
19.2 Acid and Base Strength	3.5	2.8	3.0								2.7																																2.5			
19.3 Acidic, Basic, or Neutral		2.3																																										
19.4 Rainwater Is Acidic		3.0									2.7																																		
19.5 Ocean Acidification		2.3									2.3		2.3																																
19.6 Exchanging Electrons		3.3							2.7				2.5																																
19.7 Electrochemistry		2.4																																									2.3			
19.8 Types of Batteries		2.8							2.3					3.0																														3.0	2.3	4.0	
19.9 Fuel Cells		2.5																																									2.5	2.5		
19.10 Photovoltaics	3.0	2.3					2.5		3.0																																		3.0			4.0
19.11 Electrolysis		2.5						2.3		2.5	2.5																																	2.5		4.0	
19.12 Corrosion and Combustion		3.0							3.0				2.3																																	
Chapter 20: Environmental Science																																														
20.1 Water on the Move																																														
20.2 Water We Consume				2.5																																									
20.3 Polluting Water		2.3																																											
20.4 Earth's Atmosphere	3.0	3.3																																											
20.5 How We Pollute Air																																													
20.6 Global Warming																																													
20.7 Energy through Electricity																																												2.5	2.3		
20.8 Fossil Fuels	3.3	2.3																																											
20.9 The Nuclear Industry																																													

MCCRS Correlation - Physical Science

Alignment Rating Scale 0 - 2: Minimal (not shown) 2: Partial 3: Moderate 4: Extensive	PHS.1: Nature of Matter						Atomic	PHS.3 Periodic Table					PHS.4: Law of Conserv of Matter and Energy						PHS.5: Netwon's Laws of Motion								PHS.6 Waves								PHS.7 Energy				PHS.8 Thermal Energy				PHS.9 Electricity			
	PHS.1.1	PHS.1.2	PHS.1.3	PHS.1.4	PHS.1.5	PHS.1.6	PHS.2.1	PHS.3.1	PHS.3.2	PHS.3.3	PHS.3.4	PHS.3.5	PHS.4.1	PHS.4.2	PHS.4.3	PHS.4.4	PHS.4.5	PHS.4.6	PHS.5.1	PHS.5.2	PHS.5.3	PHS.5.4	PHS.5.5	PHS.5.6	PHS.5.7	PHS.5.8	PHS.6.1	PHS.6.2	PHS.6.3	PHS.6.4	PHS.6.5	PHS.6.6	PHS.6.7	PHS.6.8	PHS.7.1	PHS.7.2	PHS.7.3	PHS.7.4	PHS.8.1	PHS.8.2	PHS.8.3	PHS.8.4	PHS.9.1	PHS.9.2	PHS.9.3	PHS.9.4
20.10 Sustainable Energy Sources																																												
20.11 Hydroelectricity																																											2.7		
20.12 Biomass Is Chemical Energy																																												
20.13 Direct Solar Energy				2.5																																						2.5		
20.14 Hydrogen Fuel																																										3.0	2.3		

Scope and Sequence: Physics

This program takes a conceptual approach to physics at an introductory level, building on the legacy of Paul Hewitt's acclaimed Conceptual Physics curriculum now tailored specifically for high school students. Beginning with Newton's laws of motion, we explore momentum, energy, and gravity—laying the groundwork for understanding fluid mechanics and heat. From there, the journey moves into electricity and magnetism, waves and sound, and the fascinating behavior of light, culminating in atomic structure and nuclear energy. Physics concepts connect to real-world phenomena and everyday experiences.

About this Program

Chapter 00: About Science - Introduction

Chapter 01: Newton's First Law

Chapter 02: Newton's Second Law

Chapter 03: Newton's Third Law

Chapter 04: Momentum

Chapter 05: Energy

Chapter 06: Gravity

Chapter 07: Fluid Mechanics

Chapter 08: Heat

Chapter 09: Electricity

Chapter 10: Magnetism

Chapter 11: Waves and Sound

Chapter 12: Light and Color

Chapter 13: Light Properties

Chapter 14: The Atom

Chapter 15: Nuclear Energy

MCCR Standards Correlation - Physics

Alignment Rating Scale
0 - 2: Minimal (not shown)
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	PHY.1: 1-D Motion								PHY.2: Newton's Laws										PHYS.3 Work and Energy										PHY.4 Waves												PHY.5 Electricity and Magnetism									PHY.6 Nuclear Physics			
	PHY.1.1	PHY.1.2	PHY.1.3	PHY.1.4	PHY.1.5	PHY.1.6	PHY.1.7	PHY.1.8	PHY.2.1	PHY.2.2	PHY.2.3	PHY.2.4	PHY.2.5	PHY.2.6	PHY.2.7	PHY.2.8	PHY.2.9	PHY.2.10	PHY.2.11	PHY.3.1	PHY.3.2	PHY.3.3	PHY.3.4	PHY.3.5	PHY.3.6	PHY.3.7	PHY.3.8	PHY.3.9	PHY.3.10	PHY.3.11	PHY.4.1	PHY.4.2	PHY.4.3	PHY.4.4	PHY.4.5	PHY.4.6	PHY.4.7	PHY.4.8	PHY.4.9	PHY.4.10	PHY.4.11	PHY.4.12	PHY.5.1	PHY.5.2	PHY.5.3	PHY.5.4	PHY.5.5	PHY.5.6	PHY.5.7	PHY.5.8	PHY.5.9	PHY.6.1	PHY.6.2	PHY.6.3	PHY.6.4
Chapter 0: About Science																																																					
0.1 Copernicus and Galileo																																																					
0.2 Scientific Methods																																																					
0.3 Scientific Hypotheses																																																					
0.4 Scientific Attitude																																																					
0.5 Science and Technology																																																					
0.6 Skepticism and Denialism																																																					
Chapter 1: Newton's First Law																																																					
1.1 Motion	2.3				2.3				2.3	2.5				3.0	2.5	3.0																																						
1.2 Speed and Velocity	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0																																												
1.3 The Law of Inertia					2.5				2.5						3.5																																						
1.4 The Life of Isaac Newton																																																					
1.5 Net Force				4.0					2.5		3.0						2.5																																					
1.6 Static Equilibrium									4.0	2.5	4.0			4.0	2.8		3.0																																						
1.7 Support Force									2.3	2.5				4.0	3.0		3.0																																					
1.8 Dynamic Equilibrium					2.3				2.3					4.0	2.5																																						
1.9 Moving Together															3.0																																						
1.10 More on Vectors											4.0	3.0																																								
Chapter 2: Newton's Second Law																																																					
2.1 Acceleration	2.7			4.0	4.0	2.5	4.0										2.3																																				
2.2 Net Force Causes Acceleration					4.0				2.3						2.5																																					
2.3 Mass, Inertia, Volume, and Weight					2.5				2.7						3.3																																					
2.4 Mass Resists Acceleration															2.5																																					
2.5 Newton's Second Law					3.0				4.0	2.5			4.0	2.5	2.5																																					
2.6 Friction	2.5				2.3				4.0	4.0	4.0			3.0	3.3	4.0	4.0																																				
2.7 Free Fall	2.5	4.0		4.0	4.0				4.0	2.5	2.5		2.7	2.3	3.0	2.5	2.5	3.0																																			
2.8 Falling through Air	2.7	4.0			3.7	2.3	4.0		4.0	2.5				2.7	3.0			2.3																																				
Chapter 3: Newton's Third Law																																																					
3.1 Interactions									2.7	4.0				4.0	3.0		3.0																																					
3.2 Action and Reaction									4.0					4.0	3.8		3.0																																				
3.3 Different Masses					2.5				4.0		2.5		3.0	2.7	3.7			3.0																																				
3.4 Different Objects									2.3						2.5																																					
3.5 Horse-Cart Problem					3.0				4.0	4.0	4.0		4.0	4.0	3.3		4.0																																				
3.6 Action Equals Reaction					2.5				4.0					2.4	3.0		3.0																																				
Chapter 4: Momentum																																																						
4.1 Inertia in Motion															3.0																																					
4.2 Impulse			2.5		2.3				2.5				3.0								4.0		4.0																														
4.3 Changing Momentum					2.7				2.5				2.3	2.3	2.8						4.0	3.0																														
4.4 Bouncing									3.0				2.5		3.0																																				
4.5 Momentum Conservation									4.0						3.7						4.0																														
4.6 Collisions	3.5		2.3		2.5	2.3	4.0						2.3		3.3					2.5	4.0		4.0																														

MCCR Standards Correlation - Physics

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	PHY.1: 1-D Motion								PHY.2: Newton's Laws											PHYS.3 Work and Energy											PHY.4 Waves												PHY.5 Electricity and Magnetism									PHY.6 Nuclear Physics			
	PHY.1.1	PHY.1.2	PHY.1.3	PHY.1.4	PHY.1.5	PHY.1.6	PHY.1.7	PHY.1.8	PHY.2.1	PHY.2.2	PHY.2.3	PHY.2.4	PHY.2.5	PHY.2.6	PHY.2.7	PHY.2.8	PHY.2.9	PHY.2.10	PHY.2.11	PHY.3.1	PHY.3.2	PHY.3.3	PHY.3.4	PHY.3.5	PHY.3.6	PHY.3.7	PHY.3.8	PHY.3.9	PHY.3.10	PHY.3.11	PHY.4.1	PHY.4.2	PHY.4.3	PHY.4.4	PHY.4.5	PHY.4.6	PHY.4.7	PHY.4.8	PHY.4.9	PHY.4.10	PHY.4.11	PHY.4.12	PHY.5.1	PHY.5.2	PHY.5.3	PHY.5.4	PHY.5.5	PHY.5.6	PHY.5.7	PHY.5.8	PHY.5.9	PHY.6.1	PHY.6.2	PHY.6.3	PHY.6.4
Chapter 5: Energy																																																							
5.1 Work and Power																				4.0		3.0																																		
5.2 Mechanical Energy																				3.0		3.0																																		
5.3 Potential Energy																4.0				4.0		4.0																																		
5.4 Kinetic Energy																				2.5		3.5																																		
5.5 Work-Energy Theorem																				4.0		4.0																																		
5.6 Conservation of Energy																				4.0		3.5																																		
5.7 Machines																				4.0		4.0						4.0																												
5.8 Efficiency																				3.7		4.0						4.0	4.0																												
5.9 Energy Sources																																																							
Chapter 6: Gravity																																																							
6.1 Newton's Insights										2.5					2.3			2.3	2.5																																						
6.2 Inverse-Square Law									3.0					2.5				4.0													2.5																									
6.3 The Mass of Earth									2.8					2.5				4.0																																						
6.4 Projectile Motion										2.5		4.0			3.7			2.3																																						
6.5 Satellites									2.5	3.7		4.0			2.3		2.5	2.5	4.0																																						
6.6 Elliptical Orbits												4.0						2.5	4.0																																				
6.7 Escape Speed												2.3						2.3	4.0																																				
Chapter 7: Fluid Mechanics																																																						
7.1 Density and Pressure																																																							
7.2 Pressure in a Fluid									2.3					2.3	2.3																																								
7.3 Buoyancy in a Liquid									2.5					2.3	3.3																																								
7.4 Flotation									2.5					2.5																																								
7.5 Gas Pressure									2.3																		4.0																											
7.6 The Atmosphere									2.5					2.5																																								
7.7 Barometers									2.3					4.0																																								
7.8 Pascal's Principle														2.5																																							
7.9 Buoyancy in a Gas									2.3					2.3	2.5																																							
Chapter 8: Heat																																																							
8.1 Thermal Energy																				2.3				2.3	3.3			3.0																												
8.2 Temperature																									2.5																																
8.3 Absolute Zero																								2.3	4.0																														
8.4 Heat																				2.3				4.0	4.0	4.0	4.0																												
8.5 Entropy																								3.5	3.0		3.0																												
8.6 Specific Heat																				2.3				3.3	3.0	4.0																												
8.7 Thermal Expansion																								2.3	3.3																												
8.8 Conduction																								3.3	2.5																												
8.9 Convection																								3.3	3.0			3.0																										
8.10 Radiation																				2.5				3.3	2.3						3.0								4.0	2.5		2.5												
Chapter 9: Electricity																																																						
9.1 Electric Charge																																															4.0										
9.2 Coulomb's Law																																													2.5	4.0	4.0								

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	PHY.1.1	PHY.1.2	PHY.1.3	PHY.1.4	PHY.1.5	PHY.1.6	PHY.1.7	PHY.1.8	PHY.2.1	PHY.2.2	PHY.2.3	PHY.2.4	PHY.2.5	PHY.2.6	PHY.2.7	PHY.2.8	PHY.2.9	PHY.2.10	PHY.2.11	PHY.3.1	PHY.3.2	PHY.3.3	PHY.3.4	PHY.3.5	PHY.3.6	PHY.3.7	PHY.3.8	PHY.3.9	PHY.3.10	PHY.3.11	PHY.4.1	PHY.4.2	PHY.4.3	PHY.4.4	PHY.4.5	PHY.4.6	PHY.4.7	PHY.4.8	PHY.4.9	PHY.4.10	PHY.4.11	PHY.4.12	PHY.5.1	PHY.5.2	PHY.5.3	PHY.5.4	PHY.5.5	PHY.5.6	PHY.5.7	PHY.5.8	PHY.5.9	PHY.6.1	PHY.6.2	PHY.6.3	PHY.6.4
9.3 Electric Current from Voltage																																									4.0		4.0	3.0							
9.4 Electrical Resistance																																									3.0		4.0	2.8							
9.5 Electrical Shock																																									4.0		3.3	2.3							
9.6 AC/DC																																									2.5		2.5								
9.7 Series Circuits																																											2.8	4.0		4.0			3.5			
9.8 Parallel Circuits																																									3.0		3.3	4.0		4.0			3.3			
Chapter 10: Magnetism																																																				
10.1 Magnetic Poles																																									4.0				4.0							
10.2 Magnetic Fields																																													4.0							
10.3 Electromagnets																																									4.0				4.0		2.5	4.0			
10.4 Magnetic Forces									3.0																																4.0				4.0		4.0	2.5			
10.5 Electromagnetic Induction																																									4.0		2.3		2.3		4.0				
10.6 Power Production																																									3.0			2.5			4.0	2.3			
10.7 Electromagnetic Waves																																									4.0										
Chapter 11: Waves and Sound																																																				
11.1 Vibrations and Waves																														4.0	4.0	4.0	3.0	4.0																			
11.2 Wave Motion																														2.8	4.0	2.8	2.5	4.0																			
11.3 Sound Waves																											3.0			3.0	3.0	4.0	4.0	4.0																			
11.4 Reflection and Refraction																														3.0	3.0																						
11.5 Forced Vibrations and Resonance																														3.0	4.0	2.7																						
11.6 Wave Interference																														4.0	4.0			3.0																			
11.7 The Doppler Effect																														3.0	3.0	4.0			4.0																			
11.8 Bow and Shock Waves																														3.3	3.3	2.4	2.5		2.5																			
Chapter 12: Light and Color																																																				
12.1 Electromagnetic Spectrum																														3.0		2.7					4.0					4.0										
12.2 Transparency																														3.3		3.0	2.7			2.5		4.0	2.5													
12.3 Light Reflection																														4.0						4.0	4.0														
12.4 Light Refraction																														3.5						4.0	4.0														
12.5 Color																														3.3								2.5													
12.6 Mixing Colors																														4.0																					
12.7 Colors of the Sky																														3.0		2.5										3.0									
Chapter 13: Light Properties																																																			
13.1 Rainbows																														4.0					2.5																
13.2 Lenses																														4.0																					
13.3 Image Formation																														4.0						2.3													
13.4 Light Diffraction																														2.8		2.5																			
13.5 Light Interference																														3.3		3.0	2.5					2.5											
13.6 Light Polarization																														3.0																					
13.7 Wave-Particle																														4.0								2.3		4.0	2.5	3.0							
Chapter 14: The Atom																																																			
14.1 Discovering Atoms																																																			

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	PHY.1.1	PHY.1.2	PHY.1.3	PHY.1.4	PHY.1.5	PHY.1.6	PHY.1.7	PHY.1.8	PHY.2.1	PHY.2.2	PHY.2.3	PHY.2.4	PHY.2.5	PHY.2.6	PHY.2.7	PHY.2.8	PHY.2.9	PHY.2.10	PHY.2.11	PHY.3.1	PHY.3.2	PHY.3.3	PHY.3.4	PHY.3.5	PHY.3.6	PHY.3.7	PHY.3.8	PHY.3.9	PHY.3.10	PHY.3.11	PHY.4.1	PHY.4.2	PHY.4.3	PHY.4.4	PHY.4.5	PHY.4.6	PHY.4.7	PHY.4.8	PHY.4.9	PHY.4.10	PHY.4.11	PHY.4.12	PHY.5.1	PHY.5.2	PHY.5.3	PHY.5.4	PHY.5.5	PHY.5.6	PHY.5.7	PHY.5.8	PHY.5.9	PHY.6.1	PHY.6.2	PHY.6.3	PHY.6.4
14.2 Evidence for Atoms																																																						
14.3 The Periodic Table																																																						
14.4 Subatomic Particles																																																					2.5	2.5		
14.5 Isotopes																																																				3.8	4.0		
14.6 Atomic Mass																																																				2.3	2.3		
14.7 Electron Shells																																																							
14.8 Atomic Spectra																														4.0									3.0	2.7	2.7																
14.9 Electron Waves																														2.5										2.5																
14.10 Physical and Conceptual Models																																																						
14.11 Quantum Phenomenon																																																						
Chapter 15: Nuclear Energy																																																						
15.1 Unstable Nuclei																																																					3.8	2.5		
15.2 Radioactivity Is Natural																																																				4.0			
15.3 Imbalance Forces																																																				3.8	3.0		
15.4 Transmutation																																																				4.0	4.0	4.0	
15.5 Radioactive Half-Life																																																				3.0			4.0
15.6 Isotopic Dating																																																				4.0	2.5	2.3	4.0
15.7 Nuclear Fission																																																				3.8			
15.8 Mass and Energy																																																				4.0			
15.9 Nuclear Fusion																																																				4.0			